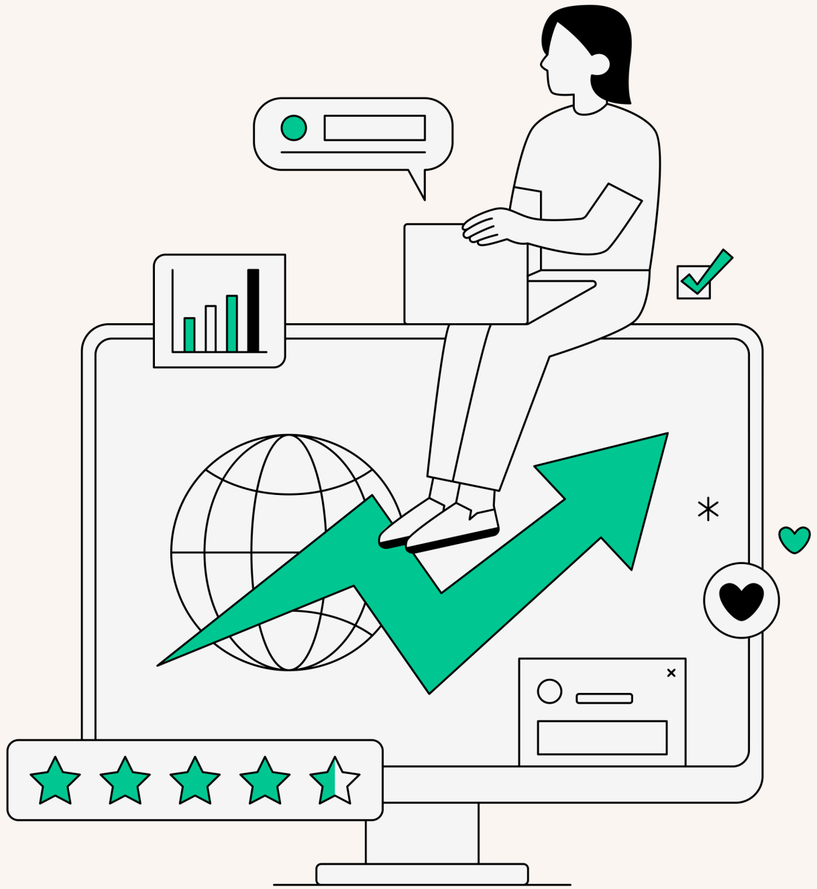
Carvana Marketing Analysis:

Performance and Recommendations

- Welcome to the Carvana Marketing Data Analysis for 2022-Q4.
- Objective: Analyze marketing data to inform strategy.
- Datasets include Click, Lock, Sale, Spend, and Ad Channels.



Presented by Ayush Meher

Given Datasets:

The following datasets are provided:

- **Click dataset:** This dataset comprises click events that direct users to Carvana.com from different paid marketing channels.
- **Lock Data:** This dataset records all user-initiated locks.
- **Sale Data:** This dataset contains all sales.
- **Spend Data:** This dataset includes the daily marketing spend.
- **Ad Channels:** This dataset offers detailed information on each marketing channel.

Data Cleaning and Preprocessing

01. Ad_channels:

Transformed the channel name into the structure of Category-partner_campaign by generating distinct columns for each component.

Fill the Campaign column with partnership values when it is absent.

02. Locks:

Reformatted timestamps in the locks_datetime column to ensure consistency by converting all records to the same date-time format of %Y-%m-%d %H:%M:%S.

03. Clicks:

Created First_clicks dataset (df) comprising initial user clicks on our marketing channels, extracted from the clicks.csv dataset, to establish first-touch attribution.

Key Performance Indicators:

1. **Cost Per Click (CPC):**
   - **Signifies the cost incurred for each user who clicks on our marketing channels.**
   - Formula: Advertising spend divided by total clicks.

2. **Customer Acquisition Cost (CAC):**
   - **Represents the cost of acquiring a customer through marketing efforts**
   - Formula: Advertising spend divided by sales.

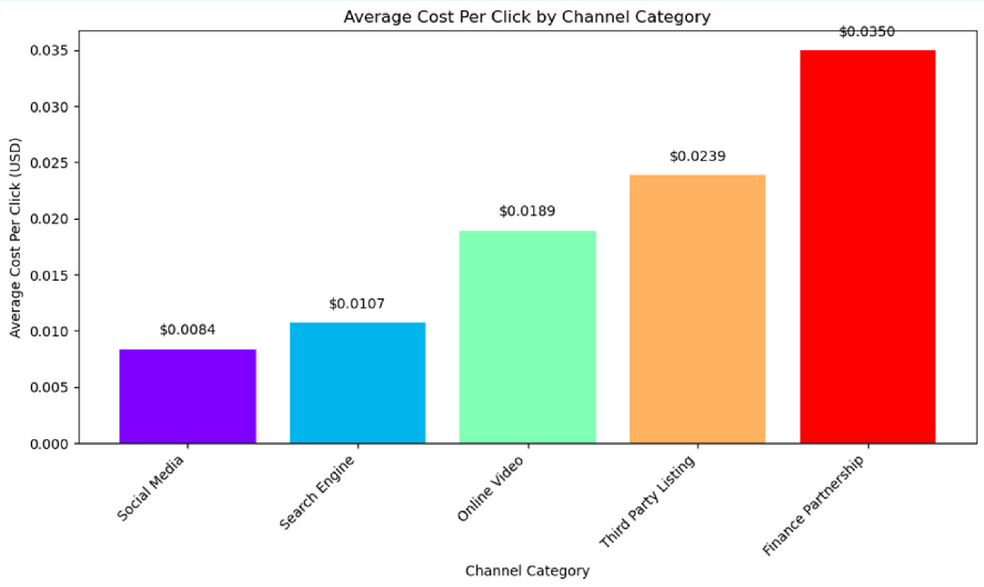
3. **Return on Investment (ROI):**
   - **Indicates the profitability of our marketing activities by measuring the return generated compared to the expenditure.**
   - Formula: Gross profit divided by advertising spend.

4. **Month-over-Month (MoM) Growth Rate:**
   - **These metrics provide essential insights into marketing performance, covering cost efficiency, customer acquisition, profitability, and growth trends over time.**
   - Formula: (Metric in Current Month−Metric in Previous Month)/Metric in Previous Month×100

Performance & Economics

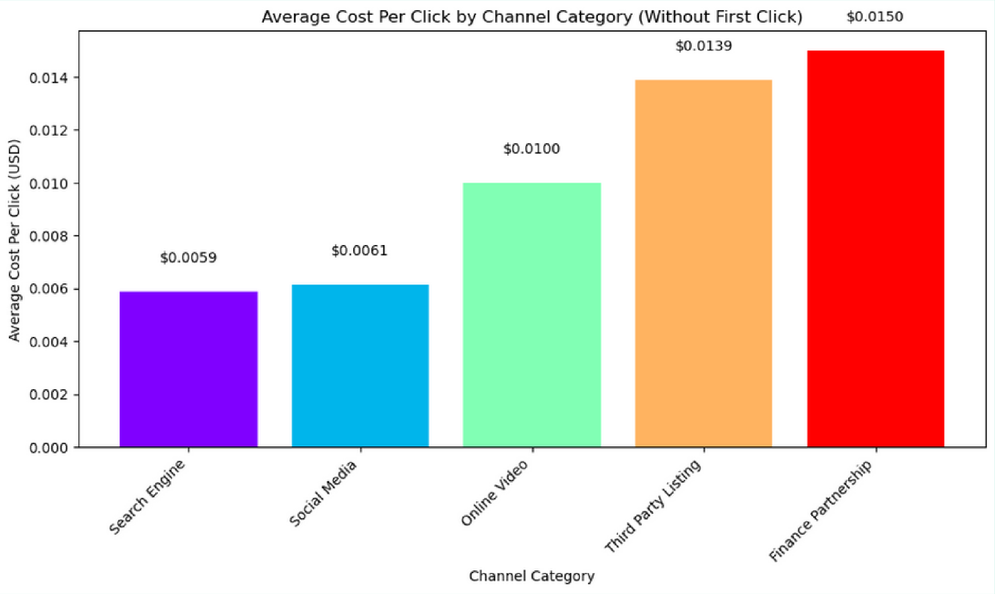
Cost Per Click (CPC) for Channel Category:

With first_clicks only



Social Media has the lowest CPC of $0.0083 followed by Search Engines has a CPC of $0.01

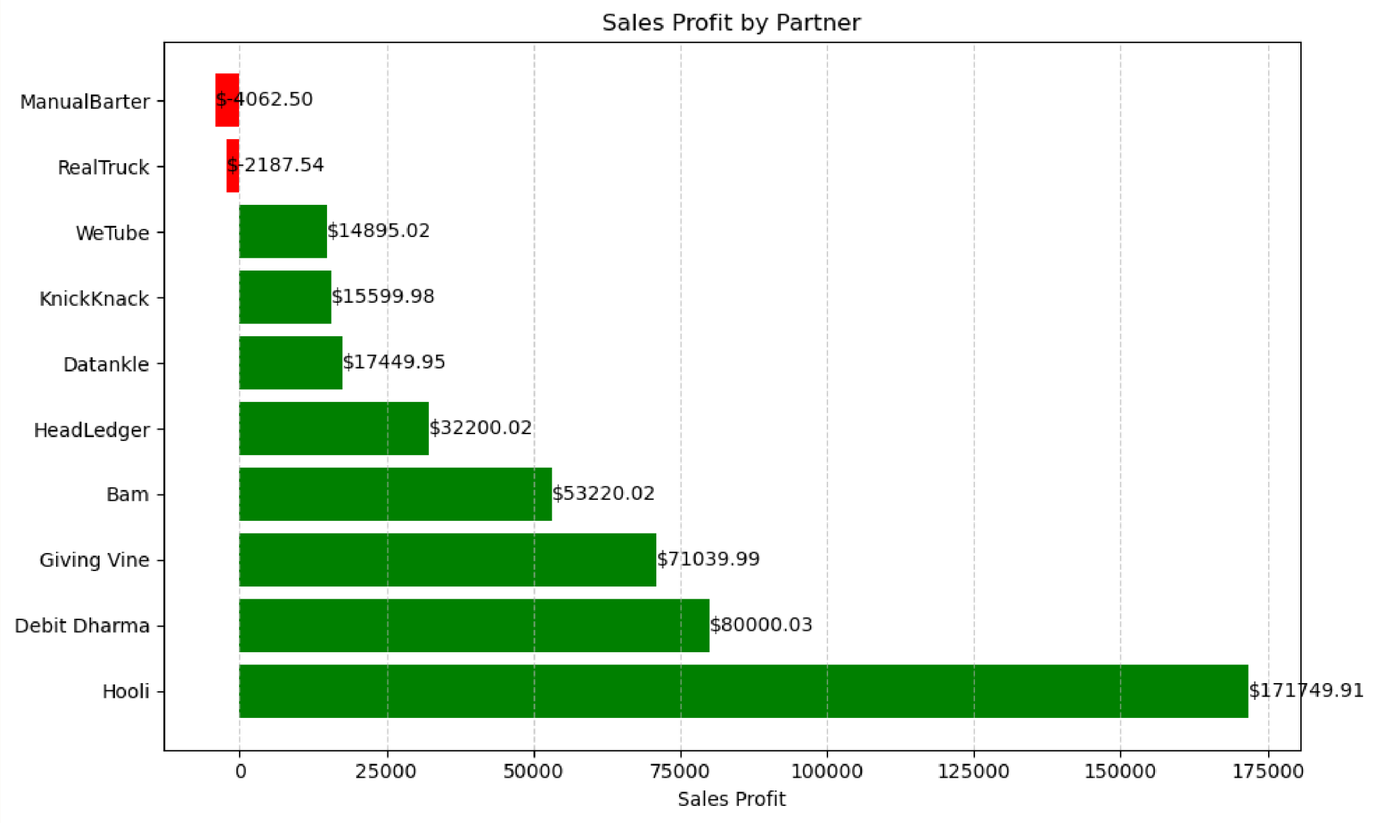
Without first_clicks



Search Engine has the lowest CPC of $0.0058 followed by Social Media which has a CPC of $ 0.0061.

Summary: Social Media emerges as an effective channel for initial user engagement, drawing in users who may be discovering our product for the first time. In contrast, users already familiar with our product tend to navigate through search engines. Notably, the CPC)for other channels such as online video, third-party listings, and finance partnerships is notably higher.

Sales generated by First Touch Attribution



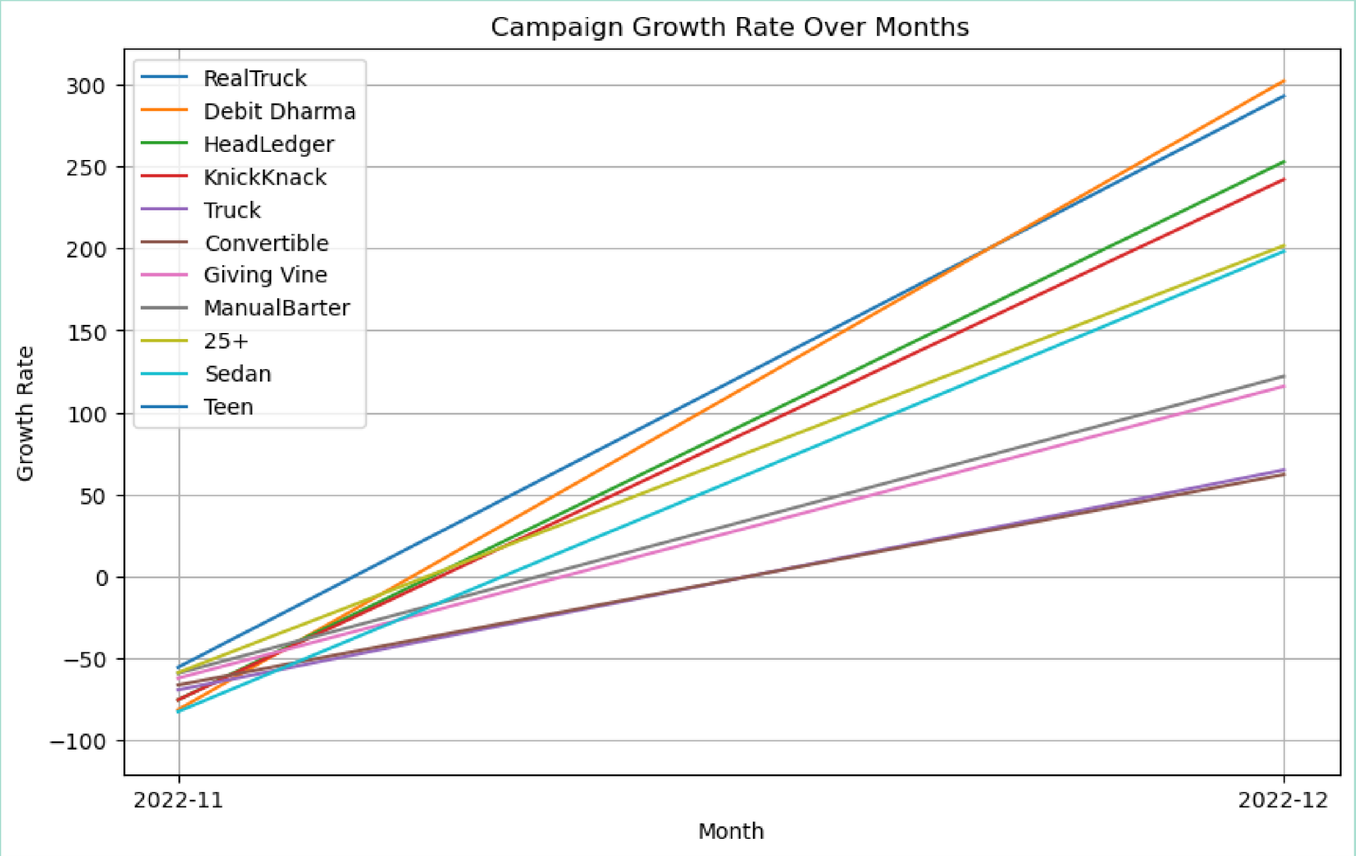
category	partner	campaign
Search Engine	Hooli	Convertible
Search Engine	Hooli	Sedan
Search Engine	Hooli	Truck
Search Engine	Bam	Convertible
Search Engine	Bam	Sedan
Search Engine	Bam	Truck
Online Video	Datankle	Teen
Online Video	Datankle	25+
Online Video	WeTube	Teen
Online Video	WeTube	25+
Finance Partnership	Debit Dharma	Debit Dharma
Finance Partnership	Giving Vine	Giving Vine
Social Media	KnickKnack	KnickKnack
Social Media	HeadLedger	HeadLedger
Third Party Listing	RealTruck	RealTruck
Third Party Listing	ManualBarter	ManualBarter

Among the partners,
Hooli stands out as a highly effective partner in converting users into successful sales when they first encounter Carvana.

The Search Engine partner Hooli takes the lead in generating the highest gross profits, closely followed by strong performances from the Finance Partnership with Debit Dharma and Giving Vine.

However, losses are observed due to the Third Party Listing, indicating a need for further evaluation or strategic adjustments in this partnership.

MOM% Top Performing Campaigns:
Oct to Dec 22

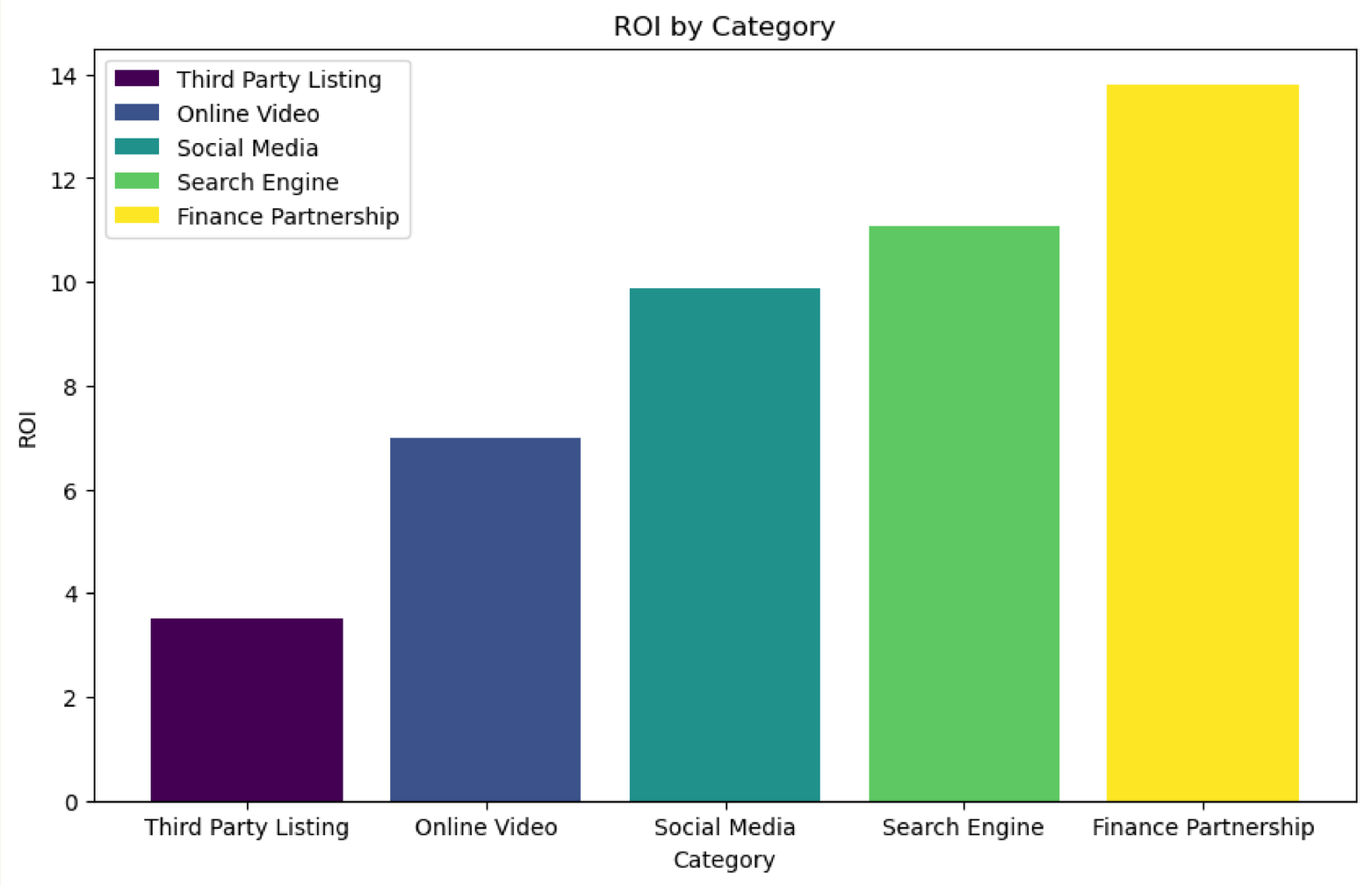


01. Debit Dharma led with a remarkable 302% growth from October to December 2023, followed by RealTruck at 293%. Conversely, Convertible and Truck campaigns showed more modest growth around 60%.

02. The overall surge in all campaigns from November to December hints at a seasonal boost, likely fueled by the holiday season.

Assumption: The growth rate in October for all campaigns is 0 as it is starting point.

Return on Investment(ROI):



Finance Partnership stands out with the highest ROI at approximately 14%, followed by Search Engine at 11%..

Social Media and Online Video also demonstrate strong ROIs, around 10% and 7%, respectively.

Third Party Listing exhibits a comparatively lower ROI at 3.5.

99.65%

Sales are influenced by user clicks on marketing channels

Most sales on Carvana's website, 99.65%, are likely influenced by the company's marketing campaign. Only a small fraction, 0.35%, is directly attributed to users visiting the website without prior clicks in 90 days. This underscores the significant impact of broader marketing strategies on driving conversions.

User interacts on an average

4

marketing channels before locking the car.

Strategic Spend Reallocation Recommendation for year 2023

Focus Channels:

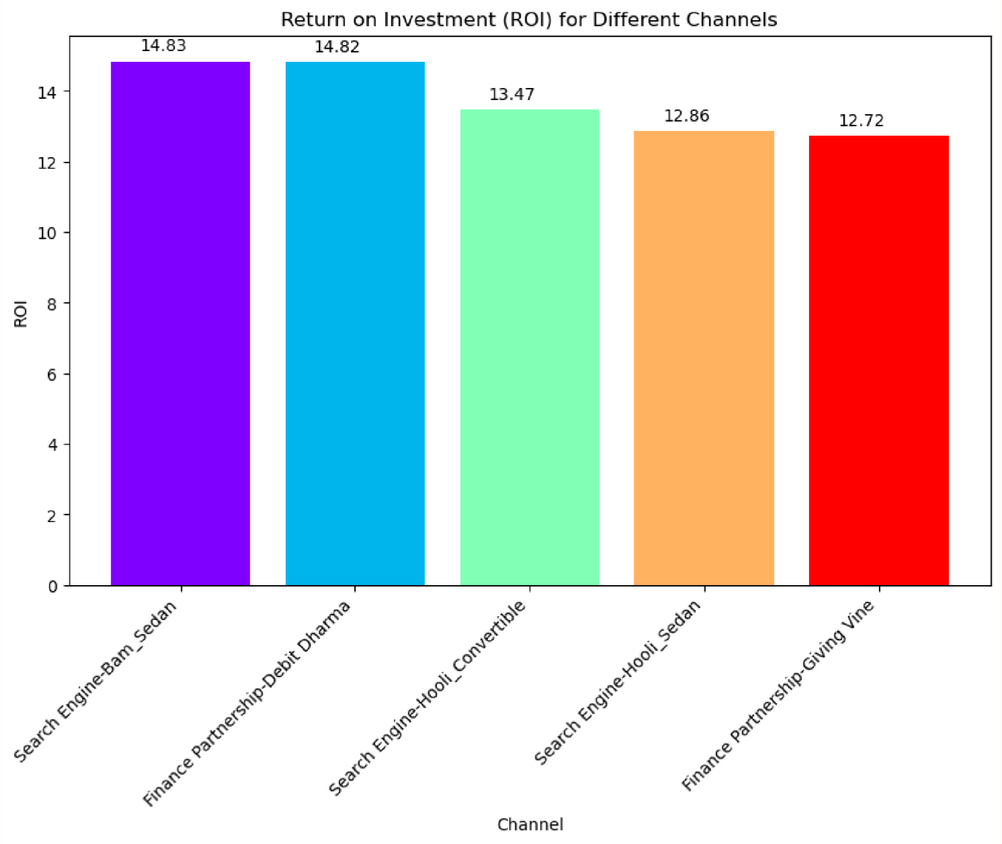
1. "Search Engine-Bam_Sedan"
2. "Finance Partnership-Debit Dharma"

Reasoning:

Based on ROI, CPC and MOM Growth Rate

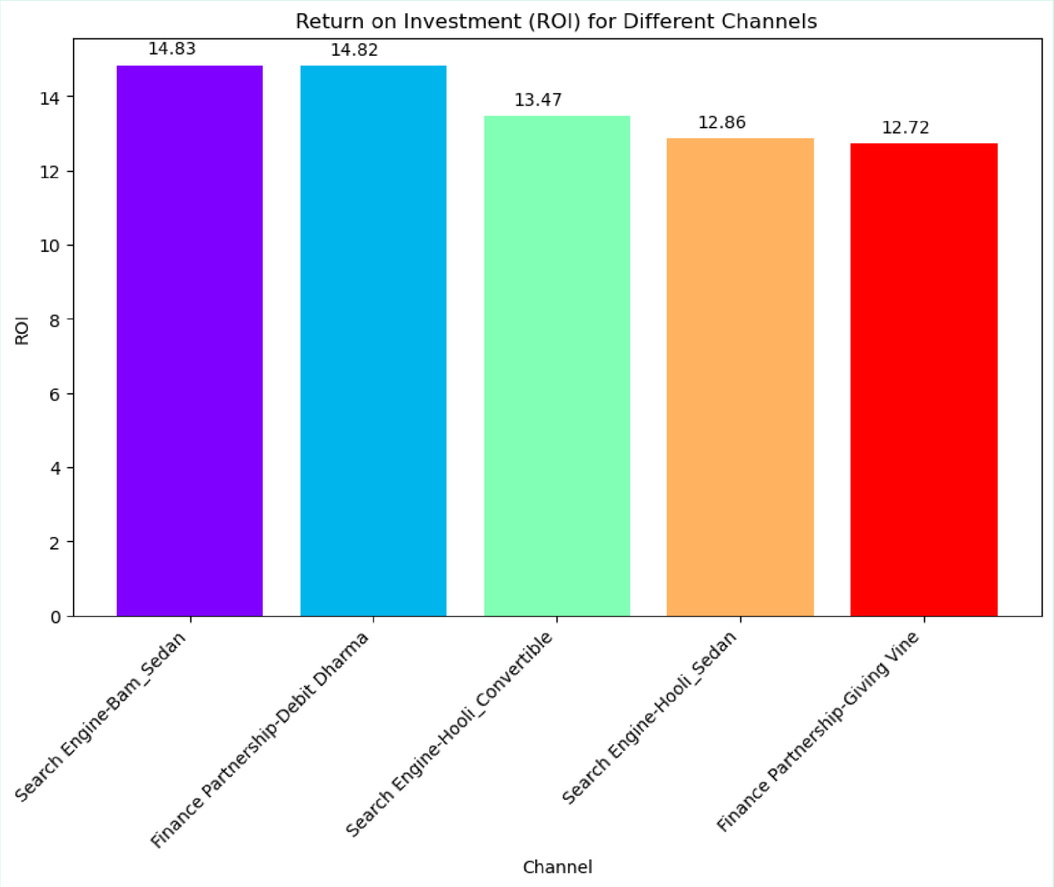
ROI

Strong ROI for "Search Engine-Bam_Sedan" and "Finance Partnership-Debit Dharma" suggests effective returns on marketing investment



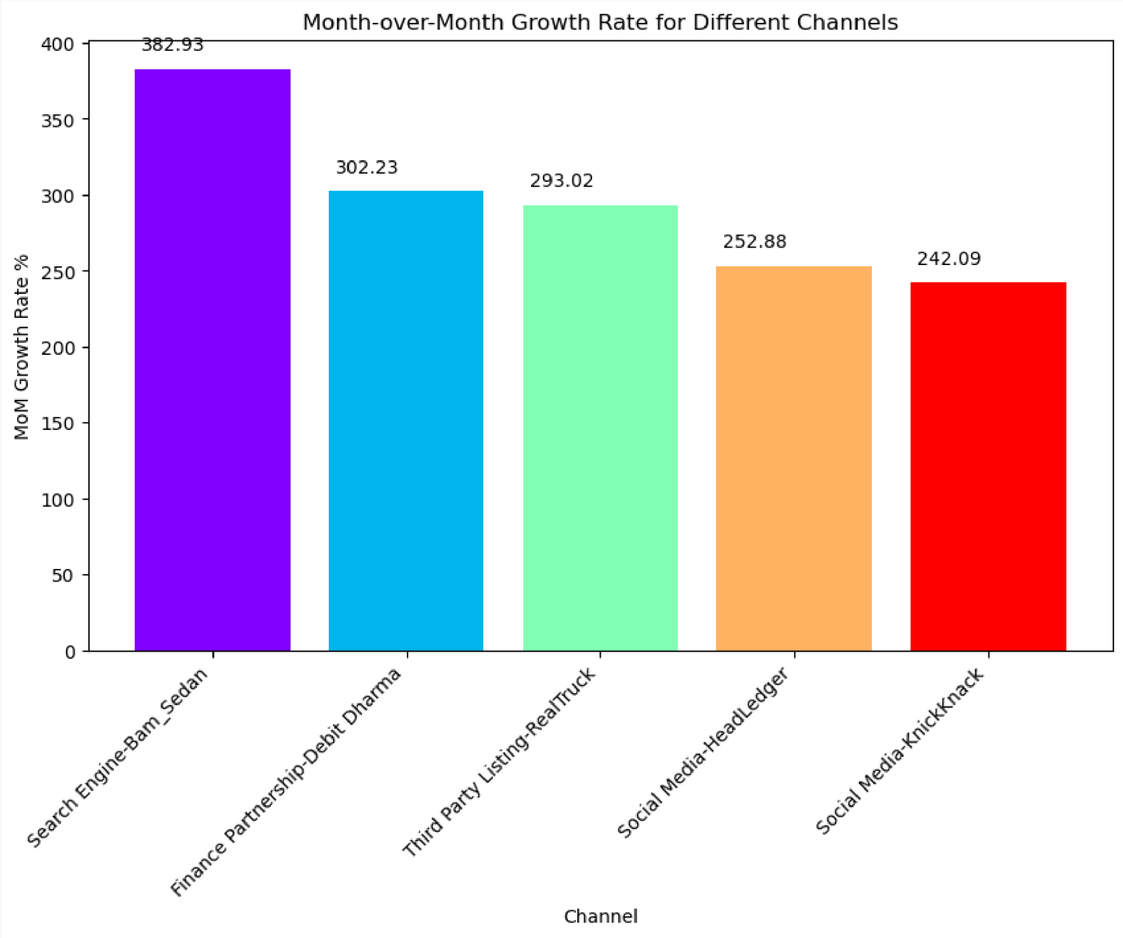
CPC

Both channels exhibit favorable CAC values, indicating efficient acquisition of customers.



MOM Growth Rate%

Robust growth rates in both channels signify sustained positive momentum.



Conclusion

In conclusion, the recommended strategy for reallocating the budget with a 20% increase next year is to concentrate efforts on the "Search Engine-Bam_Sedan" and "Finance Partnership-Debit Dharma" channels.

These channels exhibit favorable metrics such as low Customer Acquisition Cost (CAC), high Return on Investment (ROI), and significant month-over-month growth rates.

Thank you very much!

Presented by Ayush Meher