# Business Requirements Document

**Meta Ad Performance Analysis**

## Business Objective

The business needs a performance tracking report for advertising campaigns running on Facebook and Instagram. The report will provide visibility into campaign reach, engagement, conversions, and budget utilization. This will enable the marketing team to:

- Identify the most effective platform (Facebook vs Instagram)
- Track campaign ROI and optimize budget allocation
- Understand audience engagement patterns

## Scope of the Report

**In Scope:**

- Campaigns running on Facebook and Instagram only

**Out of Scope:**

- Other platforms (Messenger, Audience Network)
- Organic engagement (only paid ads will be included)

## KPIs & Definitions

| KPI | Definition | Formula | Example Use |
|---|---|---|---|
| Impressions | Number of times ads were displayed | Count of event_type = Impression | Measure reach |
| Clicks | Number of times users clicked ads | Count of event_type = Click | Measure engagement intent |
| Shares | Number of times ads were shared | Count of event_type = Share | Viral engagement |
| Comments | Number of user comments on ads | Count of event_type = Comment | User sentiment & feedback |
| Purchases | Number of purchases made after seeing ads | Count of event_type = Purchase | Conversions |
| Engagements | Total interactions (Clicks + Shares + Comments) | Clicks + Shares + Comments | Engagement volume |
| CTR (Click Through Rate) | % of impressions that resulted in clicks | $(Clicks \div Impressions) \times 100$ | Ad effectiveness |
| Engagement Rate | % of impressions that resulted in engagements | $(Engagements \div Impressions) \times 100$ | Overall ad appeal |

| KPI | Definition | Formula | Example Use |
|---|---|---|---|
| Conversion Rate | % of clicks that resulted in purchases | (Purchases ÷ Clicks) × 100 | Funnel efficiency |
| Purchase Rate | % of impressions that resulted in purchases | (Purchases ÷ Impressions) × 100 | Conversion from reach |
| Total Budget | Total spend allocated to campaigns | Sum of campaigns.total_budget | Cost analysis |
| Avg. Budget per Campaign | Average budget allocation per campaign | Total Budget ÷ Campaign Count | Budget distribution |

**Charts Requirements**

**1. Target Gender – Donut Chart**

- Visualize performance split by target gender (from the ads table)
- Metric displayed will change dynamically via parameter
- Purpose: Identify which gender segment contributes most to the selected metric

**2. Target Age Group – Bar Chart**

- Show engagement across age groups defined in the ads table
- Each bar represents one age group
- Metric displayed will switch dynamically
- Purpose: Highlight which age group is most responsive to campaigns

**3. Country – Map**

- Display performance by country (from the users table)
- Bubble size or color intensity represents the selected metric
- Purpose: Provide a geographic view of campaign reach and engagement

**4. Calendar Month – Calendar Heat Map**

- Plot performance at the monthly level, based on the timestamp field in ad_events
- Darker shades indicate higher activity
- Purpose: Detect seasonal trends, peak ad months, and low-activity periods

**5. Weekly Trend – Stacked Column by Ad Type**

- Display weekly performance trends
- X-axis: Week number (from the Date Table linked to ad_events)
- Stacks: Different ad_type values (from the ads table)
- Y-axis: Selected metric
- Purpose: Compare ad type contributions over weeks

**6. Hourly Trend – Area Chart**

- Show activity by hour of day (from ad_events[time_of_day])
- X-axis: Hour of the day (0–23)
- Y-axis: Selected metric

- Purpose: Understand user activity patterns throughout the day

**7. Ad Type – Matrix**

- Show the selected metric across ad types and breakdown by platform (Facebook vs Instagram)
- Rows: Ad Types
- Columns: Platforms or other campaign dimensions
- Values: Selected metric
- Purpose: Compare performance across ad formats and platforms side by side