

# **AdventureWorks Business Intelligence Dashboard**

## **Report**

### **Executive Summary**

The AdventureWorks Business Intelligence Dashboard provides an interactive analytical platform for monitoring business performance across sales, profitability, customer behavior, product performance, and return risk.

The solution enables stakeholders to evaluate operational performance, identify growth opportunities, and mitigate risk through data-driven insights.

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### **2. Purpose & Scope**

This dashboard was developed to support strategic decision-making by delivering real-time insights into:

- Revenue and profit performance
  - Sales growth and seasonal trends
  - Product and category performance
  - Customer segmentation and behavior
  - Regional performance analysis
  - Product return patterns and risk indicators
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### **3. Data Model Architecture**

To ensure scalability, performance efficiency, and analytical accuracy, the dashboard utilizes a **star schema data model**.

#### **Fact Tables**

##### **Sales Fact (vw\_sales\_analysis\_final)**

Captures transactional sales data used for revenue, profitability, and performance analytics.

##### **Returns Fact (adventureworks\_returns)**

Captures product return quantities and dates to support return rate and risk evaluation.

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#### **Dimension Tables**

##### **Products**

Contains product attributes including pricing, cost, and specifications.

##### **Product Subcategories & Categories**

Enable hierarchical analysis and category-level performance insights.

##### **Customers**

Provides demographic and segmentation attributes to support customer analytics.

##### **Territories**

Includes country, region, and continent fields for geographic performance analysis.

##### **Calendar Dimension**

A dedicated date table enabling advanced time intelligence and trend analysis.

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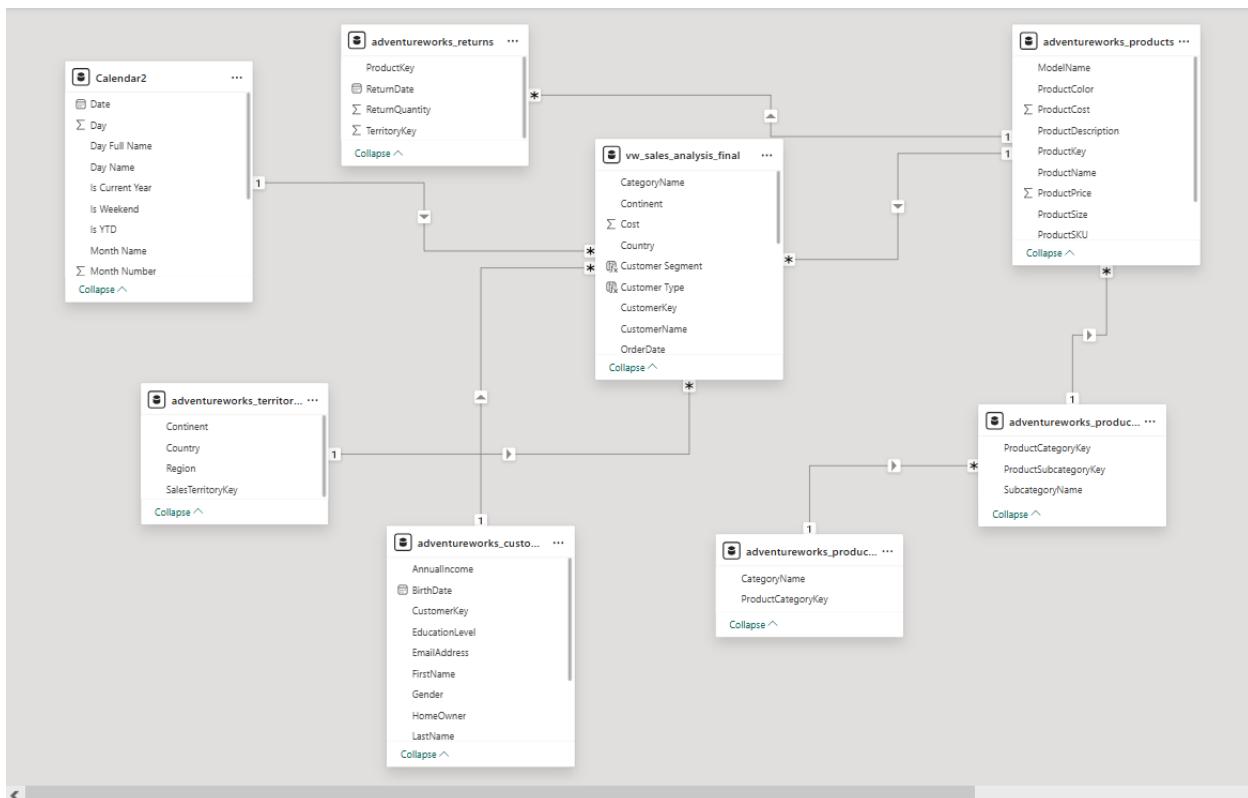
## Relationship Design

The model establishes one-to-many relationships between fact and dimension tables to ensure consistent filtering and aggregation.

Key relationships include:

- Product → Sales & Returns
- Customer → Sales
- Territory → Sales & Returns
- Calendar → Sales
- Category hierarchy → Products

This architecture supports efficient query execution and accurate cross-filtering across visuals.



## **4. Analytical Measures & KPIs**

The dashboard incorporates business-critical metrics developed using DAX.

### **Revenue & Profitability Metrics**

- Total Revenue
- Total Profit
- Profit Margin (%)
- Revenue YTD, QTD, MTD
- Year-over-Year Growth (%)

### **Customer Performance Metrics**

- Total Customers
- Revenue per Customer
- Repeat Purchase Rate

### **Product Performance Metrics**

- Revenue by Category
- Top Products by Revenue

### **Returns & Risk Metrics**

- Return Rate (%)
  - High-Risk Products Identification
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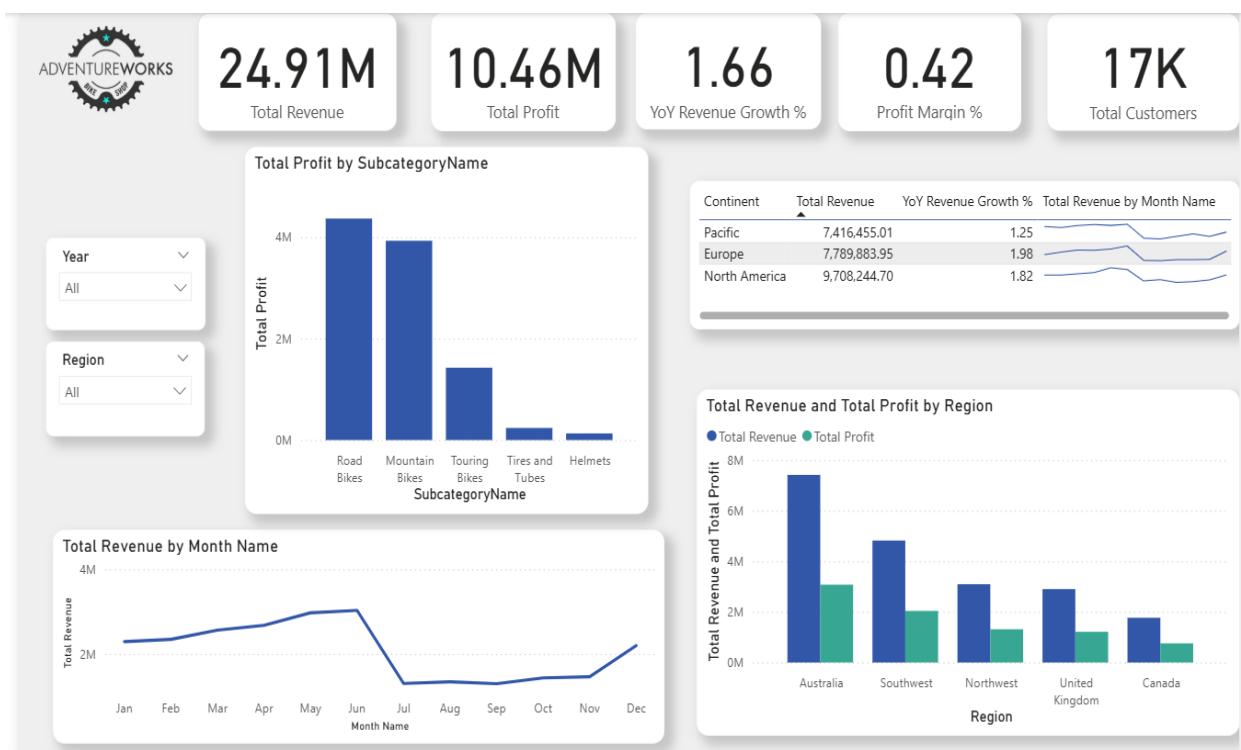
## 5. Dashboard Structure & Analytical Insights

### Executive Overview

Provides a high-level performance snapshot through KPI cards and summary visuals.

#### Key Insights

- Strong overall profitability and revenue performance
- Road Bikes represent the highest profit contribution
- Australia and Southwest regions are primary revenue drivers
- Mid-year revenue decline indicates seasonal patterns

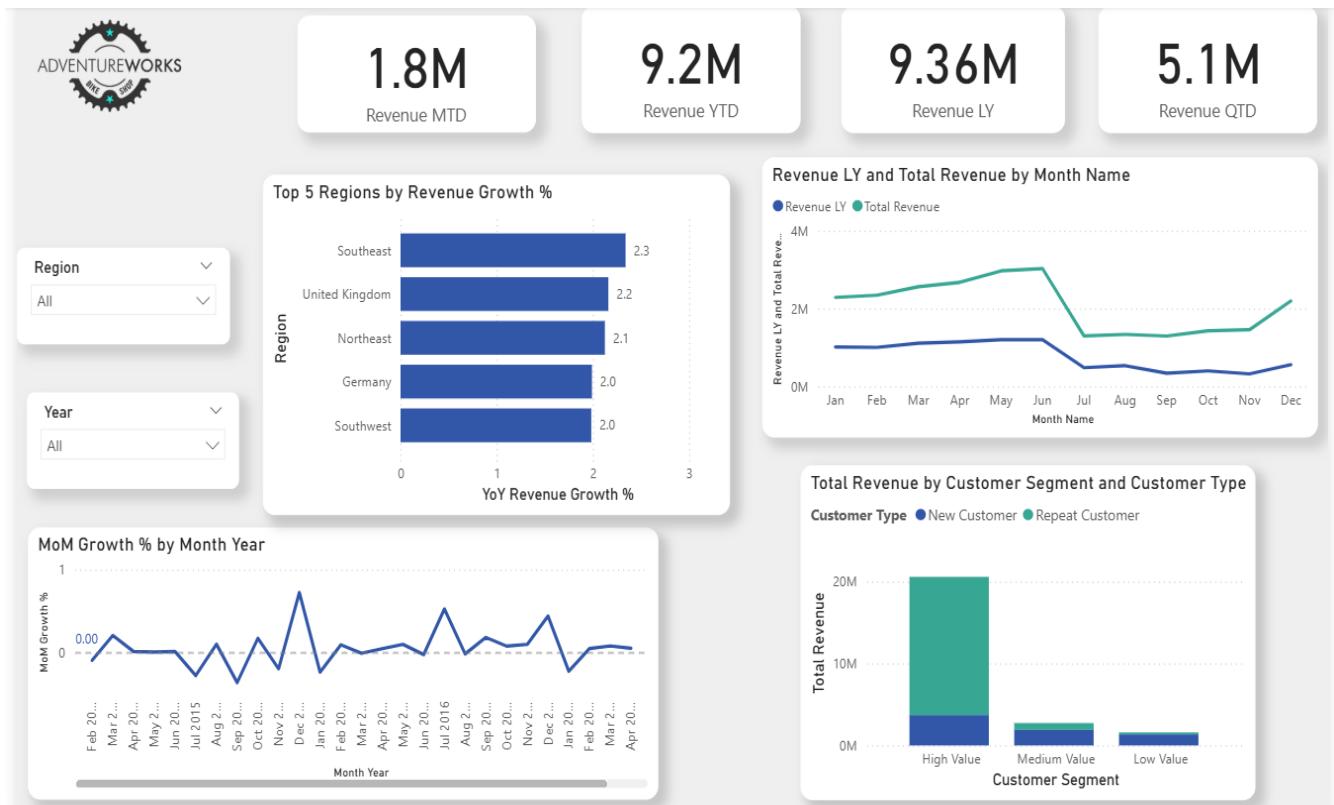


# Revenue & Growth Analysis

Evaluates revenue trends and growth performance across regions and time periods.

## Key Insights

- Southeast region demonstrates strongest growth performance
- Monthly trends indicate seasonal fluctuations
- Overall trajectory reflects stable growth

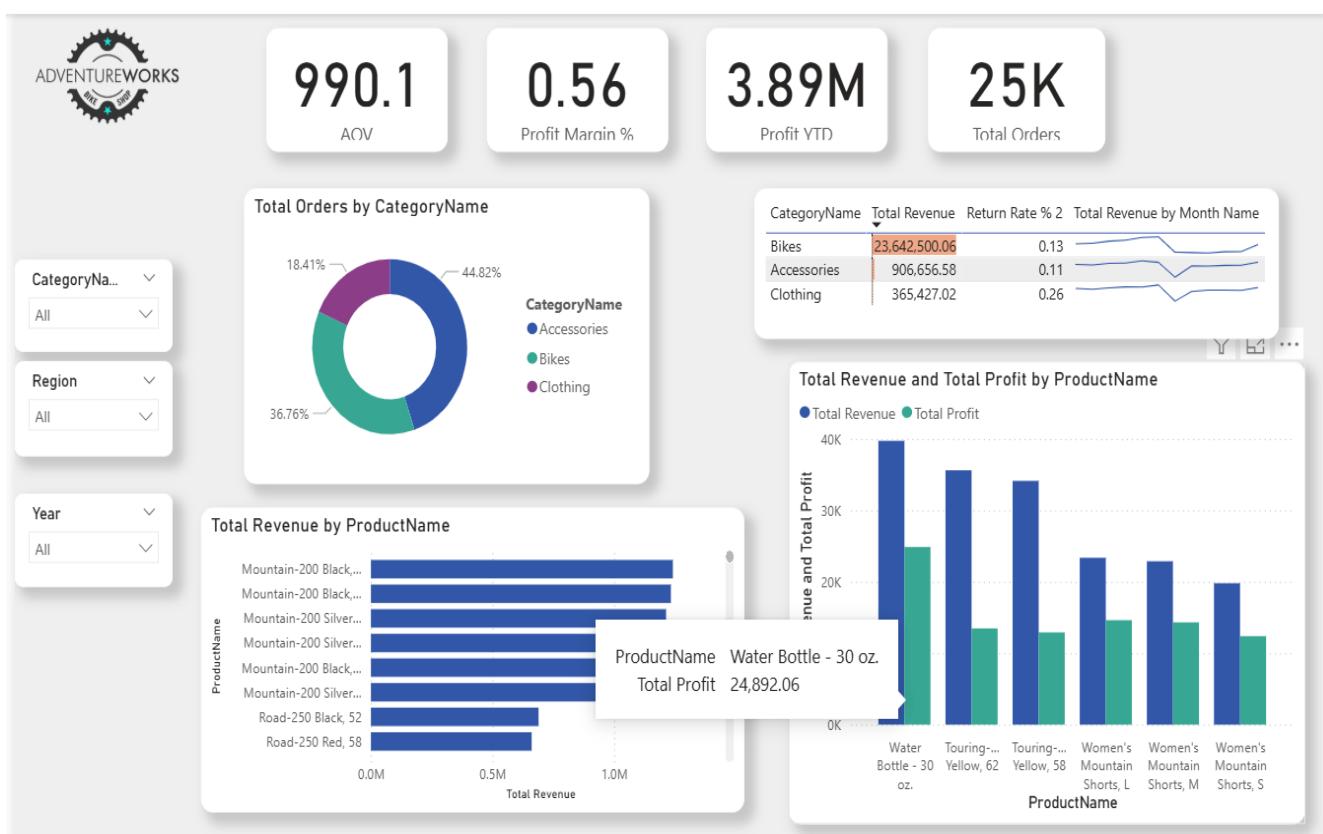


# Product & Category Performance

Analyzes product contribution, category performance, and revenue distribution.

## Key Insights

- Bikes represent the dominant revenue category
- Mountain-200 product line leads sales performance
- Clothing category presents elevated return risk
- Accessories contribute consistent revenue stability

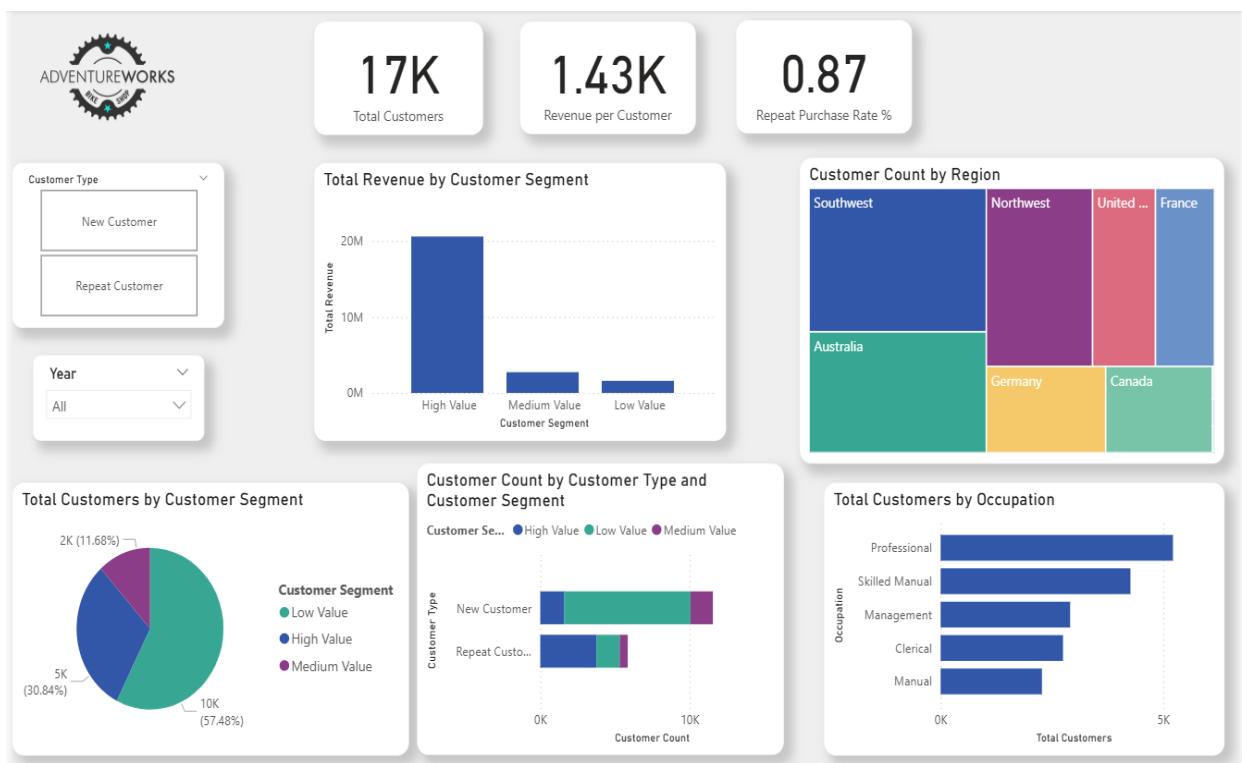


# Customer Analytics

Provides insights into customer value, segmentation, and behavioral patterns.

## Key Insights

- High-value customers generate the majority of revenue
- Repeat customers significantly enhance revenue stability
- Southwest region holds the highest customer concentration
- Professional and skilled occupations represent the primary customer base



# Returns & Risk Analysis

Identifies return trends and product risk indicators impacting profitability.

## Key Insights

- Clothing category exhibits the highest return rate
- France and Germany show elevated return percentages
- Certain high-return items have minimal profit impact
- Risk indicators highlight opportunities for quality improvements



## 6. Dashboard Functionality & Features

The dashboard includes interactive features to enhance analytical exploration:

- Dynamic filtering (Year, Region, Category)
  - Drill-down and drill-through capabilities
  - Cross-visual filtering
  - Time-series trend analysis
  - Interactive KPI monitoring
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## 7. Business Impact & Value

This dashboard delivers measurable business value by enabling:

- Performance monitoring and operational visibility
  - Identification of revenue growth opportunities
  - Improved product and pricing strategies
  - Enhanced customer targeting and retention strategies
  - Reduction of losses through return risk monitoring
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## 8. Tools & Technologies

- **Power BI Desktop** — Data modeling & visualization
  - **DAX (Data Analysis Expressions)** — KPI & metric calculations
  - **Data Modeling Techniques** — star schema design & optimization
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## 9. Conclusion

The AdventureWorks Power BI Dashboard delivers a scalable and interactive business intelligence solution that integrates sales, customer, product, and return data into a unified analytical platform.

By enabling comprehensive performance monitoring and actionable insights, the dashboard supports strategic planning, operational optimization, and profitability improvement.

# ThankYou!

I welcome your questions and feedback.

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