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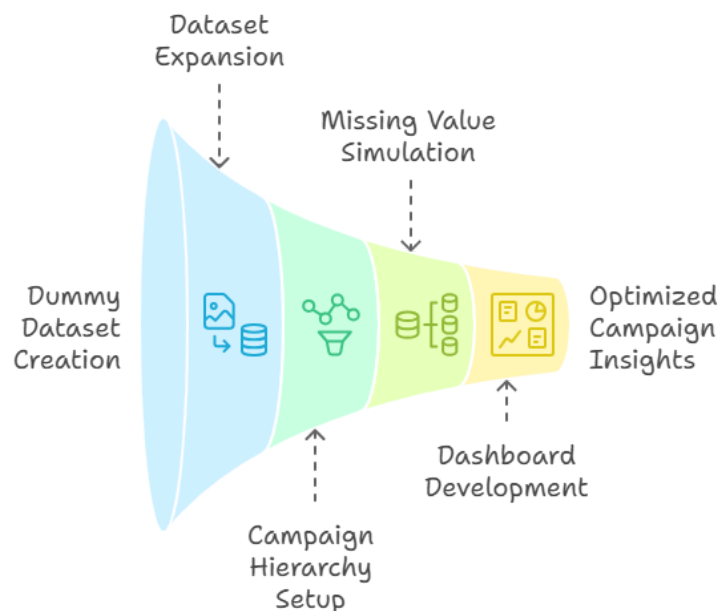https://www.linkedin.com/in/yog-batra-661798179/

Campaign Performance Monitoring with Power BI

At-a-Glance

This is a real-world simulation project focused on marketing campaign performance, designed to support data-driven decision-making for a global retail company. The goal was to build a comprehensive performance tracking system that gives marketing teams visibility into spend, reach, engagement, and revenue — and helps optimize future campaigns across platforms and audiences.

Starting with a dummy dataset of ~150,000 rows across just 3 months, I engineered and expanded the dataset to span two full years (2022–2023), created campaign hierarchies, simulated missing values, and developed a dynamic, interactive Power BI dashboard with actionable insights across creatives, placements, and channels.

Marketing Campaign Optimization Funnel

Dataset Expansion

Missing Value Simulation

Dummy Dataset Creation

Optimized Campaign Insights

Campaign Hierarchy Setup

Dashboard Development

Made with Napkin

Solution

1. Data Expansion & Simulation

- Extended a narrow 3-month dataset to a full 24-month range using randomized date assignment and campaign logic.

- Simulated realistic values for metrics like spend, impressions, revenue, conversions, and bounce rate to enable rich performance analysis.

2. Metric Engineering & Logic Building

- Created custom formulas in Alteryx to vary metric distributions across campaigns, creatives, and placements.

- Introduced hierarchy levels (Campaign → Creative → Placement) to support multi-level drill-down analysis.

3. Data Modelling & Time Intelligence

- Built a custom calendar table and connected it to the dataset for accurate time-based comparisons.

- Created dynamic fields like `Year`, `Month`, and `Quarter` to enable trend analysis and YoY/MoM metrics.

4. KPI Definition & DAX Formulas

- Defined over 25 DAX measures including:

    - Total Revenue, Spend, CTR, CPA, and ROAS

    - MoM and YoY Revenue comparisons

- Dynamic year logic based on `MAX(Year)`

- Conditional formatting with DAX color outputs

- % of total metrics across platforms and channels

5. Dashboard Development

- Designed a clean, interactive dashboard in Power BI with:

  - KPI cards for high-level metrics

  - Bar/line charts for time-based revenue and spend trends

  - Stacked bars for channel share (%)

  - Tables for creative, placement, and campaign-level performance

  - Slicers for filtering by audience, region, campaign type, and year

Recommendations

◆ Channel & Platform Insights

Meta, Google, and YouTube channels show high reach and spend. It's critical to monitor **CTR and Conversion Rate** across each platform and reallocate budget toward the ones with stronger performance. YouTube, in particular, seems under-optimized based on impressions vs. conversions.

◆ Campaign Efficiency

Campaigns like *CMP047* and *CMP015* stand out with higher revenue-to-spend ratios. These campaigns can be studied further to extract patterns in creative type, placement strategy, or target audience that can be replicated in others.

◆ Audience & Device Breakdown

Segmenting by device shows mobile performs better in terms of engagement and bounce rate. Investing in **mobile-optimized creatives** and targeting mobile audiences may yield better ROI. Also, **targeting health/wellness and tech enthusiast segments** show higher conversions.

◆ Time-Based Trends

Revenue spikes are visible in late Q3 and Q4. Planning ahead for these surges by increasing ad spend or launching seasonal campaigns during those periods could maximize return.

◆ Creative & Placement Optimization

Top-performing creatives consistently show higher engagement scores and lower bounce rates. **Rotating underperforming placements** or reassigning high-performing creatives to new channels could unlock hidden value.

What I Learned

- **Creating complete BI solutions from scratch** using structured planning, simulated datasets, and real-world business logic.

- **Manipulating data in Alteryx**: Used advanced formulas and macros to simulate realistic campaign data, apply transformations, and fill in missing metrics with randomized logic.

- **Data modelling and DAX in Power BI**: Built a flexible data model with fact and dimension tables, calendar logic, and 15+ DAX measures covering revenue trends, conversion rates, ROAS, conditional formatting, and YoY comparisons.

- **Dashboard design for stakeholders**: Focused on clarity, visual storytelling, and interactivity — enabling users to filter by campaign, year, audience, and channel to uncover performance patterns.

Dashboard 1

Date: 01/01/2022 — 30/12/2023

Channel: All

Source_Platform: All

Executive Summary | **Detailed View**

Revenue	Spend	CTR	ROAS
185M 0.99% ▲	74.64M 0.68% ▲	4.47% 0.64% ▲	2.47 0.30% ▲

Channel Performance By

Revenue | **Spend** | **CTR** | **Impressions**

● Display ● Email ● Native ● Search ● Social

| 25.6% | 10.8% | | 30.0% | 29.6% |

Channel	Revenue	Revenue Change	Revenue Change %	Spend	Spend change	Spend Change %
Display	47259833	-569,251.00	-2.38%	14,514,666.00	-307,190.00	-4.15%
Email	19894003	565,009.00	5.85%	8,578,739.00	170,359.00	4.05%
Native	7378105	134,847.00	3.72%	3,234,341.00	-215,201.00	-12.48%
Search	55363305	733.00	0.00%	24,351,202.00	115,476.00	0.95%
Social	54704178	773,894.00	2.87%	23,958,027.00	489,515.00	4.17%
Total	**184599424**	**905,232.00**	**0.99%**	**74,636,975.00**	**252,959.00**	**0.68%**

● Revenue ● Revenue Change %

(Chart by month: July, May, January, March, October, June, August, December, April, September, November, February)

Dashboard 2

Date: 01/01/2022 — 30/12/2023

Channel: All

Source_Platform: All

N Value: 10

Executive Summary | **Detailed View**

Revenue	Spend	CTR	ROAS
185M 0.99% ▲	74.64M 0.68% ▲	4.47% 0.64% ▲	2.47 0.30% ▲

Campaign_Name	Bottom N Campaigns
Weekend Mega Sale	1,597,650.00
Spring Refresh Push	4,236,328.00
Pet Lovers Promotion	4,455,353.00
Happy Hour Offers	3,288,170.00
Global Launch Countdown	50,053,601.00
Gift Guide: Last-Minute Deals	8,317,243.00
Fall Flavor Fest	2,925,115.00
Earth Day Eco Sale	3,070,315.00
Daily Deals Dash	2,642,737.00
Campus Life Essentials	2,276,458.00
Total	

Campaign_Name	Top N Campaigns
Daily Deals Dash	2,642,737.00
Fall Flavor Fest	2,925,115.00
Earth Day Eco Sale	3,070,315.00
Happy Hour Offers	3,288,170.00
Spring Refresh Push	4,236,328.00
Pet Lovers Promotion	4,455,353.00
Gift Guide: Last-Minute Deals	8,317,243.00
Global Launch Countdown	50,053,601.00
Summer Splash Sale	50,702,467.00
New Arrivals Campaign	51,033,987.00

Campaign_Name	Revenue	Revenue Change %	Spend	Spend Change %
⊞ Campus Life Essentials	2276458	-6.13%	1,074,823.00	-5.12%
⊞ Daily Deals Dash	2642737	8.69%	1,618,759.00	6.56%
⊞ Earth Day Eco Sale	3070315	-4.79%	1,106,295.00	-3.78%
⊞ Fall Flavor Fest	2925115	3.79%	770,930.00	-2.05%
⊞ Gift Guide: Last-Minute Deals	8317243	7.17%	778,960.00	2.74%
⊞ Global Launch Countdown	50053601	1.19%	20,872,813.00	-0.22%
⊞ Happy Hour Offers	3288170	8.31%	850,324.00	6.14%
⊞ New Arrivals Campaign	51033987	0.09%	21,392,538.00	2.38%
⊞ Pet Lovers Promotion	4455353	-0.22%	1,905,398.00	3.43%
Total	**184599424**	**0.99%**	**74,636,975.00**	**0.68%**