

Key Processes and Methods – E-Commerce Sales Analysis Dashboard

- **Data Understanding:**

Analysed a dataset of 9,994 transactions (2011–2014) from GlobalMart, containing fields for order details, customer segment, region, category, sales, quantity, discount, and profit.

- **Data Cleaning & Preparation:**

- Removed duplicates and standardized inconsistent entries.
- Formatted numeric and date fields; extracted Year and Month from Order Date.
- Created calculated fields such as *Profit Margin* ($\% = \text{Profit}/\text{Sales}$) for profitability analysis.

- **Data Structuring & Modeling:**

- Organized data into a logical model separating facts (Sales, Profit, Quantity) and dimensions (Category, Segment, Region, Time).
- Enabled multi-dimensional analysis through Pivot Tables and filters.

- **KPI Derivation:**

- Calculated total sales, profit, orders, quantity sold, and overall profit margin.
- Computed Year-over-Year growth for sales and profit to assess business progress.
- Used these KPIs to evaluate financial health and operational efficiency.

- **Trend Analysis:**

- Aggregated monthly and yearly data to identify peaks and slumps in sales and profit.
- Applied line and column charts to highlight seasonal demand and growth trends.

- **Category & Sub-Category Analysis:**

- Compared performance of Technology, Office Supplies, and Furniture.
- Identified top-performing sub-categories (Phones, Chairs, Binders) and weak profit areas (Tables).

- **Regional & Geographical Analysis:**

- Mapped sales and profit by U.S. state.
- Found California and New York as top performers, while Texas, Ohio, and Pennsylvania showed losses.

- **Customer Segment Analysis:**

- Evaluated Consumer, Corporate, and Home Office segments.
- Consumer led revenue; Corporate steady profits; Home Office emerging growth segment.

- **Dashboard Design:**
 - Built interactive Excel dashboard using Pivot Charts, Slicers, and KPI cards.
 - Included dynamic filters for Year, Segment, and Region for detailed drill-downs.
- **Validation & Quality Checks:**
 - Cross-verified Pivot Table totals with raw data.
 - Tested slicers and formulas for consistent updates and accuracy.
- **Analytical Techniques:**
 - Used descriptive, comparative, and diagnostic analytics to identify patterns and root causes.
 - Applied visualization techniques to present findings clearly and interactively.
- **Outcome:**

Delivered a dynamic dashboard that reveals sales and profit drivers, supports strategic decisions, and enables continuous performance monitoring across categories, regions, and customer segments.