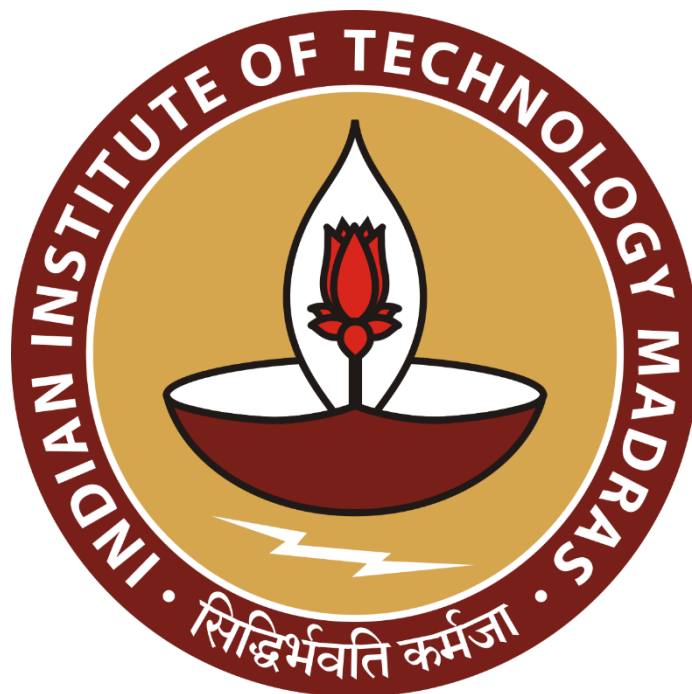# Streamlining Inventory and Logistics: A Data-Driven Approach for New Agarwal Footwear

A Proposal report for the BDM capstone Project

Submitted by

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1   Executive Summary and Title

The project focuses on New Agarwal Footwear, a footwear shop located at 29, PAC road, Kanpur, UP. This Business operates on B2C model & deals in wide range of footwear products.

New Agarwal Footwear grapples with inventory complexities, particularly during wedding and festival seasons, necessitating the management of dual SKUs. Additionally, the shop faces the challenge of product spoilage, leading to a higher rate of customer returns. Moreover, the cost of transporting footwears from outer states adds a significant burden to the budget. Resolving these issues is vital for improving inventory efficiency, reducing returns, and optimizing transportation costs, ultimately enhancing the shop's overall profitability and customer satisfaction.

The issues will be addressed by using forecasting models, Quality control analysis, data visualization and statistical analysis. For analyzing sales data identifying demand patterns and forecast future customer demands.

Implementing data analysis tools enables New Agarwal Footwear to gain insights into inventory management, product quality and transportation optimization. This data driven approach empowers informed decisions, addressing identified challenges to improve business & enhance operational efficiency.

The expected outcomes of addressing the inventory and transportation challenges for new Agrawal footwear include improved customer satisfaction, optimize inventory management, and reduced operation cost for enhanced profitability.

2   Organization Background

New Agarwal footwear is a small business situated at 29 Pac Road Kanpur, Uttar Pradesh. 208007. It operates on B2C model founded in 2016. It is owned by Mr. Nagesh Agarwal Who manages the day-to-day operations with two dedicated workers, Karan Agrawal and Vivek Kumar Meena, who assist in various aspects of the business. The shop offers an extensive range of footwear products from renowned brands such as a Sparks, Puma, PU, Campus and many more. Collection includes casual shoes, pore shoes, formal shoes, sandals, along with accessories like shoelace and socks. With a focus on serving the local community. New Agrawal footwear is committed to providing high quality products, exception customer service and competitive prices.

Since its establishment, New Agarwal Footwear has gradually built a fair customer base and aims to expand its reach while continuing to deliver exceptional products and services to customers in Kanpur and surrounding areas.

3   Problem Statement (Listed as objectives) (50-75 Words)

1.

3.1   Problem statement 1: The existing inventory management system at New Agarwal footwear lacks efficiency, resulting in excess unsold stock & the need to maintain dual SKUs during peak seasons, impacting profitability.

3.2   Problem statement 2: The transportation process at New Agarwal footwear faces challenges, including high cost and inefficiencies, from other states impacting the overall budget.

3.3   Problem statement 3: Inadequate quality control at New Agarwal footwear leads to footwear's getting damaged shortly after purchase, resulting in customer dissatisfaction & increased returns.

4   Background of the Problem

New Agarwal footwear, a retail business has been struggling with several operational challenges that have impacted its efficiency and profitability. The three major problem areas include inventory management, transportation and quality control.

The Major causes of excess unsold stock at New Agarwal footwear include inaccurate demand forecasting, lack of real-time sales data, ineffective inventory planning, seasonal fluctuations and inefficient product assortment. These factors led to higher inventory levels, resulting in financial losses and resource tie-up.

The Primary causes contributing to a transportation process problem at New Agarwal footwear include inefficient road planning, high transportation costs, limited career options, inadequate tracking and visibility and ineffective supply chain integration. These factors result in delays increased expenses and disruption receiving products from outer states impacting the overall budget and operational efficiency in the business.

The Root cause of inadequate quality control at New Agarwal. Footwear includes insufficient inspection processes and quality control measures These factors contribute to customer receiving damaged footwear shortly after purchase this leading to increase returns and customer dissatisfaction by improving inspection procedures, implementing structural quality control measure and enhancing product durability. The business aims to reduce returns and enhance customer satisfaction.

5   Problem Solving Approach

The problem solving approach for addressing the inventory management, transportation and quality control issues at New Agarwal footwear print involve the implementation of various analytical approaches and data driven strategies. The following are the key components of the problem solving approach.

1. Data analysis and forecasting: Historical sales data will be analyzed using statistical analysis techniques such as time series analysis and regression analysis. These methods will help identify demand patterns and forecast future demand, particularly during peak seasons. This analysis will aid in improving inventory management and optimizing stock levels.
2. Inventory optimization: Advanced inventory optimization algorithms will be employed, including ABC analysis, economic order quantity and just in time principles. These tools will help determine optimal stock levels, reduce excess inventory and minimize stockouts, improving overall inventory management efficiency.
3. Quality control measures: To address the issue of inadequate quality control, robust quality control processes will be implemented through inspection procedures, sample testing and alert to industry standards will be keen elements, statistical process control techniques such as control charts and process capability analysis will be utilized to monitor and maintain consistent product quality.
4. Transportation optimization: The transportation process will be optimized using route optimization algorithm and logistic software. These tools will help identify the most efficient transportation rules. Minimize cost and improve overall logistic performance. Negotiating with transportation providers and exploring alternative carriers will also be considered to enhance transportation operations.

To support the analysis and decision-making process, data analytical tools such as Microsoft Excel, statistical software packages (R, Python) and data visualization tool like tableau, power BI will be utilized. These tools enable effective data analysis, modeling and visualization, providing insights into inventory management, demand forecasting, quality control and transportation optimization.

By leveraging these data analytical tools and implementing the aforementioned approaches. New Agrawal footwear can improve operational efficiency, reduce cost, enhance product quality and ultimately achieve greater customer satisfaction and profitability.

6 Expected Timeline

6.1 Work Breakdown Structure:
- Had discussed with the owner about the operations, products, etc.
- Data from April, May, June will be collected by or before July 2nd 2022.
- Develop strategies to address problems.
- The analysis will be completed by 20th. July 2022.
- Evaluation and reporting is targeted for 30th July 2022.

6.2 Gantt chart

Figure 1 Expected timeline for completion of project.

7   Expected Outcome

7.1   Enhanced inventory management: The implementation of data driven inventory management techniques, including demand forecasting and inventory optimization, is expected to result in improved inventory control. This will lead to optimize stock levels, reduce excess inventory, minimize stockouts and increased overall . Operation efficiency.

7.2   Improved product quality and customer satisfaction: By implementing robust quality control measures. The business will enhance product quality and reduce instances of damaged or defective footwear. This will result in increased customer satisfaction, reduce returns and improve brand reputation.

7.3   Streamlined The optimization of transportation processes through route planning algorithms, negotiation with carriers and the use of logistics software is anticipated to lead to improve transportation efficiency. This will result in reduced transportation costs, timely delivery of products and enhanced overall supply chain performance. transportation and cost savings: