

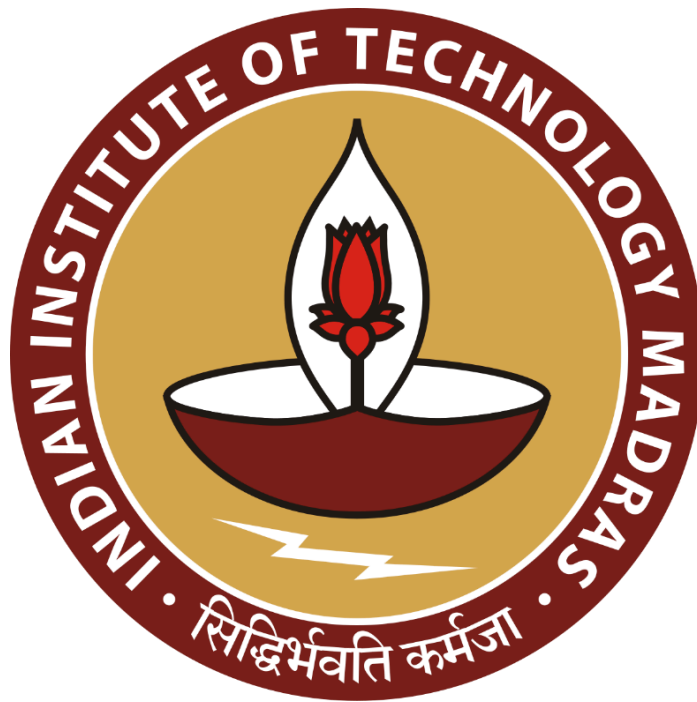
"Maximizing Profitability and Reseller Efficiency: A Data Analysis Approach for AdventureWorks Cycles"

A Proposal Report for the BDM Capstone Project

Submitted by

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Declaration Statement

I am working on a Project titled “Data-Driven Insights for Revitalizing Sales and Streamlining Inventory Management at AdventureWorks Cycles”. I extend my appreciation to “AdventureWorks Cycles”, 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 analysed to ensure 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:

Name: Somesh

Date: 5/072024

Title:

"Maximizing Profitability and Reseller Efficiency: A Data Analysis Approach for AdventureWorks Cycles"

Executive summary:

AdventureWorks Cycles is a global manufacturer and retailer specializing in bicycles and cycling-related equipment. The company is facing challenges due to the increasing popularity of electric and petroleum-based transportation, leading to a decline in traditional bicycle sales. To remain competitive, AdventureWorks must explore data-driven strategies to improve profitability and optimize its distribution channels. This project focuses on declining profitability and suboptimal reseller performance. Using data analysis and regression, the goal is to identify patterns and insights to address these challenges and develop actionable strategies. The data used includes sales figures, customer demographics, reseller details, and product information. The analysis will be conducted using Python for data processing, with Power BI and Excel utilized for visualization. The expected outcome is a comprehensive set of recommendations to increase profitability, optimize reseller partnerships, and support future growth.

Organization background:

AdventureWorks Cycles is a global manufacturer and retailer of bicycles and cycling-related equipment, catering to both casual and professional cyclists. The company operates using both business-to-business (B2B) and business-to-consumer (B2C) models and sells its products in countries of North America, Europe and the Pacific.

It is an imaginary company whose data has been downloaded from Microsoft sample databases, but it simulates the vastness and depth of a real-world business. The company maintains large datasets that record sales, resellers, customers, time, manufacturing, and inventory.

It specializes in the sale of bikes and related products such as accessories, clothing, and components through two channels: resellers and online.

Problem Statements:

It's a business that sells bicycles and related accessories in a challenging market dominated by electric and petroleum-based transportation. This industry shift has caused a gradual drop in sales, even in established businesses in developed countries. Therefore, the primary objective of this analysis will be to identify patterns and insights from data in order to increase profitability.

1. "Improve profitability."

The company uses two sales channels: resellers and online, with 51% of sales coming from resellers. The company is highly dependent on resellers however it needs to find a balance between profitability and maintaining good relationships with distributors. It's important to

identify the right number of trusted resellers in order to ensure profitability and support future expansion plans.

2. “Suboptimal Reseller’s Performance”

Background of the problem:

AdventureWorks Cycles finds itself navigating a challenging market as it competes in an industry increasingly dominated by electric and petroleum-based transportation alternatives. With the growing popularity of electric vehicles (EVs) and fuel-powered scooters, traditional bicycle sales have seen a steady decline, even in regions where the business was once strong. As consumer preferences shift toward these modern transportation options, bicycle sales have become more niche, making it difficult for companies like AdventureWorks to sustain their profitability.

To adapt, the company must utilize data to identify patterns and insights that will help them refine their product offerings and better align with evolving market demands. This involves a deep analysis of customer trends, sales(product) performance, and regional market behaviours.

Furthermore, AdventureWorks relies on resellers for 51% of its sales, making them a vital component of the company’s distribution network. However, performance across different resellers has been inconsistent, posing a risk to overall profitability. Striking a balance between maintaining good relationships with resellers and optimizing profitability is essential for the business’s success. By carefully evaluating reseller performance and identifying the right partners to support, AdventureWorks can ensure long-term stability and growth while positioning itself to better meet future market opportunities.

Problem-solving approach:

Methods Used

The initial step will be a detailed analysis of data features and their interrelationships to uncover meaningful patterns. To tackle the profitability challenge, we begin by identifying high-margin products across both reseller and online distribution channels.

Key strategies include:

Product Bundling: Bundling of “sold together” or high-margin projects together to increase the average transaction value.

Targeted Marketing Using Customer Demographics: Using demographic insights to focus marketing efforts on environmentally-conscious and health-focused customer segments.

Product Expansion: Will Explore adding new products that appeal to eco-friendly and health-conscious demographics.

Sales and Profit Trend Analysis: we will Identify trends in sales and profit to highlight high-performing areas and address underperforming ones.

Additionally, prioritize **customer loyalty** by identifying top customers and implementing loyalty and discount programs to encourage repeat purchases and strengthen customer relationships.

To address suboptimal reseller performance, we will implement performance metrics analysis. Key performance indicators (KPIs) such as sales volume per reseller, and average order value. Filtering resellers with generated revenue and net profit will help us identify which resellers align with the company’s profitability goals and which may need additional support or reconsideration.

Data collected

The data required for this analysis will encompass various features from the AdventureWorks dataset, including sales data, customer information, product details, and reseller performance metrics. Key features will include:

Sales Data: SalesOrderLineKey, Order Quantity, Unit Price, Extended Amount, and Sales Amount to analyze sales performance.

Reseller Information: ResellerKey, Reseller ID, Business Type, and City to evaluate the effectiveness of different resellers and their impact on sales.

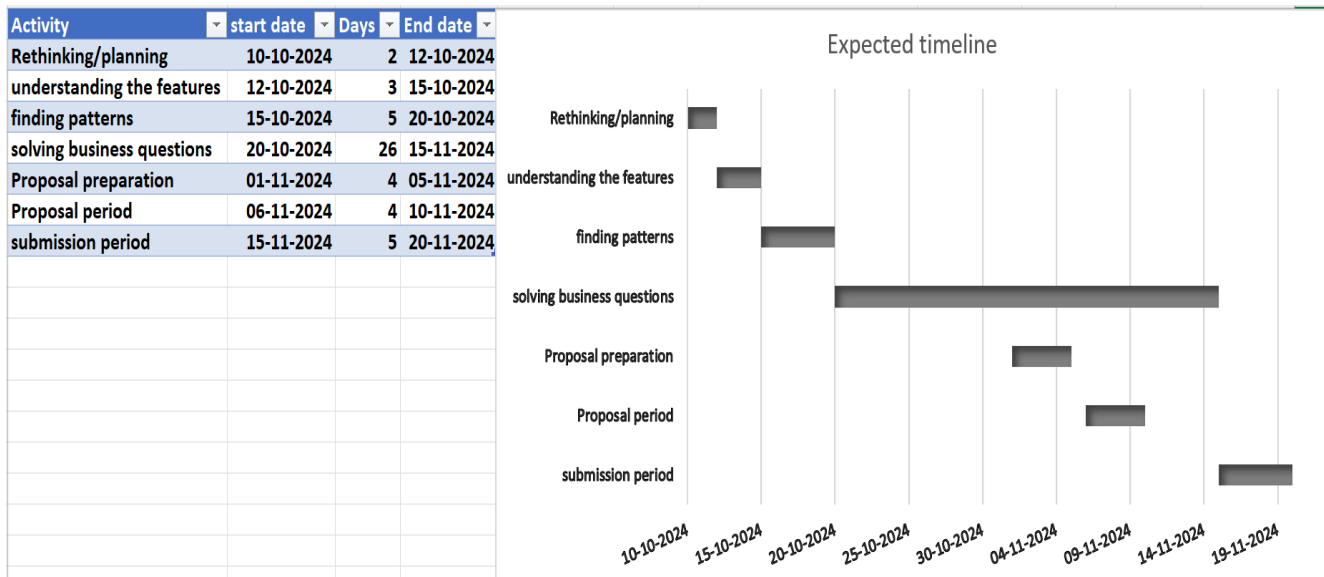
Customer Demographics: CustomerKey, City, State-Province, and Country-Region to understand customer preferences and purchasing behaviours.

Product Information: ProductKey, SKU, Standard Cost, List Price, and Category to assess which products are performing well and driving profitability.

Tools Used

For analysis purposes Python and its libraries,
For visualization purposes PowerBi and Excel

Expected timeline:



Expected output:

The analysis will produce actionable insights and recommendations for AdventureWorks Cycles to tackle current business challenges and improve future performance. These findings will be presented in both quantitative and qualitative formats, enabling the company to make informed, data-driven decisions.