

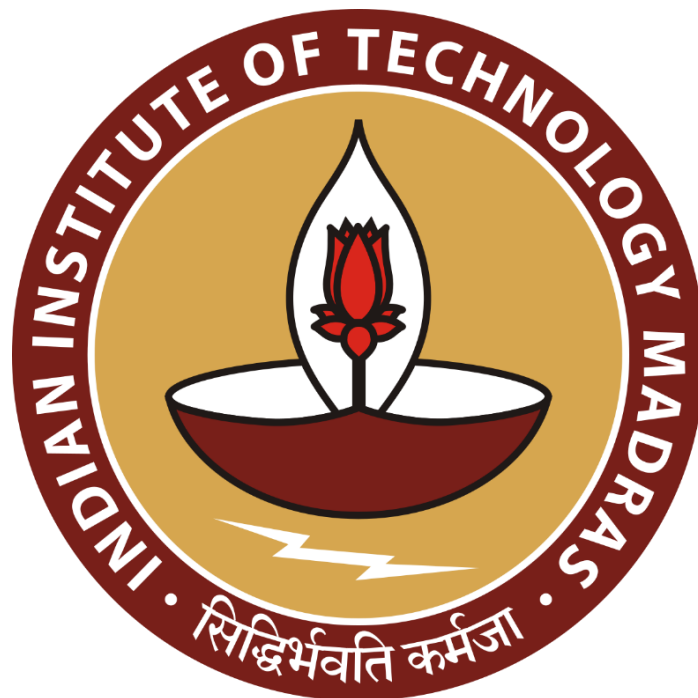
# **Enhancing Mill Efficiency through Data-Driven Insights**

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

Submitted by

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## **1 Executive Summary and Title**

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The Business Data Management Capstone Project is a component of the Diploma in Data Science program at IIT Madras. The project centers around a Milling Business in Kanchipuram, Tamil Nadu. The intent of this project is to figure out the company's present difficulties by acquiring vital data from the Manager in charge. The project utilizes the use of data obtained from "Subha Sree Rice Mill" that would establish an extensive approach.

The Business operates as B2B firm that specializes in majority of rice and minority of dal processing and distribution. The chosen rice mill, with contrast to many other rice mills, has a relatively limited expansion potential.

The Business is experiencing facing difficulties in optimizing its manufacturing process and effectively addressing supplier requirements. The primary challenge this company currently faces is an acute lack of effective workflows, which causes delays in rice processing and packaging. To deal with such challenges the Rice mill seeks to figure out effective solutions to improve its productivity, inventory management and handling of orders. These issues will be addressed by the implementation of statistical analytics strategies such as applying in-depth economic research, establishing data purification processes and evaluating sales and purchase data.

## **2 Organization Background**

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Subha Sree Rice Mill is a well-known milling facility situated in the hub of the agricultural sector in Kanchipuram, Tamil Nadu. It was established in 2018. The mill, which was established by Mr. Purushothaman S., specializes in the processing of rice and dal and meets the various demands of its customers. The mill produces several types of rice and dals, including Basmati rice, Long-grain rice, Parboiled rice, Toor dal, Urad dal, and Chana dal. The company is classified as a small and medium-scale enterprise generating about 15 lakhs in revenue annually. At the moment, the mill employs five hardworking people, paying each one a salary of 11,000 a month. The group of experts contributes to the mill's operations in a variety of ways, including grinding, packing, quality control, and administrative duties.

## **3 Problem Statement**

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The company is currently facing the following issues:

- 3.1 **Inventory management:** It struggles with handling the inventory adequately, resulting in surplus stock or stock-outs.
- 3.2 **Supplier Evaluation:** It encounters challenges in evaluating the performance of suppliers based on the purchase quantities, delivery times and pricing.
- 3.3 **Production Planning:** The company's production planning for different rice and dal varieties may not be optimal, resulting in ramped up production during low demand periods and less production during high demand times.

## **4 Background of the Problem**

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Problems faced by Subha Sree Rice Mill, along with the factors influencing these problems, are outlined below:

### **Inventory Management:**

The Mill faces difficulties with inventory control and demand forecasts. Inaccuracies in stock tracking and challenges in estimating demand result from the incomplete tracking of inbound items and stock registers. This may lead to problems with raw material overstocking or understocking. The company is not aware of quick and slow moving rice and dal varieties which leads to the storage of less in-demand products.

### **Accounts and Orders:**

The company's reliance on manual filing and failure to keep supplier records and order registers contribute to the inefficiencies. The company fails to maintain accurate and up-to-date financial records. The Manual accounting procedures may result in mistakes and may not offer current financial information, making it difficult for the business to make wise decisions.

### **Production Planning:**

The Business has trouble monitoring the production of right quantity rice and Dal varieties. The company faces difficulties in developing an optimal production schedule which is a complex task that requires balancing various factors such as demand, available resources and machine capacities. The inefficient production schedule can lead to production delays, more downtime and greater operating expenses.

## **5 Problem-Solving Approach**

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Here's a problem-solving approach using data:

**I. Gathering Necessary Data:** Establish a clear definition of the issue facing the business, then set up a time with the manager in charge to collect and organize the required information. This information consists of financial records, transaction statements, sales and production statistics, and any other pertinent details.


**II. Data Entry and Analysis:** Enter the data into spreadsheets for straightforward analysis. To increase the accuracy and relevance of the results, purge the data of any unnecessary transactions and concentrate only on data related to business. To acquire insight into the important factors affecting the operation of the firm, do a thorough investigation of many elements of the business, including stock levels, profitability, sales volume, and buying habits.

**III. Trend Analysis through Visual Representations:** To study trends, use Excel to construct graphs and other visual representations. In order to successfully explain the conclusions and insights drawn from the data analysis, give concise explanations for the prepared charts. This helps the business comprehend the situation and make decisions.

**IV. Finding Solutions and Assessing Alternatives:** Drawing from the data analysis, formulate a variety of possible remedies or approaches to tackle the specified issue. Evaluate the practicality and effectiveness of each suggested course of action, considering factors such as expenses, implementation difficulties, possible risks, and desired results. Prioritize and determine the feasibility of the solutions before organizing them in terms of significance.

## 6 Expected Timeline

### 6.1 List of Tasks:

 **BDM Capstone Project** ▼ ☆ ○ Set status

Overview **List** ... Board Timeline Calendar Workflow Dashboard Messages Files

+ Add task ▼ Filter Sort: 1 X Hide

Task name	Due date	Status
▼ To Do ⚡		
✓ Mid-Term approved	Aug 15	On hold
✓ Final Approved	Aug 20	On hold
✓ Collecting data	Jun 22 – 27	On track
✓ Data Cleansing	Jun 28 – Jul 4	On track
✓ Finding Insights	Jul 5 – 15	On track
✓ Preparing Mid Term submission	Jul 16 – 23	On track
✓ Finding Problem's Solution	Jul 24 – 31	On track
✓ Preparing Final Submission	Aug 6 – 13	Off track

### 6.2 Gantt chart

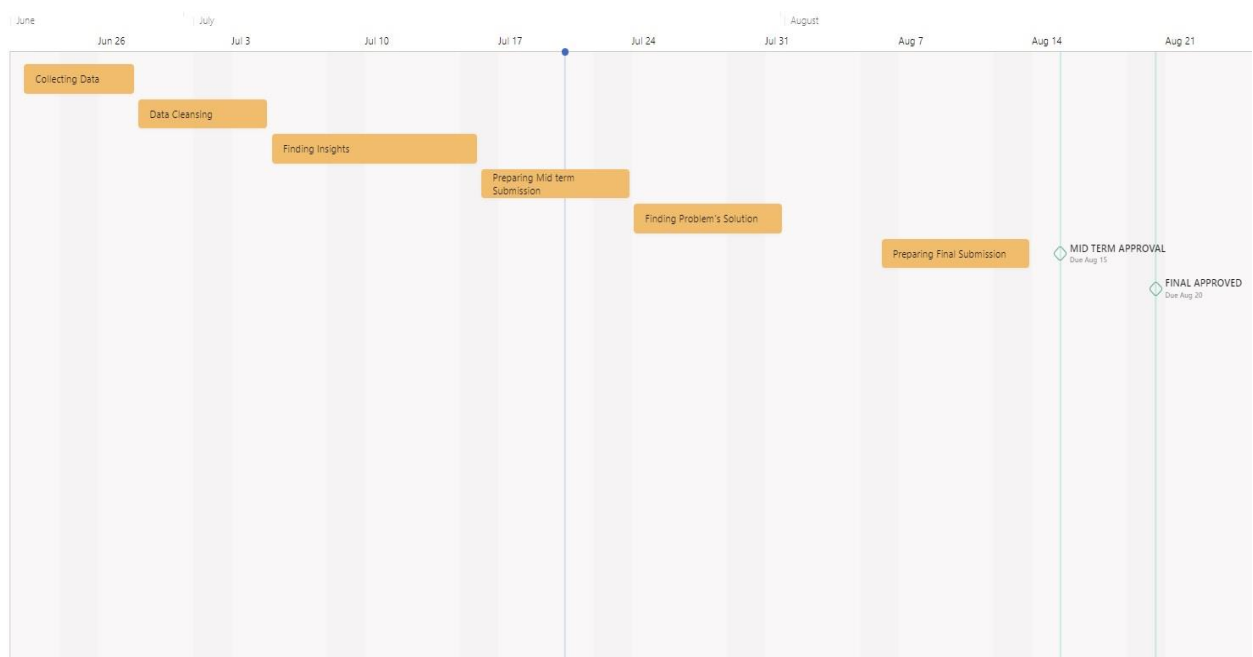


Figure 1 Expected timeline for completion of the project

## **7 Expected Outcome**

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The expected outcomes of the Business Data Management Capstone Project for Subha Sree Rice Mill, can be summarized as follows:

- 7.1 **Improved inventory planning:** The Business can determine which kind of rice and dal sells quickly and slowly by examining sales data. With the use of this information, they are able to modify their production and procurement plans in order to increase the supply of popular rice and dal varieties while decreasing their stock of less popular items. Effective inventory management reduces storage costs, prevents waste, and keeps the supply chain balanced.
- 7.2 **Enhanced supplier evaluation:** A supplier's performance can be assessed using purchase data. The rice mill can evaluate supplier reliability, spot supply chain bottlenecks, and make well-informed decisions regarding supplier relationships by evaluating data on buy volumes, delivery timeframes, quality problems, and price. As a result, rice and dal of a high standard is always available, and strong supplier relationships are maintained.
- 7.3 **Effective production planning:** Sales data helps the mill understand peak demand periods and low demand periods. The mill can more efficiently organize its production schedules with the use of this information. Production can be increased when there is a surge in demand, and maintenance and process improvement can take precedence when there is a decline in demand. This improves resource management and boosts productivity.

Overall, the project's expected outcomes include improved inventory planning, enhanced supplier evaluation, and effective production planning, all of which will contribute to the business's financial performance and ability to compete in the market.