CASE STUDY · MARKETING SCIENCE

Moving Marketing Mix Modeling to Bayesian frameworks, and teaching a company to read it

Transformación del Marketing Mix Modeling hacia marcos bayesianos

Roles: Global Lead, Advanced Analytics & Forecasting · Sanofi CHC (2021–2024) → Global Head, Advanced Analytics, ML & Innovation · Opella (2024–present). Heritage: Bayesian hierarchical MMM at Pfizer Consumer Healthcare (2016–2021)

CONTEXT

Media budgets in the hundreds of millions were allocated with frequentist, market-by-market mix models: slow to refresh, hard to compare across countries, and silent about uncertainty. Brand and finance teams received a single ROI number per channel and had no way to ask “what if we moved 10% from TV to retail media?”

I had already run this journey once at Pfizer, where I built hierarchical Bayesian MMM and digital attribution for U.S. and international markets, and wrote the internal “Mix 101” training that taught marketers how to read contribution, ROI and response curves.

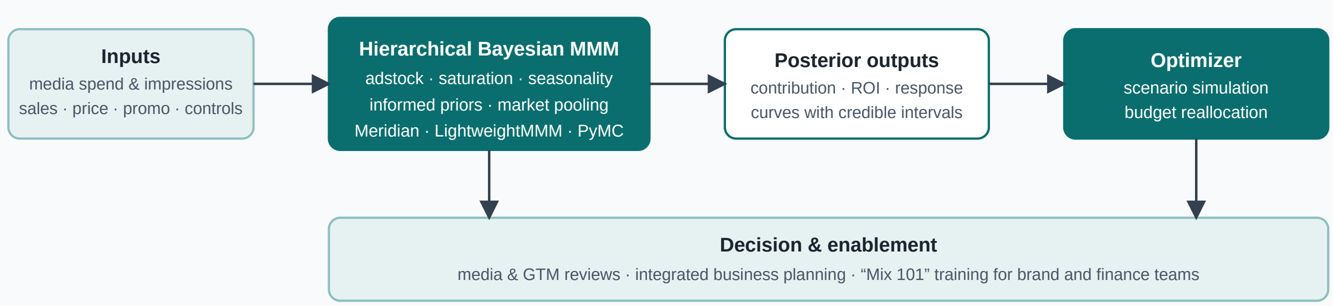
WHAT I BUILT

- A global MMM standard on open Bayesian frameworks (Google Meridian, LightweightMMM; PyMC/Stan underneath), with hierarchical pooling across markets so small countries borrow strength from large ones.
- Adstock and saturation curves estimated with informed priors, so results are stable quarter to quarter and every estimate carries a credible interval.
- A portfolio simulator: scenario planning and budget optimization that returns the allocation with the best expected outcome under uncertainty.
- Executive-facing outputs: response curves, marginal ROI and “next dollar” recommendations, plus a training curriculum so teams can act on them without an analyst in the room.

OUTCOME

- **+5% year-over-year media ROI** across the global portfolio, sustained, from reallocation rather than extra spend.
- One comparable model family across regions, replacing bespoke vendor models.
- Scenario-based decisioning adopted in integrated business planning and in media and go-to-market reviews.
- At Pfizer: probabilistic spend optimization that informed $100M+ media budgets, plus attribution frameworks for the digital consumer journey.

MODEL PIPELINE



Validation: holdout periods, prior-predictive checks and lift tests where available; quasi-experimental methods to reconcile MMM with incrementality studies.

+5%	**$100M+**	**1**	**75**
YoY media ROI across the global portfolio	media budgets informed at Pfizer with Bayesian MMM	comparable model family across all regions	slide internal training curriculum authored (“Mix 101”)

STACK

Google Meridian · LightweightMMM · PyMC · Stan · Python · R · Causal inference · A/B & quasi-experiments · Snowflake · Power BI

Sanitized: no brand, channel-level or budget figures beyond those already public on my profile.