Advertising Performance Analysis Report

This report analyses multi-platform digital advertising performance across **Google Ads, Meta Ads, and TikTok Ads** to identify opportunities for improving marketing efficiency and return on ad spend (ROAS). Key findings indicate that TikTok Ads delivers the highest efficiency, with superior ROAS and the lowest cost per acquisition, while Google Ads contributes significant conversion volume at a higher cost. The report recommends maintaining Google Ads for baseline demand while reallocating incremental budget toward TikTok Ads to improve overall marketing effectiveness.

EXECUTIVE SUMMARY

MULTI-PLATFORM ANALYSIS

Business Problem

Marketing teams often face the challenge of deciding **where to allocate advertising budgets** across platforms that differ in cost, reach, and performance. The core business question this project addresses is:

> *How can advertising budget be reallocated across platforms and campaigns to maximise ROAS while maintaining acceptable CPA levels?*

Understanding this trade-off is essential for sustainable growth – spending more does not always yield proportionally better results, and the right mix of platforms can unlock significant efficiency gains without increasing total ad spend.

Primary Stakeholders

- Marketing & Growth Teams
- Performance Marketing Managers
- Campaign Analysts

Secondary Stakeholders

- Executive Leadership
- Finance & Budget Owners
- Strategy & Planning Teams

Data Overview

The dataset represents **campaign-level advertising performance data** treated as a simulated marketing dataset for analytical purposes. It was processed to ensure consistency and accuracy before analysis, with each record providing a complete picture of platform-level campaign activity.

Temporal Coverage

Campaign-level data organized by **Date**, enabling trend analysis and period-over-period comparisons across platforms.

Platform Dimension

Three advertising platforms covered: **Google Ads, Meta Ads, and TikTok Ads**, including campaign type breakdowns.

Engagement Signals

Core volume metrics including **Impressions, Clicks, and Conversions** to measure reach and audience response.

Financial Metrics

Both **Ad Spend and Revenue** captured at the campaign level, enabling accurate ROAS and CPA calculations.

All data was validated for schema integrity and row-count accuracy before being aggregated for analysis. No personally identifiable information was included in the dataset.

Methodology & Tools

An **end-to-end analytics workflow** was followed, progressing from raw data validation through exploratory analysis to executive-ready visual storytelling. Each stage used the most appropriate tool for the task at hand.

1

PostgreSQL

Data validation, schema checks, KPI calculation, and platform-level aggregation

2

Python

Exploratory analysis with Pandas – distributions, outliers, skewness, and cross-validation

3

Power BI

Executive dashboard with KPIs, comparative visuals, and diagnostic charts for decision support

4.1 Data Validation

- Verified row counts and schema integrity
- Calculated core KPIs
- Exported clean dataset

4.2 Exploratory Analysis

- CPA and ROAS distributions
- Outlier identification
- SQL output validation

4.3 Visual Analytics

- Executive-friendly dashboard
- Comparative visuals
- Business decision focus

Key Metrics Defined

Three core metrics drive the analysis. Critically, all metrics were computed as **aggregated measures** – not averaged ratios – to ensure accurate business interpretation and avoid statistical distortions from campaign-level variance.

ROAS — Return on Ad Spend

Formula: Revenue ÷ Ad Spend

Measures how much revenue is generated for every dollar spent on advertising. A higher ROAS indicates greater revenue efficiency. This is the primary efficiency benchmark used across all platform comparisons in this report.

CPA — Cost per Acquisition

Formula: Ad Spend ÷ Conversions

Measures the average cost to acquire one converting customer. A lower CPA signals more cost-effective campaign execution. CPA is especially important when evaluating scalability – a platform with a low CPA can absorb more budget without proportional cost increases.

Conversion Share

Formula: Platform Conversions ÷ Total Conversions

Represents each platform's proportional contribution to total conversions. Conversion share is used alongside ROAS and CPA to surface the critical distinction between *volume contribution* and *efficiency* – a platform can have a large share but still underperform on cost.

Using aggregated totals rather than per-campaign averages prevents high-spend, low-conversion outlier campaigns from distorting overall platform performance scores.

Analysis & Insights

Platform-level analysis reveals significant differences in efficiency, even where conversion volumes appear similar. The headline finding: **high conversion volume does not necessarily imply high efficiency.**

🎵 TikTok Ads

- Highest ROAS across all platforms
- Lowest CPA – most cost-efficient
- Strong scalability potential

🔍 Google Ads

- Highest share of total conversions
- Highest CPA – diminishing returns
- Lower ROAS at scale

📘 Meta Ads

- Moderate CPA and ROAS
- Stable, consistent performance
- Not leading – but reliable middle channel

Campaign-level diagnostics further reveal **clear diminishing returns** on high-spend Google Ads campaigns, while TikTok campaigns show more consistent and scalable spend-to-revenue relationships. This supports a strong case for incremental budget reallocation.

Business Recommendations

Based on the platform-level efficiency analysis, three strategic recommendations are identified. These are designed to **improve overall marketing efficiency and reduce average CPA** without requiring a total budget increase – optimizing the existing spend envelope for maximum return.

1 Maintain Google Ads for Baseline Demand

Retain Google Ads to capture **high-intent search traffic** and protect existing conversion volume. Optimize or cap spend on underperforming campaigns showing clear diminishing returns. Do not defund – but do not scale further until efficiency improves.

2 Reallocate Incremental Budget to TikTok Ads

Direct new and reallocated budget toward TikTok, which delivers **superior ROAS and lower CPA**. Its scalability profile means incremental spend can grow revenue without proportional cost increases – the ideal profile for an efficiency-led growth strategy.

3 Monitor Meta Ads as a Stable Middle Channel

Continue running and optimizing Meta Ads campaigns. While not the top performer, Meta provides **audience reach and retargeting value**. Prioritize budget shifts toward TikTok before revisiting Meta's allocation based on ongoing performance data.

↓ CPA

Reduced Average Cost

Lower blended CPA across portfolio

↑ ROAS

Higher Revenue Return

More revenue per advertising dollar

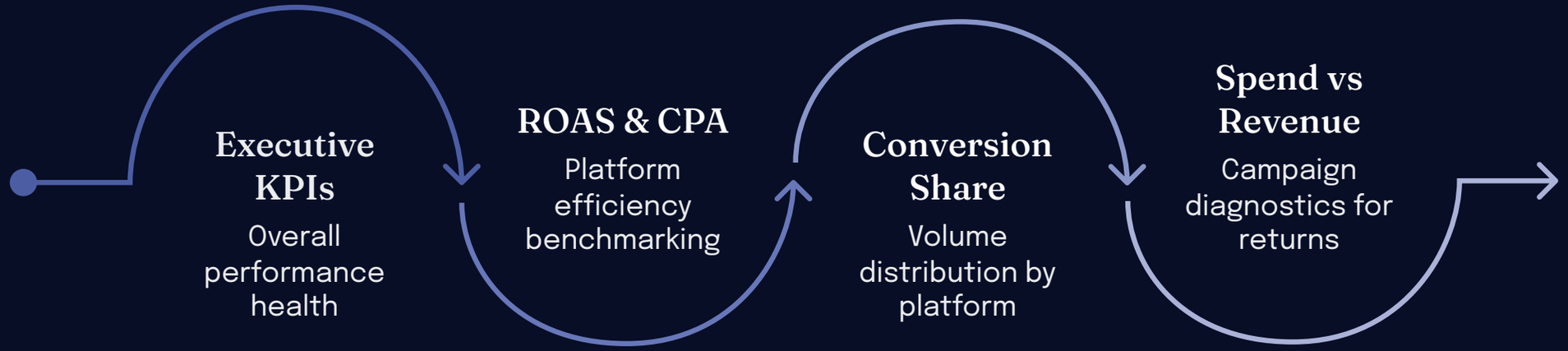
0+

No Budget Increase

Efficiency gains within existing spend

Dashboard Summary

The **Power BI dashboard** was structured to guide decision-makers through a logical narrative – beginning with overall health, drilling into platform comparisons, and concluding with campaign-level diagnostics. Each visual layer serves a distinct analytical purpose.



This progressive disclosure structure moves stakeholders from *what is happening* to *why it is happening* – ensuring that recommendations are grounded in visual evidence at every level of the analysis.

Design Principles Applied

- Clarity over complexity
- Business-first hierarchy
- Action-oriented framing

Intended Audience Experience

Executives can absorb the headline KPIs in under 60 seconds, while analysts can drill into campaign-level charts for deeper diagnostic insight – all within a single, coherent dashboard view.

Limitations & Assumptions

As with all analytical projects, the findings are subject to a set of important limitations that should be considered before acting on the recommendations. These do not invalidate the analysis but define the boundaries within which the conclusions are most reliable.

Simulated Dataset

The dataset represents **simulated marketing data**, not live campaign performance. While the analytical methods are rigorous and transferable, results must be revalidated against real-time platform data before any budget decisions are executed.

No Cost-of-Goods Data

Profitability is inferred using revenue and ad spend only. **No cost-of-goods or operational cost data** was included. True profitability per platform may differ once product margins, fulfillment costs, and overheads are factored in.

Requires Real-World Validation

All platform comparisons reflect the performance patterns in this specific dataset. **Market conditions, seasonality, and audience shifts** may alter platform efficiency rankings over time. Continuous monitoring is essential post-reallocation.

These limitations are standard for analytical projects built on simulated data. The framework and methodology are directly applicable to production environments with live data feeds.

Conclusion

This project demonstrates how combining **SQL, Python, and Power BI** enables a complete analytics pipeline – from raw data validation through to stakeholder-ready insights. Each tool played a specific role: PostgreSQL for data integrity and aggregation, Python for statistical exploration, and Power BI for visual communication and executive decision support.

More importantly, the analysis highlights that effective data-driven marketing is not about chasing isolated metrics. It is about understanding **trade-offs between volume and efficiency** – recognizing that a platform generating high conversion counts may still be underperforming on cost, and that reallocation decisions require a holistic view of ROAS, CPA, and scalability together.

Data Pipeline	Core Insight	Business Action
SQL → Python → Power BI end-to-end workflow	Volume ≠ Efficiency – TikTok leads on ROAS and CPA	Reallocate incrementally to TikTok; maintain Google baseline

ANALYSIS COMPLETE

READY FOR STAKEHOLDER REVIEW