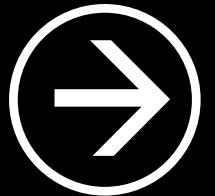
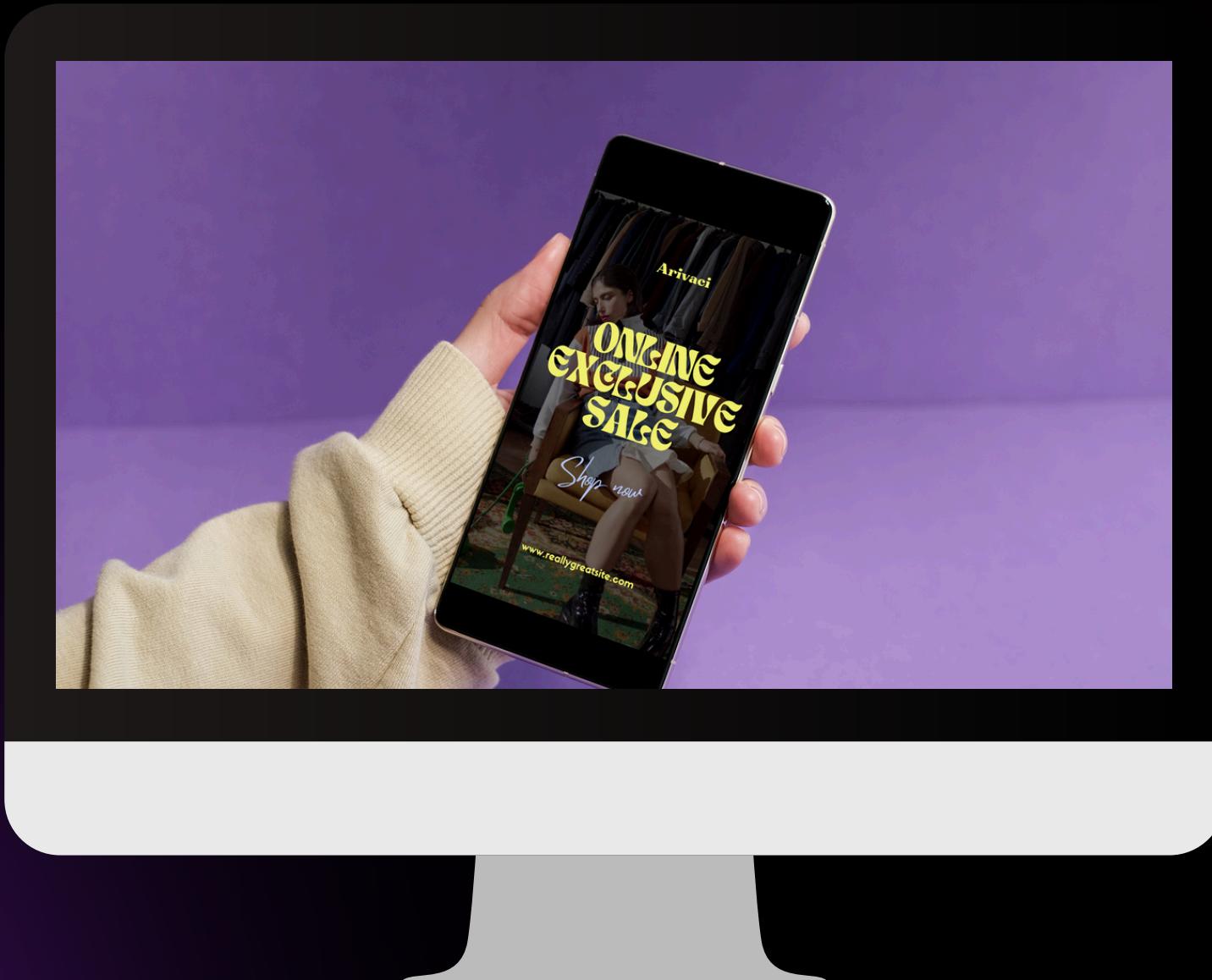


# From Spend to Sales

**A Data-Driven Blueprint for  
Smarter Marketing  
Investments**



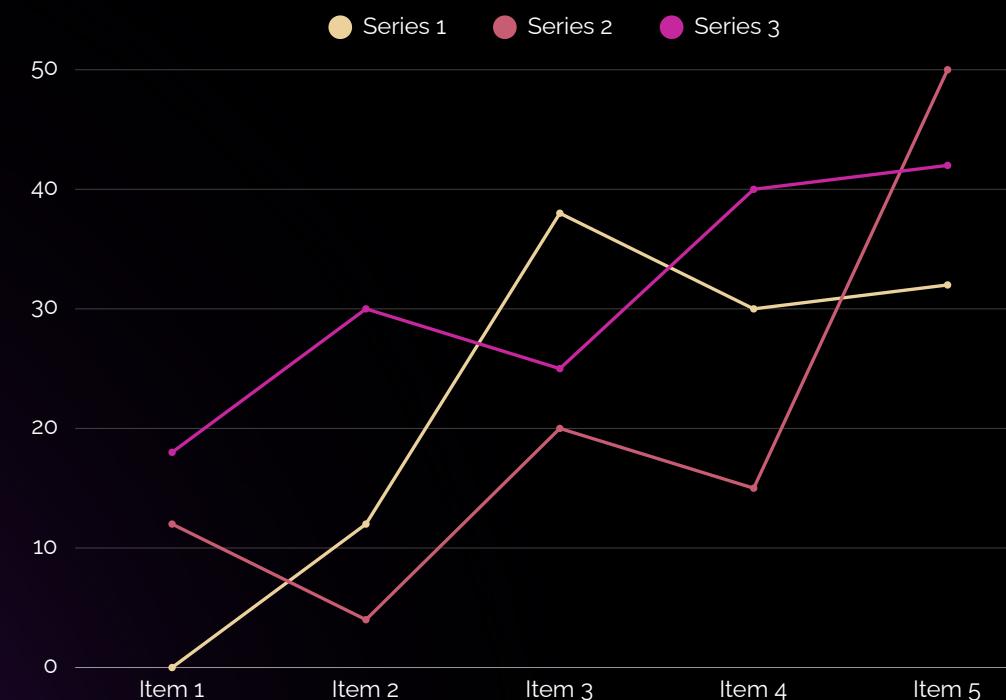


# Company Vision ☰

*Imagine I am a client who runs digital campaigns across multiple media channels and regions.  
I want to **understand what** works, what doesn't, and **how** to spend smarter.*



# The Challenge



Note: Sample Canva Chart

■ Spend optimization

■ Identification of drivers of sales

■ ROI calculation



# The Opportunity

## Marketing **MIX** Modeling

- Seasonality
- COVID-19 Shock
- Regional division effects

# HOW it WORKS?



**Historical  
Data**

**Adstock**

**Seasonality**

**Dummies**

**Machine  
Learning**



**Simulations**



# What WE Found

## GOOGLE

delivers the strongest  
uplift in sales per  
investment

## BUDGET REALLOCATION

from low-performing  
channels (like Affiliate)  
to incremental growth

## CAMPAIGN INTEGRATION

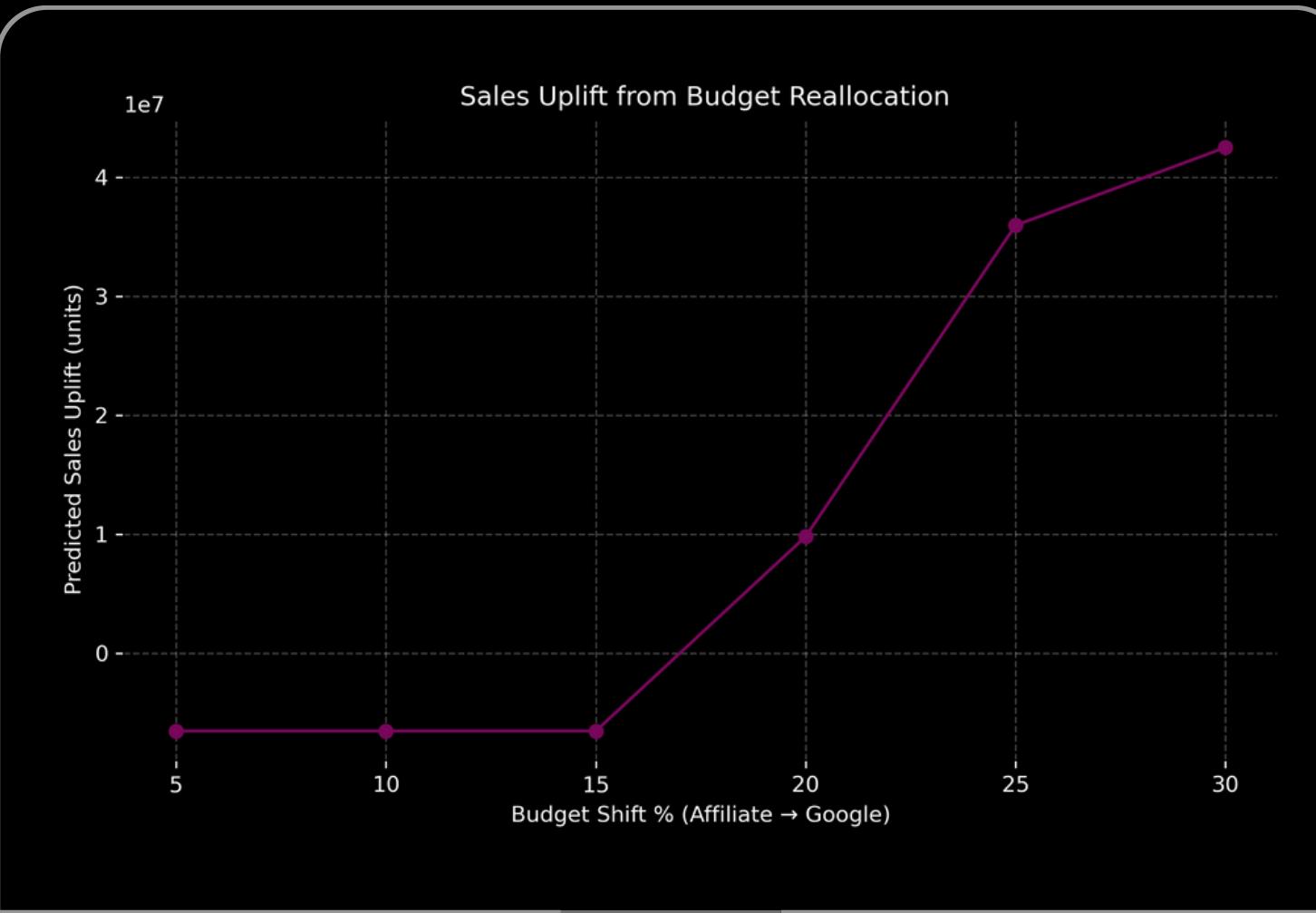
aligning Google with  
Email or Social can  
create synergistic  
effects



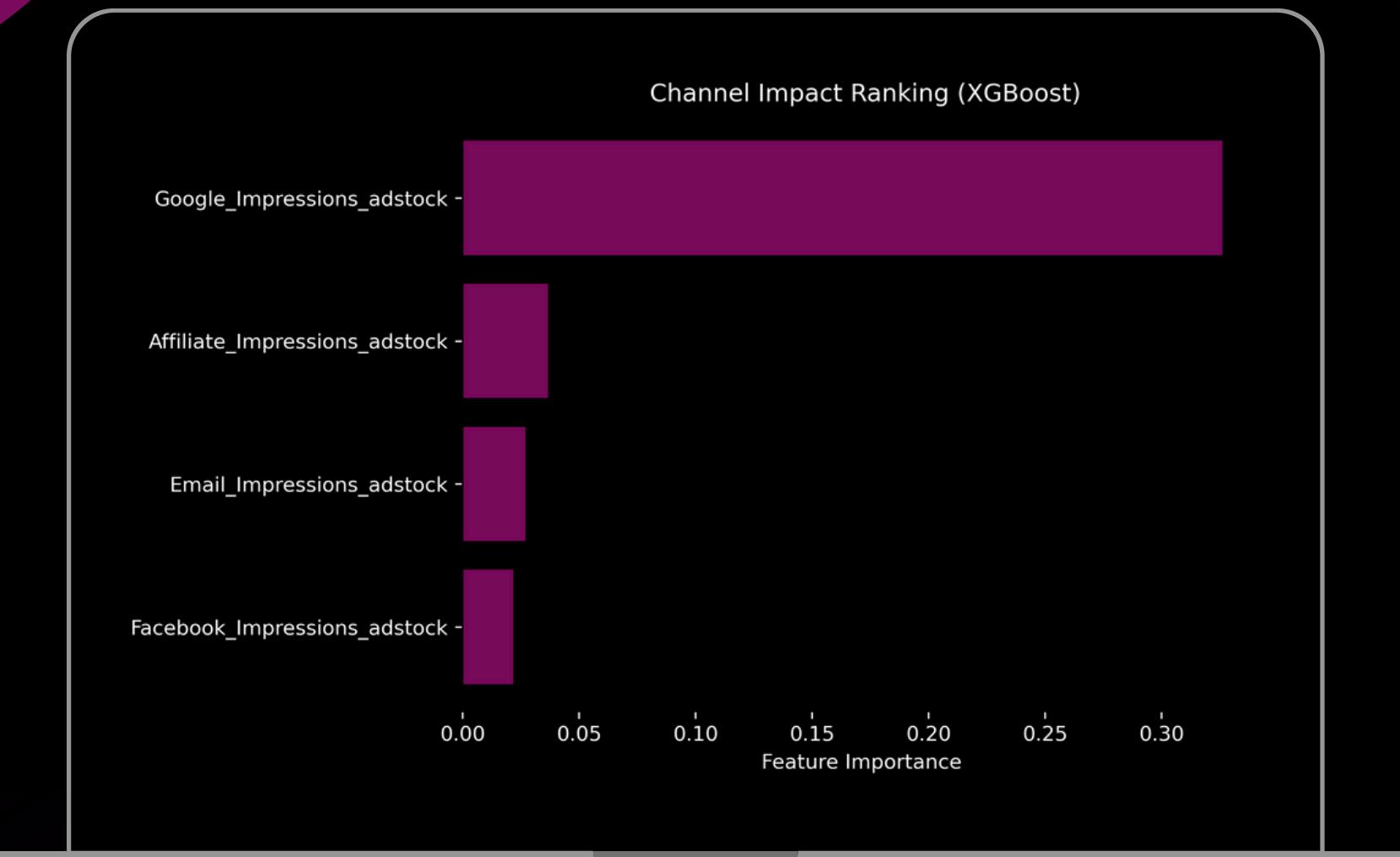
# Why IT Matters



# Model-Driven Budget Allocation

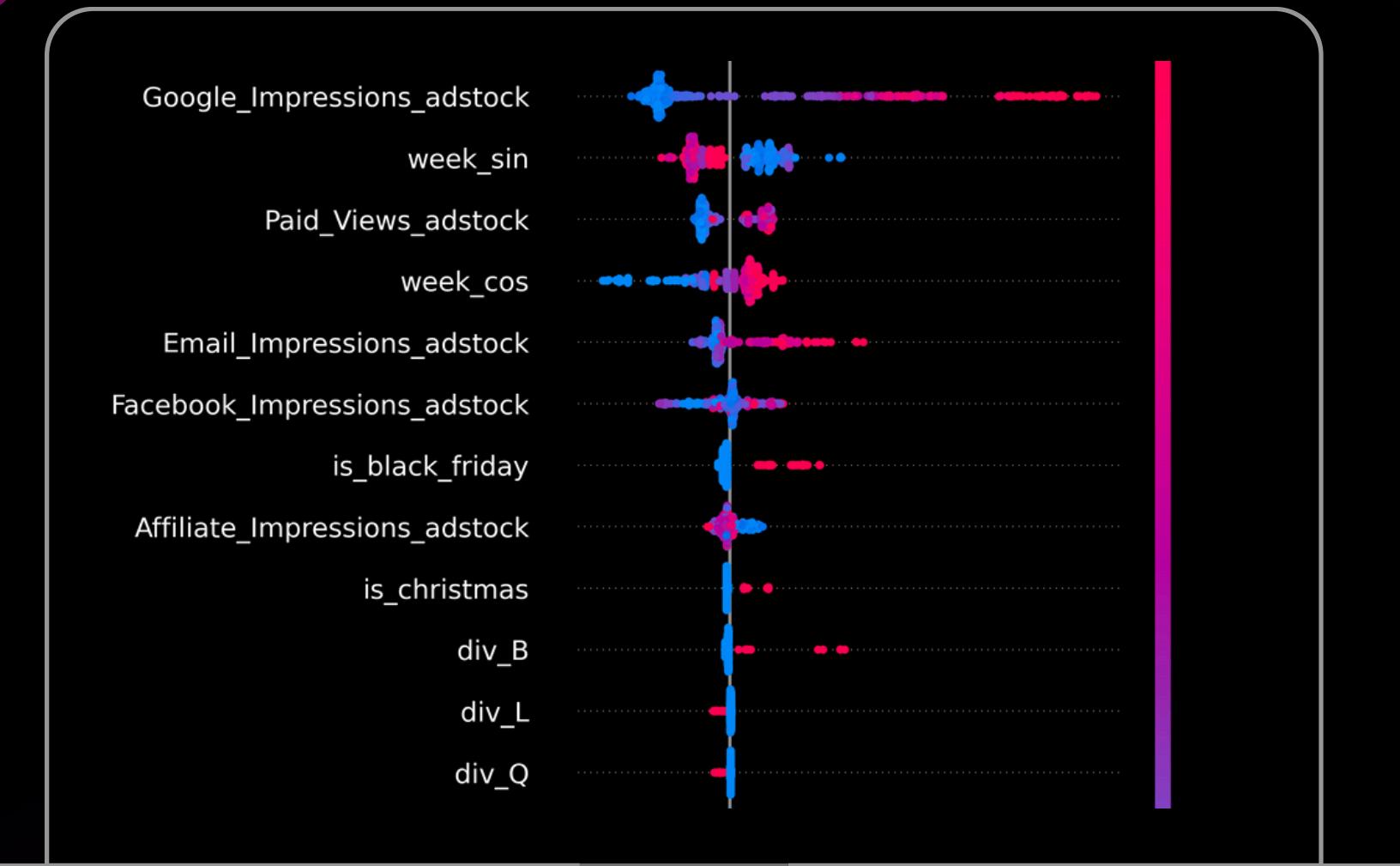


- We simulated reallocating the budget from Affiliate to Google.
- While lower shift levels had minimal impact, **reallocating 20% or more** generated a steep and consistent increase in predicted sales — exceeding **40 million** units at a 30% shift.
- This clearly signals diminishing returns on Affiliate, and a strong opportunity in Google at scale.



# Channel Effectiveness RANKING

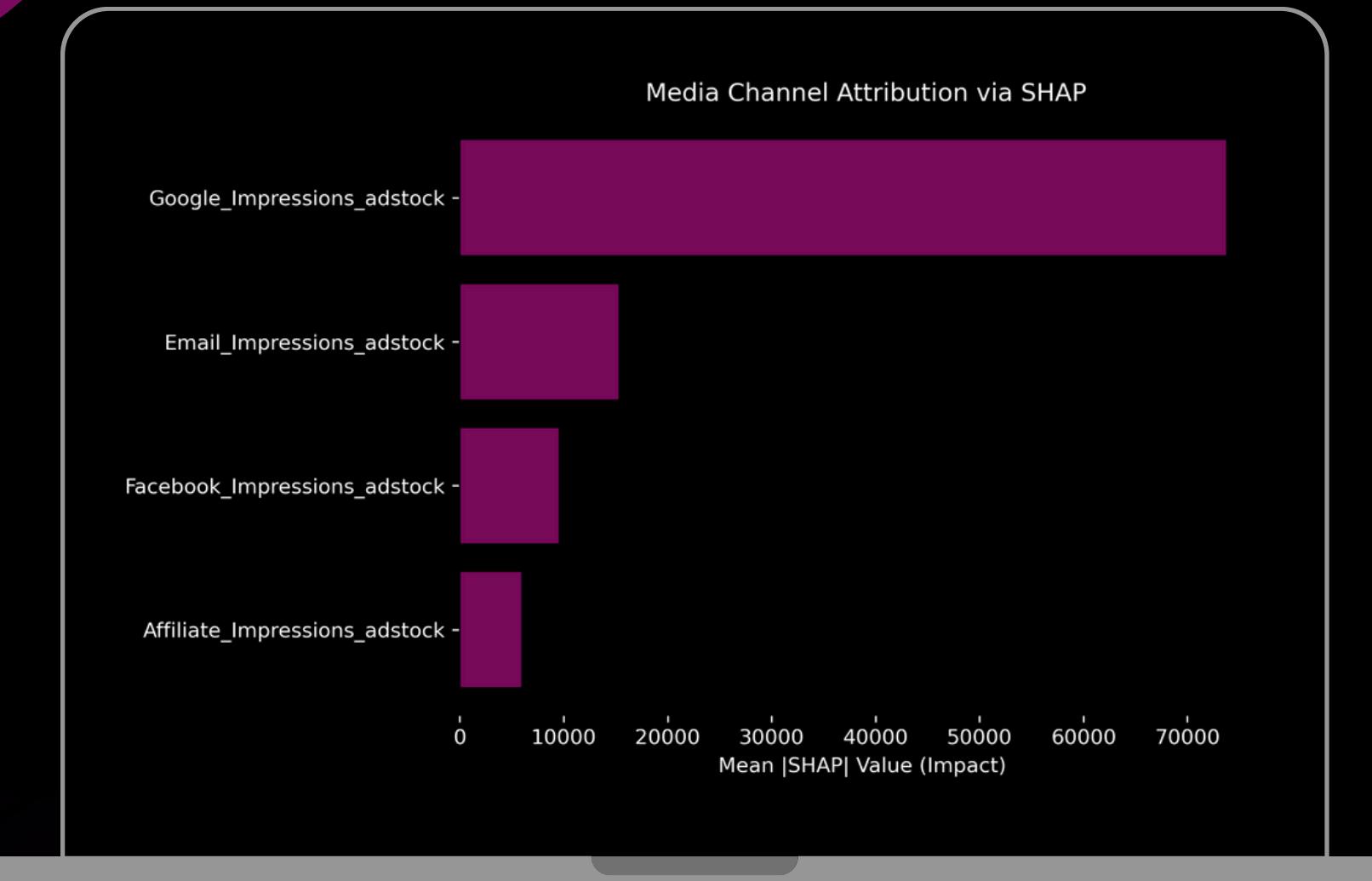
- **Google** Impressions had over **6x more** importance than any other channel in our XGBoost model.
- **Affiliate, Email, and Facebook** rank **far lower** - reinforcing the reallocation recommendation.



# Why Google WINS?

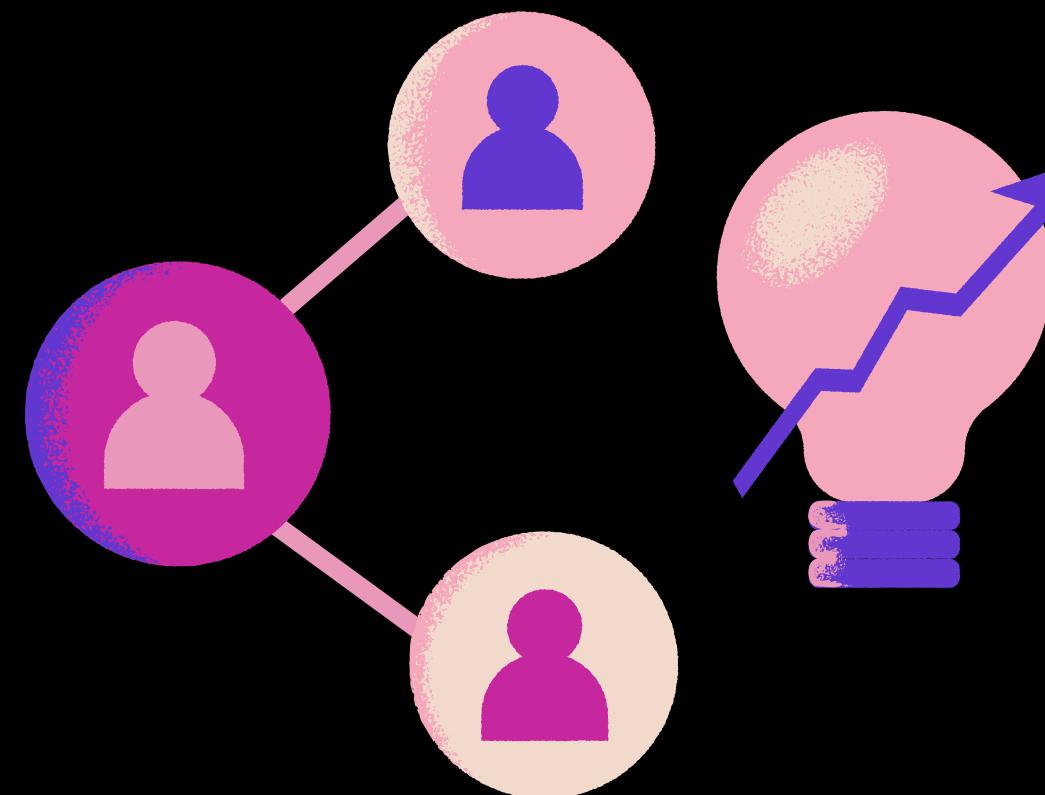
- SHAP confirms that **Google** Impressions consistently **push** predictions upward, while
- **Affiliate** has limited or even **negative effect**.

# Media Attribution SHAP



- **Google** again **leads** in mean absolute SHAP value, meaning it has the strongest average impact on predictions across all test periods.
- Even when controlling for noise, **Google's dominance** is clear.
- Channels like **Affiliate** contribute the **least** – supporting our decision to reallocate budget.

# RECOMMENDATIONS



## Platform Selection

- Increase investment in Google up to 20–30%.
- Reduce reliance on Affiliate or Facebook for lower ROI.

## Data-driven implementation

- Use SHAP and XGBoost regularly for campaign evaluation.
- Test-and-learn: use model-based uplift simulations for budget shifts quarterly.



# Thank You!

