Optimizing marketing mix strategies for a leading snack foods manufacturer



Aays

$10 million
Marketing budget optimization

15%
Improvement in ROI

A fast-growing snack foods manufacturer sought to understand the complex interplay of marketing activities and their impact on sales. Market Mix Modelling was employed to dissect revenue generation, which is a complex interplay of numerous touchpoints, viz. promotions, distribution, competition, advertising, sponsorships, seasonality etc.

By employing conventional statistics and symbolic AI/ML, over $10 million in marketing budget optimization was discovered, alongside opportunities for a potential 5% sales improvement, and the potential for a 15% increase in ROI for a c.$130 Mn of annual marketing investments.



COMPANY

One of leading players in the business of manufacturing packaged snacks with a portfolio of over 25 product categories was looking to optimise its marketing initiatives and understand the impact of these initiatives on sales. Products were sold through an extensive distribution network leveraging distributors and retailers. The company was also investing heavily in brand building initiatives which included coverage via TV advertisements, social media etc.

CUSTOMER NEEDS

Given a broad product portfolio mix and the nuances of varied marketing channels, the team was unable to understand the key drivers of sales and quantify the impact of marketing initiatives on growth. Accordingly, there was no empirical evidence to address critical business questions on their marketing activities which included the following:

- **Identifying high-response products/brands:** Determining which specific products or brands exhibited the most favourable response to promotional activities, was a crucial insight for optimizing marketing efforts.
- **Budget allocation for maximum ROI:** Allocating marketing budgets between above-the-line (ATL) and below-the-line (BTL) media to achieve the highest possible ROI.
- **Variability in responses to promotions:** Understanding whether different products or brands within their portfolio exhibited varying responses to promotional activities was crucial.
- **Optimizing TV and digital expenditures:** Significant proportion of the marketing spends go into TV and digital. How can these expenditures be best optimized while estimating channel ROIs?
- **Simulation modelling / Incremental impact:** How much is the incremental change if the budgets across marketing activities are re-calibrated?



CHALLENGES

The engagement was complex and involved conducting workshops and discovery sessions to comprehend the nuances of marketing initiatives and various hypotheses considered by the marketing team when implementing strategies on promotion, distribution, and advertising, among others. It needed to bring a complex interplay of various datapoints covering a range of marketing related data or metrics related to distribution (numeric distribution %, ACV%, TDP%, share amongst handlers etc.), advertising (TV GRP data, reach %, competitor advertising data), halo effect etc.

1. Promotion data:
Data and information related to various promotional activities, such as incentives, trade promotions, rebates, and consumer promotions, which impacts sales and marketing strategies.

2. Distribution data:
Numeric distribution data, which measures how widely a product is available, and weighted distribution data, which considers store sizes of products, to analyze product reach and availability.

3. Halo effect:
Data related to the impact of GRPs (Gross Rating Points) of competitors on the company's marketing activities. These influence each other and affect brand performance.

4. TV GRPs:
TV gross rating points to gauge the reach and effectiveness of television
advertising across different categories and demographics.

5. Competition data:
Competitor GRPs and promotions data that gives insights into how rival brands are impacting the market and influencing sales.

6. Market share data and category GRPs:
This tracks market share and analyses the influence of category specific GRPs on product performance within the market.



OUR APPROACH

The approach involved several key steps :

1. Brand-sales statistical decomposition modelling:
This involved dissecting the factors affecting sales, including distribution, pricing, promotion, competition, halo effects, and base sales and allocating the impact of each of these activities in sales. A non-linear structural model was transformed into an estimation model which is linear in parameters by leveraging a logarithmic model. This model was able to quantify the impact of various activities on sales.

2. Optimization of spending across digital and TV channels:
After brand-wise sales response modelling, actionable insights were generated to allocate marketing budgets across digital and television advertising. To achieve this, two critical aspects were considered:

•Diminishing returns:
Acknowledging that increasing spending on marketing activities could eventually lead to reduced returns. The model assessed at what point additional spending would yield diminishing returns.

•Adstock effects:
Identifying adstock effects of marketing efforts. This analysis considered how past advertising activities continue to influence sales even after they've run.

3. Re-calibrating budgets across TV, digital, and distribution:
Once the diminishing returns and adstock effects were identified, budgets reallocations across different marketing channels, such as TV, digital, and distribution was considered based on the optimum allocation point as was structured in the sales response model. This optimized the distribution of resources ensuring the most efficient use of available marketing funds.

4. Sales forecasting and budgeting:
As the last step, a sales simulation was conducted to evaluate the potential outcomes of the proposed budgeting adjustments. Sales performance was predicted based on the revised marketing strategies and allocations, to demonstrate the potential outcome.



KEY FEATURES OF OUR SOLUTION

The solution included a sales response model, sales decomposition, and various other key features which resulted in providing the following critical business insights:

- **Estimation of advertising elasticity for different brands:**
  This feature involved determining how responsive each brand was to advertising, allowing for tailored marketing strategies and optimized ad spend.

- **Analysis of diminishing return to scale and adstock effect for different brands:**
  It helped in understanding when increased advertising spending on specific brands or products would lead to diminishing returns and how past advertising continued to influence sales over time.

- **Correlation of advertising with audience categories and segments:**
  This involved assessing how various advertising strategies connected with specific audience groups. This allowed for precise targeting.

- **Using simulations for optimized spendings and ROI estimates:**
  Simulation analysis predicted the outcomes of different budget allocations. This helped the client in making data-driven decisions for optimal ROI.

- **Distribution impact and optimization strategies:**
  This feature focused on understanding the impact of distribution on sales. Strategies were suggested to optimize the reach of products to target audience, to ensure efficient distribution of resources.

- **Promotion response modelling:**
  This analysis delved into how promotions influenced sales of different products. This then allowed the client to devise effective promotion strategies that boosted sales and brand visibility.

- **SKU rationalization and discount elasticity estimation:**
  Analysis of SKUs and discounts allowed the client to refine their product offerings and pricing strategies by understanding the effects of various SKUs and discounts on sales.

- **Sales forecasting:**
  By integrating predictive models, the solution facilitated the estimation of future sales. This helped the client in improving inventory and optimizing SKUs, based on anticipated demand.





BUSINESS OUTCOMES

The tool brought substantial business benefits for the client:

- **Transition to data-driven insights:**
  This marked a shift for the snack food manufacturer from relying on intuition and traditional spreadsheet models to leveraging sophisticated AI-enabled modelling and dashboards. It enabled the company to effectively measure and track ROI of their marketing mix, ensuring decisions were data driven.

- **Unlocking budget optimization:**
  They identified more than $10 million in potential budget optimization opportunities. This optimization primarily focused on digital marketing spending and advertising efforts, allowing for more efficient budget and resource allocation.

- **Potential 5% sales improvement:**
  By making informed adjustments to their marketing strategies, the tool helped realize a potential 5% improvement in their sales performance across major brands.

- **15% increase in ROI potential:**
  One of the most compelling outcomes of optimal spend allocation was the potential to generate a 15% increase in ROI.



Aays

Aays Analytics is a boutique AI & data consulting firm which specialises in democratising data science and ML in corporate finance space. We partner with global conglomerates having large, complex data footprints and help them contextualise their data science journey with deep functional focus. Since our inception in 2018, we have solved some of the most complex business problems faced by fortune 1000 and fast-growing companies in the world utilising big data, cloud computing, and AI/ML.

We are backed by a strong management team with IIT/IIM background and over a decade of industry experience with fortune 100 companies. We are ranked among the top 5 fastest growing companies in Analytics India magazine's (AIM) list of the best data science providers in India for 2022.