E-COMMERCE CAMPAIGN PERFORMANCE DASHBOARD WITH DYNAMIC PRODUCT INSIGHTS IN POWER BI

1. Background and Problem Statement:

An e-commerce company running multi-channel marketing campaigns struggled to connect advertising spend with actual product-level sales performance. Despite increasing ad budgets across Google and Facebook, return on ad spend (ROAS) remained unclear, and poor-performing campaigns were not being detected in time. The company needed a **Power BI dashboard** that combined marketing campaign data with sales outcomes to guide product strategy and ad budget allocation.

2. Objectives:

- To integrate ad spend data with product-level sales metrics for ROAS and conversion tracking
- To analyze campaign performance across channels (Google Ads, Facebook Ads)
- To identify best- and worst-performing products by campaign source
- To provide a decision-making tool for optimizing campaign spend and product targeting

3. Methodology:

Data Sources Integrated:

- **Google Ads & Facebook Ads Export:** Campaign name, cost, clicks, impressions, CPC
- **Shopify Sales Data:** Product, quantity sold, revenue, discount, transaction date
- **Google Analytics (GA4):** Session source/medium, landing page, conversion paths

Tools and Features in Power BI:

- Power Query for cleaning and merging ad, GA, and transaction data
- DAX for calculated metrics such as:
    - ROAS = Revenue / Ad Spend
    - Cost per Sale = Ad Spend / Units Sold
    - Conversion Rate = Orders / Clicks

- Time-based filters (last 7 days, campaign duration)
- Drill-through pages from campaign → product → transaction

Dashboard Components:

- **Campaign Overview Page:**
  - Total Spend, Revenue, ROAS, Clicks, Conversions
  - Channel-wise breakdown (Google vs Facebook vs Organic)
- **Product Insights Page:**
  - Top-selling and high-ROAS SKUs
  - Underperforming products with high ad spend and low revenue
- **Category-Level Analysis:**
  - Product categories ranked by ROAS
  - Contribution to overall campaign success
- **Ad Funnel Tracker:**
  - Impressions → Clicks → Conversions → Revenue visualization

4. Results:

- Identified that **60% of ad spend** was going to **20% of products**, some of which had poor conversion
- Flagged two high-CTR campaigns with **ROAS below 1.2**, leading to budget reallocation
- Uncovered three underpromoted products with **ROAS > 4.5** and high AOV
- Helped reduce campaign waste and improve targeting, resulting in **14% increase in ad efficiency** within 30 days

5. Interpretation and Insights:

- High click-through rate did not always translate into high sales—conversion rate and ROAS were more reliable indicators
- ROAS varied widely by category; electronics had lower margins but higher returns per dollar spent

- Ad spend was more effective when tied to proven SKUs with high past conversion, not just trending products
- Combining campaign data with transaction-level insights helped optimize cross-functional decisions

6. Recommendations:

- Reallocate budget toward products with historical high ROAS and strong conversion trends
- Limit CPC bidding for low-performing SKUs unless bundled with high-performing ones
- Set ROAS thresholds as triggers for automatic campaign review
- Run A/B tests to validate creatives and landing pages for low-conversion campaigns

7. Future Work:

- Add customer acquisition cost (CAC) and lifetime value (LTV) to improve spend forecasting
- Integrate real-time ad platform APIs for continuous monitoring
- Layer customer demographic data to further personalize campaigns

8. Stakeholder Relevance:

Academic:

- Demonstrates real-world campaign analytics with integrated ad and sales data
- Useful for digital marketing analytics, performance optimization, and Power BI training

Corporate:

- Equips marketing and sales teams with actionable dashboards for campaign and product alignment
- Helps optimize marketing ROI and product targeting strategies