

Meta Ad Performance Analysis

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. | $(\text{Clicks} \div \text{Impressions}) \times 100$ | Ad effectiveness |
| Engagement Rate | % of impressions that resulted in engagements. | $(\text{Engagements} \div \text{Impressions}) \times 100$ | Overall ad appeal |
| Conversion Rate | % of clicks that resulted in purchases. | $(\text{Purchases} \div \text{Clicks}) \times 100$ | Funnel efficiency |
| Purchase Rate | % of impressions that resulted in purchases. | $(\text{Purchases} \div \text{Impressions}) \times 100$ | 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 |
|--------------------------|---|-------------------------------|---------------------|

Chart Requirements

1. Target Gender – Donut Chart

A **donut chart** will visualize performance split by **target gender** (from the ads table).

- The metric displayed (e.g., Impressions, Clicks, Purchases) will change dynamically via the parameter.
- Purpose: Identify which gender segment contributes most to the selected metric.

2. Target Age Group – Bar Chart

A **bar chart** will show engagement across **age groups** defined in the ads table.

- Each bar will represent one age group.
- The metric displayed will switch dynamically.
- Purpose: Highlight which age group is most responsive to campaigns.

3. Country – Map

A **map visualization** will display performance by **country** (from the users table).

- Bubble size or color intensity will represent the selected metric.
- Purpose: Provide a geographic view of campaign reach and engagement.

4. Calendar Month – Calendar Heat Map

A **calendar heat map** will plot performance at the **monthly level**, based on the timestamp field in ad_events.

- Darker shades will indicate higher activity.
- Purpose: Detect seasonal trends, peak ad months, and low-activity periods.

5. Weekly Trend – Stacked Column by Ad Type

A **stacked column chart** will 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

An **area chart** will 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

A **matrix visualization** will show the selected metric across **ad types** and possibly break down further 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.