

Global E-Commerce Sales Analysis

Company Name: Global E-Commerce Inc.



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Executive Summary

This report analyzes the sales performance of **Global E-Commerce Inc.** to address ongoing business challenges related to profitability, discount strategy, and customer purchasing behavior.

Using Excel-based data analysis and an interactive dashboard, the study examines key patterns across regions, customer segments, product categories, and payment methods.

The analysis reveals significant findings, including strong regional profit variations, the negative impact of high discount rates on profit, and specific product categories driving the majority of revenue.

Final recommendations include optimizing discount policies, enhancing operations in underperforming regions, and focusing on data-driven inventory planning.

Business Problem & Objective

Global E-Commerce Inc. has been experiencing inconsistent profits across regions and product categories. The leadership team is concerned about:

- Fluctuating sales throughout the year
- Declining profits in certain regions
- Inefficient discounting strategies reducing profit margins
- Increasing delivery time affecting customer satisfaction
- Unclear customer segment contribution to total revenue

The objective of this analysis is to identify the root causes of these issues, evaluate business performance, and provide actionable insights to improve profitability and operational efficiency.

Dataset Description

- **Source:** Internal sales dataset provided by Global E-Commerce Inc.
- **Total Records:** 201 rows
- **Total Columns:** 8
- **Key Fields:** Order Date, Region, Category, Sales, Profit, Discount, Delivery Days, Customer Segment, Payment Method
- **Time Period Covered:** One full year of sales
- **Data Limitations:**
 - Limited geographical regions
 - Small dataset size
 - No customer-level demographic details

Data Cleaning & Preparation

The following data preparation steps were performed:

- Checked and validated missing values
- Removed duplicate entries
- Converted date fields to proper date formats
- Standardized text fields (category names, regions)
- Created calculated metrics such as discount percentage and average delivery time
- Ensured correct numeric formats for Sales, Profit, and Discount fields
- Assumptions: All transactions represent finalized orders without returns

Exploratory Data Analysis (EDA)

Initial EDA was performed to understand raw patterns in the dataset:

- **Sales & Profit Distribution:** Identified variations in profitability across products and regions
- **Discount Patterns:** High discounts often resulted in lower profit margins
- **Delivery Time Analysis:** Average delivery time slightly above 4 days
- **Category-wise Trends:** Technology and Office Supplies contributed major sales
- **Customer Segment Behavior:** Home Office and Consumer segments showed higher purchasing frequency
- **Regional Performance:** South region had the highest profit while Central region had the lowest

Charts from Excel were used to visualize these trends.

Dashboard Design (Solution Overview)

An interactive Excel dashboard was created to help business leaders explore and interpret the data efficiently.

The dashboard includes:

- **KPI Cards:** Total Sales, Total Profit, No. of Orders, Average Discount, Average Delivery Days
- **Slicers/Filters:** Month, Region, Category, Payment Method, Customer Segment
- **Pivot-Based Charts:**
 - Monthly Sales Trend
 - Profit by Region
 - Sales & Profit by Category
 - Profit vs Discount
 - Customer Segment Pie Chart
 - Payment Method Donut Chart
 - Top 10 Products by Sales

This dashboard enables stakeholders to interact with the data and make fast, data-driven decisions.

Key Insights & Interpretation

- **South region** generates the highest profit, making it the strongest market
- **Central region** performs poorly in terms of profit
- **Higher discount percentages consistently reduce profit**, indicating inefficient discounting strategy
- **Technology category** brings the highest sales revenue
- **Office Supplies** achieve stable profits despite moderate sales
- **Home Office and Consumer segments** contribute the most to total orders
- **Cash and Credit Card** are the most preferred payment methods
- **Top 10 products** indicate clear demand for Technology-related items (e.g., Laptops, Chairs, Accessories)

These insights highlight both strengths and inefficiencies that the business should address.

Recommendations

Based on the analysis, the following steps are recommended:

- **Reduce high discounting** on low-profit categories
- **Improve marketing efforts** in underperforming regions (like Central)
- **Increase inventory** for top-selling products (e.g., laptops, chairs)
- **Optimize delivery operations** to reduce delivery days
- **Focus promotions** on high-margin products
- **Target Home Office and Consumer segments** more aggressively through campaigns
- **Review payment method preferences** to ensure better checkout experience