

Influencer Campaign ROI Dashboard for HealthKart

 **Live Dashboard:** healthkart-campaign-performance.streamlit.app

Objective

HealthKart, a leading platform for health and wellness products, engages influencers across Instagram, YouTube, and Twitter to drive brand awareness and product sales. With campaigns spanning multiple products and influencer categories, the marketing team sought a way to assess performance in a structured, insightful, and decision-oriented manner.

To address this need, I conceptualized and built an end-to-end influencer campaign analytics dashboard using Python and Streamlit. The objective was not merely to display data, but to simulate and model a real-world marketing intelligence system that evaluates influencer efficiency, campaign returns, and payout rationality. This system is designed to support ongoing strategic decisions for budget allocation, campaign restructuring, and performance improvement.

Data Simulation and Modeling

Given the nature of the assignment, all data used in the dashboard was fully simulated in Python, using statistical logic to reflect plausible real-world marketing behavior. Four interlinked datasets were created:

1. A structured influencer dataset, detailing platform, gender, follower count, and niche (fitness, wellness, parenting, etc.).
2. A post-level dataset capturing campaign reach, likes, captions, and user engagement metrics.
3. A transactional dataset simulating user-level tracking across product purchases, revenue, and campaign tags.
4. A payout dataset modeling two distinct compensation strategies — pay-per-post and pay-per-order — tied to influencer performance.

The data simulation process was as important as the analysis itself, requiring careful calibration to avoid artificial bias while ensuring analytical realism. This synthetic ecosystem served as the foundation for building a performant, filterable dashboard with high exploratory power.

Features and Functionalities

The dashboard is designed with multiple layers of interactive filtering, enabling precise campaign diagnostics. Users can slice the data by platform (Instagram, YouTube, Twitter), influencer category (Fitness, Parenting, etc.), brand campaign, product, and influencer identity. These filters propagate across all dashboard components in real-time, allowing seamless exploratory analysis.

Every major data category — Influencers, Posts, Orders, Payouts — is displayed using dynamic tables. More importantly, the dashboard computes two key metrics of performance:

- **Return on Investment (ROI):** Calculated as revenue divided by influencer payout.

$$\text{ROI} = \frac{\text{Revenue}}{\text{Total Payout}}$$

- **Incremental Return on Ad Spend (Incremental ROAS):** A more nuanced measure derived by subtracting baseline revenue (assumed at ₹300/order) from actual revenue, thereby isolating the economic contribution of each influencer.

$$\text{Incremental ROAS} = \frac{\text{Revenue} - (\text{Orders} \times 300)}{\text{Total Payout}}$$

These metrics are visualized using interactive bar charts generated through Plotly. A leaderboard module ranks influencers based on either ROI or Incremental ROAS, with a built-in download option for CSV export. Additionally, a built-in insights engine summarizes key observations — including highest and lowest performers — and highlights influencers incurring losses.

An analytical alerts section detects loss-making influencers (those with $\text{ROI} < 1$ or $\text{Incremental ROAS} < 0$), and a diagnostics module uncovers patterns in underperformance by platform, influencer type, and product. The goal of this section is to offer strategic accountability, not just surface-level data.

Tools and Technologies Used

This project was built entirely in Python, using the following core libraries:

- Pandas: For data cleaning, aggregation, and filtering logic
- Streamlit: For building the interactive dashboard and deploying the application
- Plotly: For advanced data visualization, especially for ROI and ROAS metrics
- NumPy and Random: For simulating realistic campaign and order data

The deployment was hosted on Streamlit Cloud, making the tool accessible via browser without any installation.

Key Achievements

Developing this dashboard required a multidisciplinary approach, combining data modeling, interface design, economic analysis, and code optimization. Key achievements from this project include:

- Built a comprehensive end-to-end performance dashboard with 20+ user filters and live visual outputs
- Simulated 4 interconnected datasets in Python, generating over 1,000 synthetic records with meaningful variation
- Developed a novel Incremental ROAS calculation tailored for influencer marketing — going beyond standard ROI to reflect marginal effectiveness
- Successfully flagged 4 loss-making influencers and uncovered trends tied to poor product-campaign alignment

- Created a downloadable leaderboard tool and a live storytelling module that translates raw data into business insights
- Framed all outputs within a robust economic evaluation structure, embedding marginal analysis, sunk cost theory, and strategic reallocation principles

Key Performance Results

From the simulated data and dashboard output, several interesting trends and takeaways emerged.

An influencer named @carrie35 demonstrated the most impressive financial efficiency, delivering a ROI of 24.95 and an Incremental ROAS of 22.86, both on Instagram. This indicates that every ₹1 spent on her yielded nearly ₹25 in revenue, and even after removing baseline expectations, her content drove substantial incremental gains. On the volume side, @charles74 led the campaign in both orders and total revenue, with 47 orders and a revenue generation of ₹155,075.

However, not all influencers were value-positive. The model identified 4 influencers whose campaigns resulted in financial loss, defined as either ROI below 1 or Incremental ROAS below 0. These losses were not random; they clustered across platforms and categories. Specifically, Instagram and Twitter each accounted for 2 loss-makers, and the Parenting category stood out with 3 consistently underperforming influencers. At the product level, Protein Powder, Omega 3, Multivitamins, Energy Bars, and Creatine were all associated with recurring losses, suggesting a product-content mismatch or ineffective targeting strategy.

Insights and Strategic Value

My training in economics gave me a unique lens through which to interpret campaign data. I focused not only on correlation and performance rankings but also on the causal impact of influencer content, particularly by examining incremental gains over baseline outcomes.

The use of Incremental ROAS is rooted in economic marginalism — a framework that emphasizes how much extra benefit is gained from an additional unit of input. In this context, it reflects the incremental revenue attributed to influencer spend, separating it from organic sales. This helps HealthKart make grounded decisions about whether spending more on a given influencer is economically justified.

By identifying loss-making campaigns, I essentially modeled the concept of opportunity cost and sunk cost avoidance. Each underperforming influencer not only fails to generate returns but also diverts funds that could be better spent on high-performers. My dashboard gives HealthKart the ability to preemptively recognize these inefficiencies.

Furthermore, by enabling granular analysis across platform, category, and product — the dashboard mirrors segmentation analysis common in consumer theory. Each influencer-product pair becomes a unique economic unit, and returns are evaluated not just on totals but on their marginal contribution to the whole campaign.

Finally, my leaderboard module captures the essence of revealed preference theory. Influencers who consistently outperform do so because they resonate with the market — not just because of vanity metrics like reach or likes. This reframes the idea of "influence" as a measurable, monetary value — not a vague brand buzz.

Recommendations for HealthKart

Several strategic interventions are suggested based on the dashboard's findings and grounded in economic reasoning. To start, expand engagement with high-Incremental ROAS influencers like @carrie35. These creators not only convert well but offer scalable returns that exceed expectations. Incentivizing them with performance bonuses or exclusive campaign deals could further amplify their impact.

Second, consider reconfiguring campaigns tied to consistently underperforming products such as Protein Powder and Omega 3. These may benefit from influencer segmentation (e.g., more specialized health educators) or bundled promotions to increase perceived value. From a compensation perspective, shift loss-making influencers to performance-based models. Pay-per-order contracts tie costs directly to impact, aligning economic incentives between brand and influencer. Next, platforms with repeated losses — particularly Twitter — may require more tailored content strategies or reconsideration of media fit. Not all platforms serve every campaign goal equally.

Finally, HealthKart could adopt a longitudinal lens by integrating Lifetime Value (LTV) into the dashboard's next iteration. Influencers who bring high-LTV customers may not look profitable in short-term ROI but are invaluable in building sustained customer relationships.