Project Planning & Management

Content

1- Project Planning & Management

Introduction

Project management and planning are essential processes for the successful completion of complex analytical tasks. This paper presents an organized methodology for managing the "Project Planning & Management" effort, which focuses on analyzing and presenting business data retrieved from the AdventureWorks dataset. The project integrates data from multiple domains, such as sales, customers, goods, and territory, to produce actionable insights that support evidence-based decision-making.

This document will serve as a guide for the project at every stage of its lifecycle, from planning and start-up to execution, monitoring, and closing. It defines the project's objectives, constraints, and deliverables in addition to outlining the allocation of resources and the roles and responsibilities of team members. The paper also includes a detailed timeline supported by a Gantt chart to ensure efficient scheduling and progress tracking.

Two of the project's top priorities are risk management and the creation of Key Performance Indicators (KPIs) to gauge project success. There are related risk mitigation strategies for issues like data quality issues, tool limitations, and coordination challenges. The KPIs will evaluate performance in areas like revenue growth, client retention, and operational efficiency.

Project Proposal

Project Name: Comprehensive Data Analysis of AdventureWorks Sales

1.1 Project Overview

This project aims to perform an in-depth analysis of business data obtained from the AdventureWorks dataset, focusing on sales, customers, products, and regional performance. The goal is to develop actionable insights and data-driven visualizations using modern BI tools such as Power BI .

1.2 Objectives

- **Objective 1: To analyze sales performance across products and territories.**
- **Objective 2: To evaluate customer purchasing behavior and segment key demographics.**
- **Objective 3: To build a dynamic Power BI dashboard for strategic decision-making.**

1.3 Project Scope

The scope of this project includes:

- **Data collection, cleaning, and transformation.**
- **Designing a relational data model.**
- **Performing exploratory data analysis (EDA).**
- **Developing key performance indicators (KPIs).**
- **Building and publishing interactive dashboards.**

Project Plan

- During this phase, all project results, analyses, visualizations, and important insights are compiled into a thorough final report and presentation. The report ensures clarity and alignment with stakeholder expectations by summarizing the project's goals, methodology, findings, KPIs, and recommendations. The presentation serves as the official project closure and highlights key findings, dashboard demonstrations, and conclusions.

2.1 Project Duration

[September 2025 – November 2025]

2.2 Project Phases

Phase	Description	Duration
1	Project Initiation & Dataset Understanding	1 Week
2	Data Cleaning & Preprocessing	2 Weeks
3	Data Modeling & Relationship Building	2 Weeks
4	Dashboard Development	3 Weeks
5	Testing & Validation	1 Week
6	Final Reporting & Presentation	1~ 2 Week

2.3 Project Milestones

Milestone	Description	Date Done
1	Dataset Understanding Complete	8/9/2025
2	Data Cleaning & Preprocessing Done	23/9/2025
3	Data Modeling & Relationship Building Finalized	15/10/2025
4	Dashboard Development Done	10/11/2025
5	Testing & Validation Accomplished	14/11/2025
6	Final Reporting & Presentation	20/11/2025

Task Assignment

3.1 Team Structure

To make sure that tasks were distributed fairly and efficiently, the project team used a Project-Based Strategy. There were six members, and each of them was given one of three important roles. The Data Engineers oversaw gathering, cleaning, and getting the data ready. The Data Analysts did exploration data analysis (EDA) and came up with important ideas. The BI Developers worked on making Power BI dashboards and setting key performance indicators (KPIs). This structured distribution encourages teamwork, consistency, and quality throughout all project phases, making sure that deliverables are finished on time and to a high standard.

Role	Description	Member
Project Manger	Oversees project execution and ensures milestone completion	Yara Said
Data Engineer	Responsible for data collection, cleaning, and preparation	&
Data Analyst	Performs EDA and generates insights.	&
BI Developer	Designs Power BI dashboards and KPIs.	&
Documentation Specialist	Prepares project documentation and reporting.	&

Risk Assessment

To make sure the project is finished on time, within its budget, and to the right level of quality, you need to manage risks well. Here are the main risks that could affect the project, along with their assessed levels of impact, likelihood, and ways to reduce them.

Team Coordination Problems

- **Mitigation Strategy:** Clearly define each team member's responsibilities and maintain open communication channels.

Data Quality Issues

- Mitigation Strategy: Conduct comprehensive data cleaning and validation before performing analysis using Python and Power BI. Clearly document all assumptions and data handling steps to maintain accuracy and transparency.

Incorrect Data Relationships

- Mitigation Strategy: Verify all data relationships and joins (e.g., *ProductKey*, *CustomerKey*) to prevent logical errors. Use data profiling tools to ensure accuracy in the data model and maintain integrity across tables.

Tool Performance Limitations

- Mitigation Strategy: Optimize the Power BI data model by removing unnecessary columns, reducing dataset size, and applying efficient data preprocessing methods.

Inaccurate KPI Calculation

- **Mitigation Strategy:** Double-check all KPI formulas, validate calculations against sample data, and perform peer reviews before dashboard deployment.

Stakeholder Expectation Mismatch

- Mitigation Strategy: Maintain continuous communication with stakeholders, provide progress updates, and review requirements at each milestone to ensure alignment.

KPIs (Key Performance Indicators)

5.1 Sales Performance

1. **Total Sales Revenue – Measures the total revenue generated.**

2. **Average Order Value (AOV) – Average revenue per order.**

3. **Total Orders – Number of distinct customer orders.**

4. **Gross Profit Margin – Profitability after deducting product cost.**

5.2 Customer Insights

5. **Active Customer Count – Total number of unique customers.**

6. **Customer Retention Rate – % of customers making repeat purchases.**

7. **New vs Returning Customers Ratio – Tracks customer loyalty.**

8. **Customer Lifetime Value (CLV) – Revenue per customer over time.**

5.3 Product & Category Performance

9. **Top Selling Products – Highest revenue-generating products.**

10. **Category Contribution % – Sales contribution by product category.**

11. **Average Product Profit Margin – Profitability at product level.**

12. **Return Rate by Product – % of items returned vs sold.**

5.4 Regional / Territory Performance

13. **Sales by Region – Total sales per territory.**

14. **Revenue Growth per Country – Month-over-month or annual growth.**

15. **Average Revenue per Territory – Mean revenue per region.**

5.5 Time & Operational Efficiency

16. **Sales Growth Rate (Monthly/Quarterly) – Evaluates revenue trends.**

17. **Order Fulfillment Time – Time between order and shipment.**

18. **On-Time Delivery Rate – % of orders delivered on schedule.**

5.6 Returns & Quality

19. **Total Returns – Number of returned products.**

20. **Return Value % of Sales – Revenue loss due to returns.**

- **As data exploration goes on, more KPIs may be defined and added to improve the overall coverage of the analysis.**

Conclusion

The Project Planning & Management initiative can be managed and carried out using the structured blueprint provided by this documentation. To guarantee a successful and well-coordinated implementation, it describes the project's goals, roles, schedules, risks, and performance indicators.