Social Media Data Visualization in Power BI

Meta Ad Performance Analysis – Project Walkthrough

1. Business Objective

The primary objective of this project is to design a **Power BI performance tracking dashboard** for paid advertising campaigns running on **Facebook and Instagram (Meta platforms)**.
The dashboard provides end-to-end visibility into the **advertising funnel**, covering awareness, engagement, and conversion stages, along with budget utilization. It enables the marketing team to:

- Identify which platform (Facebook vs Instagram) delivers better performance
- Monitor key performance indicators (KPIs) such as reach, engagement, and conversions
- Evaluate return on investment (ROI) and optimize budget allocation
- Understand how different audience segments interact with ads

2. Scope of the Report

In Scope
- Paid ad campaigns running exclusively on **Facebook and Instagram**
- Analysis of impressions, clicks, engagements, purchases, and budgets

Out of Scope
- Other Meta platforms (Messenger, Audience Network)
- Organic engagement (only **paid ads** are considered)

This clear scope ensures the analysis remains focused on actionable business insights.

3. Dataset Overview & Data Model

The dataset is modelled to closely resemble how **Meta Ads platforms** store data. It consists of four core tables:

- **ad_events (Fact Table):**
  Stores event-level interactions such as impressions, clicks, shares, comments, and purchases. All KPIs are derived from this table.
- **ads (Dimension):**
  Contains ad creative details including platform, ad type (Image, Video, Carousel, Story), and targeting information.
- **campaigns (Dimension):**
  Stores campaign-level information such as start/end dates and total budget.
- **users (Dimension):**
  Includes demographic and interest information for users engaging with ads.

These tables are connected using a **star schema**, ensuring accurate filtering, strong performance, and reliable KPI calculations.

4. Key KPIs & Metrics

The dashboard tracks the following KPIs:

KPI	Description
Impressions	Number of times ads were shown
Clicks	Number of ad clicks
Shares / Comments	Indicators of engagement
Purchases	Completed conversions
Engagements	Clicks + Shares + Comments
CTR	Clicks ÷ Impressions
Engagement Rate	Engagements ÷ Impressions
Conversion Rate	Purchases ÷ Clicks
Purchase Rate	Purchases ÷ Impressions
Total Budget	Total campaign spends
Avg Budget per Campaign	Average spends per campaign

All KPIs are implemented using **DAX measures** and respond dynamically to slicers and filters.

5. Dashboard Visuals & Insights

Audience Analysis
- **Gender (Donut Chart):**
  Females contribute the highest engagement (43%), followed by males (22%), with the remaining interactions from other or unspecified genders.
  → Indicates strong performance among female audiences.
- **Age Group (Bar Chart):**
  Engagement peaks in the **18–30 age range**, especially early 20s, and drops significantly after 35+.
  → Core audience is young adults.

Geographic Analysis
- Highest engagement observed from **India, US, Brazil, Germany, and UK**.
- Strategic insight:
  - India & US → high volume markets
  - Germany & UK → higher purchasing power, premium targeting opportunities

Time-Based Trends

- **Weekly Trend:** Engagement remains consistent across weeks, showing campaign stability.
- **Hourly Trend:** Peak engagement occurs between **3 PM and 8 PM**, with lowest activity in early morning hours.
  → Ad scheduling should prioritize afternoon and evening slots.

Ad Type Performance

- **Video ads** outperform other formats across CTR, conversion rate, and engagement rate.
- **Stories ads** also perform strongly.
- Image and Carousel ads show reasonable engagement but lower conversion efficiency.

6. Key Findings

- Strong **top-funnel performance** with high CTR (11.76%) and engagement rate (13.56%).
- Significant **drop-off in the purchase stage** (Purchase Rate: 0.61%).
- Indicates that while ads attract attention, conversion optimization is needed.
- Best-performing audience: **Females aged 18–30**.
- Best-performing formats: **Video and Stories ads**.

7. Recommendations

1. Improve landing page experience and checkout flow to increase conversions
2. Implement retargeting campaigns for users who clicked but did not purchase
3. Reallocate more budget to **Video and Story ads**
4. Schedule ads during peak engagement hours (afternoon & evening)
5. Segment campaigns by geography to balance high-volume and high-value regions

8. Deliverables

- Multi-page **Power BI report (.pbix)**
- Clean star-schema data model
- DAX measures for all KPIs
- Interactive slicers and dynamic visuals
- **One-page / multi-page walkthrough PDF** documenting insights and recommendations