

Report

1. Data Preparation and Modeling

Dataset Overview

The AdventureWorks dataset originally came with several separate tables: Customers, Product Categories, Product Subcategories, Products, Territories, Returns, and three different Sales tables for the years 2015, 2016, and 2017. All these tables needed to be cleaned, organized, and restructured so the data could be analyzed properly.

Data Transformation

During the preparation stage, a number of important changes were made to make the dataset easier to work with:

Sales Tables Merged:

The three Sales files were combined into one master Sales table. This gives one unified view of all transactions across the three years instead of working with them separately.

Table Renaming:

All table names were cleaned and simplified. For example, long names like AdventureWorks_Territories were changed to Territories so everything is easier to read and manage.

Data Modeling

Custom Grouping:

Several new columns were created to make the data more meaningful instead of depending only on raw numeric values.

Customers: Added “Income Level” and “Family Size” groups to categorize customer profiles more clearly.

Products: Added a new “Price Segment” column to classify products into price tiers (High, Medium, Low), which helps in analyzing sales performance by product price level.

Measure Organization:

A dedicated table called _Key Measures was created specifically for all calculated measures. This keeps calculations separate from the raw data and makes the data model clean and easier to maintain.

Dynamic Parameters:

Three additional tables were built for use as Field Parameters.

These tables allow the user to switch between different analytical views (Customer Demographics, Product Breakdown, and Time Periods) without building separate visuals for each scenario.

This makes the dashboards more interactive and flexible.

2. Dashboard Design and Implementation

The report is organized into four main dashboard views, each built to answer a different type of business question and to make the analysis easier to navigate.

1. Executive Overview Dashboard

This is the main starting point for reviewing overall performance. It gives a quick read on essential KPIs like total profit, growth rate, and return rate. The dashboard also shows how these values change month by month and includes a simple breakdown by product category. The goal is to quickly understand whether the business is improving or slowing down without going through detailed pages.

2. Product Master Dashboard

This dashboard focuses on product performance and helps identify which items are performing well and which ones might be causing issues. It includes a decomposition tree to break down what contributes most to profit, and also uses field parameters so users can switch easily between viewing the data by product name, category, or price segment. There is also a returns-focused section that highlights products with high return rates.

3. Customer Insights Dashboard

This dashboard looks at customer behavior and segmentation. It groups customers based on income level, family size, and other demographic details to reveal patterns in spending. A scatter plot highlights the most valuable customers—those who buy frequently and spend the most—making it easy to identify key customer groups.

4. Geographical Distribution Dashboard

This view presents the business from a regional perspective and compares performance across different countries and territories. It highlights sales hotspots on a map and provides comparisons of revenue and profit by region. The dashboard also shows where return rates are high