Modernizing Excellence: A Data-Driven Transformation for Sri Murugan Traders

A Proposal report for the BDM capstone Project

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1 Executive Summary

The project focuses on ***SRI MURUGAN TRADERS*** located at **Sriperumbudur.** The business operates in both B2C and B2B segments, dealing primarily with wholesale rice .

The major business challenges faced by the business includes **data fragmentation and inefficiency** : Sri Murugan Traders lacks a centralized data management system, leading to data fragmentation across various sources, hindering effective decision making and business insights. **supplier price fluctuations**,where the business grapples with erratic price fluctuations from suppliers without prior notice, causing instability in pricing and impacting profitability.Additionally, there is **tax compliance and storage management**; for rice bags weighing less than 26 kg, a tax is applicable,while no tax is levied on bags more than 26 kg. Finally, with **inconsistent product quality**, some rice brands do not consistently deliver 100% quality products to the merchandise .

The issues will be addressed by analyzing the data via different approaches to obtain a fruitful outcome which includes *centralized data management, data cleaning and validation, advance analytics, supplier and customer relationship management, quality control and assurance, operational efficiency, market expansion and quality diversification.*

These data-driven approaches collectively aim to streamline operations, enhance decision-making, and address the challenges identified in SRI MURUGAN TRADERS' wholesale rice business. By harnessing the power of data, the company can optimize its processes, improve profitability, and position itself for sustainable growth in a competitive market.

2 Organization Background

Sri Murugan Traders is a venerable and highly regarded establishment that has been an integral part of the Sriperumbudur community for over three and a half decades. Founded by Mr. P. Sundram, this business has consistently delivered excellence in the field of wholesale rice, earning a strong reputation for quality and reliability.They are selling 6 different rice varieties namely HMT, BPT, PONNI, STEAM RICE, RAW RICE, BIRYANI RICE which includes totally 39 brands initially but now they are running only with 25 brands from 14 suppliers.Situated on Gandhi Road in Sriperumbudur, the strategic location has allowed it to serve a diverse clientele, ranging from local grocery stores to restaurants and institutions. This central location has enabled easy access to suppliers and customers, making it a pivotal hub in the wholesale rice industry.Sri Murugan Traders has cultivated strong relationships with its customers by prioritizing their needs and preferences.

3 Problem Statement

3.1 **SUPPLIER PRICE FLUCTUATIONS:** Out of 14 suppliers, typically 10 suppliers contribute to the issue of price fluctuation . As a result, there is a 10% loss of customers and a 10% loss in profit. This problem usually arises during the harvesting period of "JANUARY" and "MAY"

3.2 **TAX COMPLIANCE AND STORAGE MANAGEMENT:** There is typically a 10 % loss in storage management and a 3-4% loss due to this tax system.

3.3 **INCONSISTENT PRODUCT QUALITY:** usually, 7 suppliers are responsible for inconsistent product quality supplies. This problem results in a 10% loss in profit and a 5% loss in customers. In a given month, approximately 3 rice brands encounter this issue.

4 Background of the Problem (200 Words)

The main reasons for the **supplier price fluctuation problem** are the low quantity and high price of raw materials on the supplier's. On the agricultural side, sudden climatic changes and a decrease in agricultural land are the main factors resulting in reduced production, which in turn leads to sudden price hikes by the suppliers. An increase in prices of other products faced by both the supplier and the farmer sides increases the cost of rice. **Storage conditions:** rice can deteriorate in quality if not stored properly. Exposure to moisture, temperature fluctuations and inadequate storage facilities can lead to issues like mold growth and rat and insect infestations. One of the brands, 'Sivaji,' is not willing to produce rice bags weighing 26 kg or more, which requires wholesale dealers to pay tax for each rice bag. **Milling and Processing:** The milling and processing methods employed by suppliers can affect rice quality. Variations in the milling and cleaning process can result in differences in the final product. **Transportation and Handling:** The handling and transportation of rice from farms to suppliers and then to wholesale vendors can affect quality. Rough handling, exposure to moisture, or prolonged transit times can lead to damage and quality deterioration.**Harvesting Practices:** The way rice is harvested can impact its quality. Improper harvesting techniques, such as harvesting rice at the wrong maturity stage, can result in inconsistent quality.

5 Problem Solving Approach (400 Words)

Centralized Data Management : Establish a data repository where all relevant data, including supplier information, inventory records, tax data, and customer feedback, can be stored, accessed, and managed efficiently.

Data Cleaning and Validation: Develop data cleaning process to identify and rectify errors, duplicates, and inconsistencies in the data.

Advanced Analytics: utilize descriptive analytics to gain insights into historical data trends, such as pricing fluctuations and quality issues. Employ predictive analytics models to forecast price changes, demand patterns, and potential quality issues. Create data

visualizations and reports to present actionable insights to decision makers.Planned to employ *six thinking hats and SWOT analysis* .

some analysis tools are listed below:

Time Series Analysis and Forecasting Models (e.g., ARIMA, Exponential Smoothing): Time series analysis and forecasting models are essential for understanding historical price trends and predicting future supplier price fluctuations accurately. These tools can identify seasonality and patterns, enabling the project to make informed procurement decisions, optimize pricing strategies, and stabilize supplier relationships.

Tax Calculation Tools and Audit Frameworks: Tax calculation tools help automate tax compliance processes, ensuring accurate tax calculations based on collected data. Regular audits provide a mechanism for verifying the accuracy of tax calculations and filings. Together, these tools ensure efficient tax compliance, minimize storage management losses, and reduce financial risks associated with taxation.

Quality Control Analysis and Supplier Rating Systems: Quality control analysis allows for the identification of the root causes of inconsistent product quality. Supplier rating systems leverage historical data to assess supplier performance and quality control practices. These tools are essential for implementing quality control measures, rating suppliers, and ensuring consistent product quality, leading to improved customer satisfaction and profitability.

Cost Analysis and Inventory Optimization Models: Cost analysis tools enable the identification of cost drivers within the business, such as procurement, storage, and transportation costs. Inventory optimization models, driven by historical purchase and sales data, help optimize inventory levels and reduce carrying costs. These tools contribute to overall cost savings and efficient resource allocation

Supplier Relationship Management: Establish key performance indicators to evaluate supplier performance, including delivery times, quality consistency, and pricing stability.

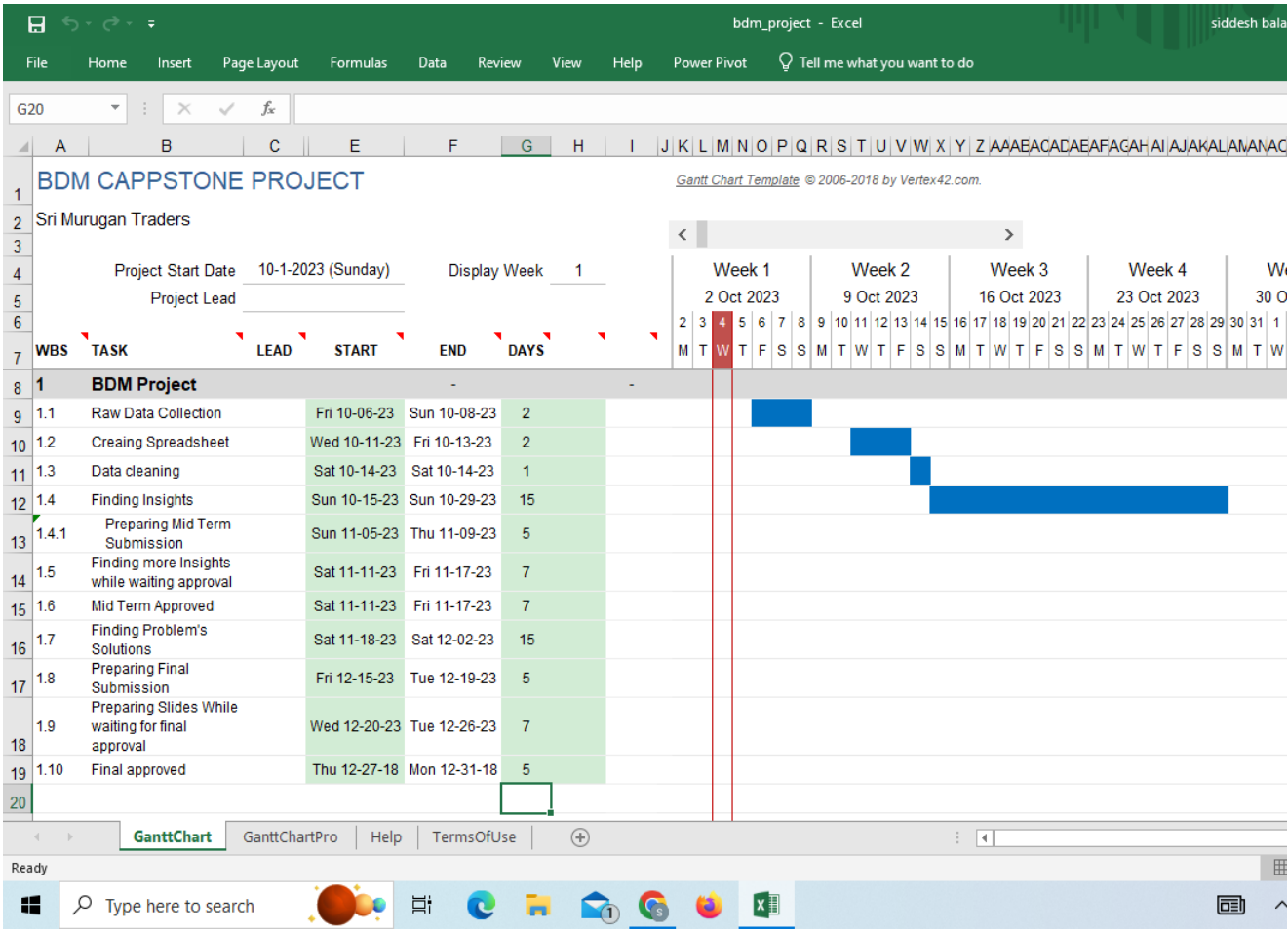
Customer Relationship Management (CRM): Implement CRM systems to collect and analyze customer feedback regarding product quality and satisfaction.Segment customers based on their preferences and behavior to tailor marketing and service strategies.

Operational Efficiency:Utilize data analytics to optimize inventory levels, reduce carrying costs, and minimize stockouts. Conduct cost analyses to identify areas for cost reduction while maintaining product quality.

These data-driven approaches collectively aim to streamline operations, enhance decision-making, and address the challenges identified in SRI MURUGAN TRADERS' wholesale rice business. By harnessing the power of data, the company can optimize its processes, improve profitability, and position itself for sustainable growth in a competitive market.

6 Expected Timeline

6.1 Gantt chart



7 Expected Outcome

During the period of price fluctuation, we can place orders with some suppliers based on a comparison of features in our dataset.In the case of the same tax, how can we reduce the losses, and in storage management, on which factors should we spend to reduce the losses. By predicting which rice brands and during what period suppliers are delivering poor quality, we can reduce the loss, so we can increase customer satisfaction and loyalty due to consistent product quality.Greater efficiency and profitability through data-driven decision-making.

Declaration Statement

I am working on a Project titled “BDM CAPSTONE PROJECT”. I extend my appreciation to ‘SRI MURUGAN TRADERS’, 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: 

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Date: 04/10/2023