

E-Commerce Sales Analysis and Optimization

By

USE BLESSING PENNY

Project Overview

The objective of this project is to analyze and optimize the sales performance of an e-commerce platform by examining client distribution, revenue generation, and inventory management. The aim is to identify key trends, insights, and actionable strategies to enhance business operations and profitability.

Key Components

1. Client Analysis

- **Objective:** Understand the distribution and characteristics of the customer base.
- **Metrics:** Number of clients, client types (dealer vs. wholesaler), client sizes (large vs. small), and regional distribution.
- **Visualization Tools:** Maps, bar charts, and tables.

2. Revenue Analysis

- **Objective:** Track and analyze sales revenue, direct costs, and profit over time.
- **Metrics:** Total revenue, direct costs, profit, revenue by product category, and yearly profit trends.
- **Visualization Tools:** Bar charts, line charts, and tables.

3. Inventory Analysis

- **Objective:** Manage and optimize inventory levels and performance.
- **Metrics:** Number of products sold, product categories, special product sales, average product age, and stock levels.
- **Visualization Tools:** Bar charts, summary tables, and profit analysis charts.

Client Analysis

1. Geographical Distribution: Map Chart

- **Objective:** Display the geographical distribution of clients.
- **Steps:**
 1. Select the `Map` visual from the `Visualizations` pane.
 2. Drag `Country` from the `Clients` table to the `Location` bucket.
 3. Drag `Number of Clients` to the `Size` bucket.
 4. Optionally, add `Client Type` to the `Legend` bucket for differentiation.

2. Client Segmentation: Pie Chart

- **Objective:** Show the segmentation of clients by type.
- **Steps:**
 1. Select the `Pie Chart` visual from the `Visualizations` pane.
 2. Drag `Client Type` to the `Legend` bucket.
 3. Drag `Number of Clients` to the `Values` bucket.

3. Client Activity: Bar Chart

- **Objective:** Display client activity, such as the number of active vs. inactive clients.
- **Steps:**
 1. Select the `Bar Chart` visual from the `Visualizations` pane.
 2. Drag `Activity Status` to the `Axis` bucket.

3. Drag `Number of Clients` to the `Values` bucket.

Revenue Analysis

1. Total Revenue Calculation

- **Objective:** Calculate the total revenue from sales.
- **Steps:**
 1. Create a new measure in Power BI with the following DAX formula:

```
DAX
Copy code
Total Revenue = SUMX(Sales, Sales[Quantity] *
RELATED(Product[Unit Price]))
```

2. Profit Calculation

- **Objective:** Calculate the total profit.
- **Steps:**
 1. Create a new measure in Power BI with the following DAX formula:

```
DAX
Copy code
Total Profit = SUMX(Sales, Sales[Quantity] *
(RELATED(Product[Unit Price]) - RELATED(Product[Cost
Price])))
```

3. Revenue Trend Analysis: Line Chart

- **Objective:** Analyze monthly or yearly revenue trends.
- **Steps:**
 1. Select the `Line Chart` visual from the `Visualizations` pane.
 2. Drag the `Date` field to the `Axis` bucket.
 3. Drag the `Total Revenue` measure to the `Values` bucket.

Inventory Analysis

1. Stock Levels: Bar Chart

- **Objective:** Monitor current inventory levels for each product category.
- **Steps:**
 1. Select the `Bar Chart` visual from the `Visualizations` pane.
 2. Drag the `Product Category` field to the `Axis` bucket.
 3. Drag the `Stock Quantity` measure to the `Values` bucket.

2. Inventory Turnover: KPI

- **Objective:** Analyze how quickly inventory is sold and replaced.
- **Steps:**
 1. Create a new measure in Power BI to calculate inventory turnover:

```
DAX
Copy code
```

```
Inventory Turnover = DIVIDE(SUM(Sales[Quantity]),  
AVERAGE(Inventory[Stock Quantity]))
```

2. Select the `KPI` visual from the `Visualizations` pane.
3. Drag the `Inventory Turnover` measure to the `Indicator` bucket.

Actionable Recommendations

1. Develop marketing campaigns focusing on the most profitable demographics and regions.
2. Implement programs to retain high-frequency buyers and high-value customers.
3. Use just-in-time inventory practices to maintain optimal stock levels.
4. Clear slow-moving stock through discounts and promotions.

Outcome

By implementing these analyses and visualizations, stakeholders will gain a comprehensive understanding of the e-commerce platform's client distribution, revenue generation, and inventory management. This information will enable data-driven decisions to optimize business operations, enhance customer satisfaction, and increase profitability.