



SUCCESS AND FAILURES IN MARKETING MIX MODELING: MAXIMIZING THE POTENTIAL OF TODAY'S PREDICTIVE ANALYTICS

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Marketing Mix Modeling is a powerful exercise for gaining breakthrough insights that can directly lead to improved ROI.

Marketing mix modeling (MMM) has existed for decades and its promise has tantalized the senior management teams of first consumer packaged goods (CPG) companies and, in the last 10 years, financial services, telecommunications, retailers, entertainment, pharmaceutical companies and several other industries as well. They are understandably tantalized because some companies have harnessed its potential with enormous success, while others have failed to gain the significant benefits it offers.

Marketing mix modeling is a statistical analysis that links multiple variables, including marketing, sales activities, operations and external factors, to changes in consumer behavior, such as acquisition, sales, revenue, and retention. It can then support the development of forward-looking business simulations and optimization exercises.

THE EARLY YEARS OF MARKETING MIX MODELING

The mathematics and algorithms that serve as the foundation of MMM have been available for more than 200 years, but no industry was able to provide sufficient quality and quantity of data to allow the models to function properly. This changed in the late 1980s as CPG

manufacturers and retailers invested heavily in data collection and analysis. Driven by razor thin margins and ever-changing shopper behavior, these companies realized that continued success relied on the ability to better understand the impact of key business drivers on sales and to optimally allocate their limited marketing budgets to maximize revenue and profit.

As data stores increased in granularity and precision, and governance practices were adopted to help treat data as a "corporate asset," marketers at CPG manufacturers and retailers were able to refine their models and actualize the benefits of adjusting their marketing mix based on the resulting insights.

Fast forward to the late 1990s and early 2000s. As some of the original innovators of MMM dispersed into other industries, they brought with them their need for superior quality analytics and the MMM disciplines they had developed. The models required refinement to provide a different analytical focus for each industry; e.g., telecommunications analytics focus on subscriber acquisition and retention rates, financial services analytics focus on new accounts, household revenue and retention, and the entertainment industry focuses on awareness drivers and grosses.



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Marketers had to create new systems for data collection since either no systems or inadequate systems were in place. These new models spawned a discussion on the level of analytics precision required to guide key business decisions. Marketers needed accountability and metrics but also had to recognize the necessary trade off on data precision in the early generation models to gain immediate insight, while recognizing the models were going to increase in their utility as they refined and evolved the models and data collection processes down the road.

As marketing leaders were bringing the power of MMM to a wide range of industries, senior managers within these industries were searching for new tools to enhance the accountability of the marketing function. With the pain of the 1991-93 recession seared in their minds, these managers were determined to rein in the last corporate discipline that essentially ran unchecked.

MARKETING MIX MODELING TODAY

Marketers across all industries have adapted MMM based on the need to strike a balance between art and science in their business planning processes and achieve a competitive advantage from improved returns on analytics. By aligning these models with their critical business questions, companies are able to produce powerful insights at all levels of the business hierarchy.

What makes MMMs so powerful is that they are built based on the statistical analysis of two years of historical data, reflect non-linear behaviors (diminishing marginal returns, build and decay, and saturation of media), and include inputs that represent all significant influencers on business performance. Examples of these influencers can be broken down into the following categories,

the first three of which are completely controllable by an organization:

1. Marketing and Sales Factors, which includes the online and offline media mix and promotional activities
2. Sales Metrics, such as pricing, promotions, and sales force activities
3. Operational Factors, including distribution, training, incentives and related factors
4. External Factors, such as macroeconomic forces, weather, and market competition

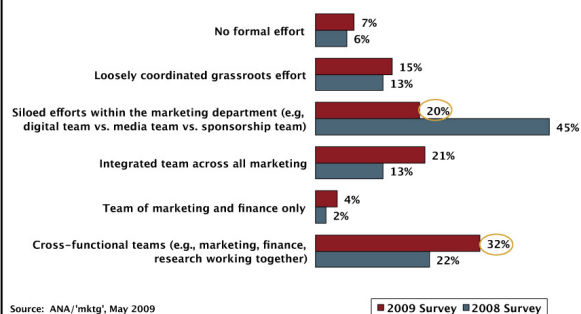
The resulting utility of today's MMM are three-fold. First, these models provide backward visibility into the return on investment (ROI) for the marketing tactics used and provide an "apples to apples" comparison of all marketing activities. This is important for the marketing spend accountability that C-level executives demand. Second, today's models can help diagnose the reason for changes in business performance over time based on a broad set of internal and external factors. These diagnostic analytics can provide high-level views of the brand down to granular viewing of customer segments, channels, attitude changes, external changes, and synergies between different marketing tactics. Ultimately, this provides "fair credit" to marketing for changes internally and externally that can impact the success of the overall marketing program.

Finally, these models can be used to forecast the future and predict the results of any changes made to the marketing mix as part of response planning. This enables marketers to optimize spends across the media mix for a product or service and for the broader portfolio as well as deliver causal and predictive forecasts.



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Description Of Marketing Accountability Efforts 2009 vs. 2008

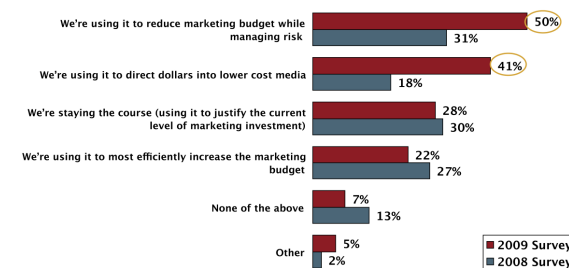


Marketers have realized that to ensure success, securing understanding and involvement from managers in other disciplines around the organization is critical.

Marketers have also realized that marketing accountability success is reliant on working together with other disciplines in cross-functional teams. Marketing and finance are sharing metrics to an increasing degree and developing strategies jointly.

In 2009, executives across almost every industry use MMM to guide critical investment decisions and manage the risk of increasing and decreasing their budgets.

How Marketing Accountability Program Is Used to Address Current Financial Challenges



In today's economic environment, marketers are applying MMM disciplines to guide critical planning and budget decisions.

THE CHALLENGES OF MAKING MARKETING MIX MODELING WORK

Organizations have realized up to 40 percent improvements in marketing ROI within 12 months by adopting MMM disciplines. But a successful MMM project is more than just a modeling exercise, marketers must drive organizational as well as technical components to make the exercise successful.

MMM is equal part art and science, which is a significant challenge for many companies. The first challenge is the data itself. Statisticians must accept that data will never be perfect or complete—there will always be missing data, imperfect data and/or holes in the data. Marketers and statisticians have to pick a point where the data is “good enough,” selecting a point that provides the right level of insight without over-architecting the model and creatively searching for proxies to fill in the holes where needed. In addition, marketers should undertake a program to continuously improve the quality and timeliness of data.

The second challenge is to recognize that it is not possible for the model to explain or predict 100 percent of sales activities. Here is where the adage, “the perfect is the enemy of the good” comes into play. Many companies fall into the trap of an endless and fruitless search for “false precision.” Managers spend vast amounts of time and resources improving their models from 95 percent accurate to 98 percent accurate, only to find the incremental ROI benefit is negligible. Business decision makers need useful data and models to make decisions based on the best available analytics of the day, not perfection. The third challenge is building a model that is actionable. A strong model that doesn't align with the current business challenges and planning



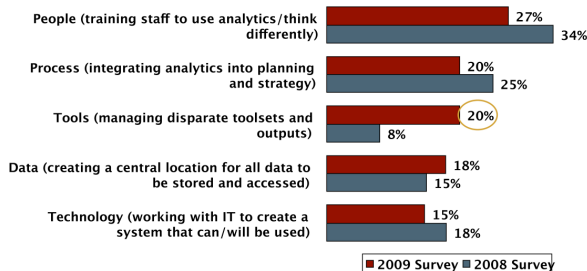
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processes is useless. The model should map to the analytics decision makers need—whether geographic, socio/economic, store-level, or brand-level.

The fourth challenge includes securing the right mix of staff (marketing, finance, sales, operations and human resources) to buy-in to the data being collected, understand the analytics needed for each discipline's purposes, and educate these audiences on the process and results to drive usage and understanding. If a model is overly complicated, too academic, and not understood, it won't be used by the audiences that need it the most.

A recent ANA study showed that the most important challenges in making MMM insights easy to use and guide adoption were people, process and tools.

Most Important Challenge in Making Analytics Easy to Use (Based on Percent Ranking Item First)



Source: ANA/mktg, May 2009

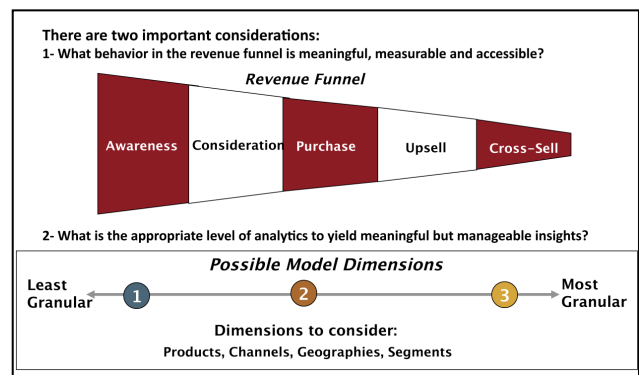
Base: Total Sample
N = (95) (128)

Creating an effective program requires overcoming potential challenges among people, process and tools.

KEYS TO A SUCCESSFUL MARKETING MIX MODELING PROGRAM

Based on years of experience working with companies across almost every industry, there are 10 key success factors to making MMM work and achieving a better "return on analytics."

1. Choose the Right Point or Point(s) in the Consumer Funnel



To maximize the benefit of a MMM, determine the optimal point or points in the consumer decision making process and make it actionable.

Actionability is a critical factor in achieving success with MMM. For example, if all managers believe there is a need to model the purchasing function, then focus on that first. Next, model at the right level of granularity to provide insights at the right level of actionability.



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2. Gain Cross-Functional Buy-In Early and Often

Companies that are successful with their MMM programs build cross-functional teams that include managers from market research, finance, sales, operations, marketing, and sometimes other functions and involve them in the process from day one. This approach ensures all relevant managers understand the model, become comfortable with the goals of the analysis, and understand both the strengths and limitations of the analysis.

One common approach to ensure cross-functional involvement consists of developing a RACI chart (Responsible, Accountable, Consulted, Informed) that maps out each manager's role within the modeling process. An example of a basic RACI chart is below.

	Responsible	Accountable	Consulted	Informed
CEO/ Sr. Mgmt			Scope, actions	Results
Marketing	Approve the inputs, assumptions, support translation into actions	The overall program		
Finance	Provide financial measures/margin		Scope	Results
Research	Bless the approach		Scope, translation into actions	Results
IT	Provide access to data sources		Data format, availability	

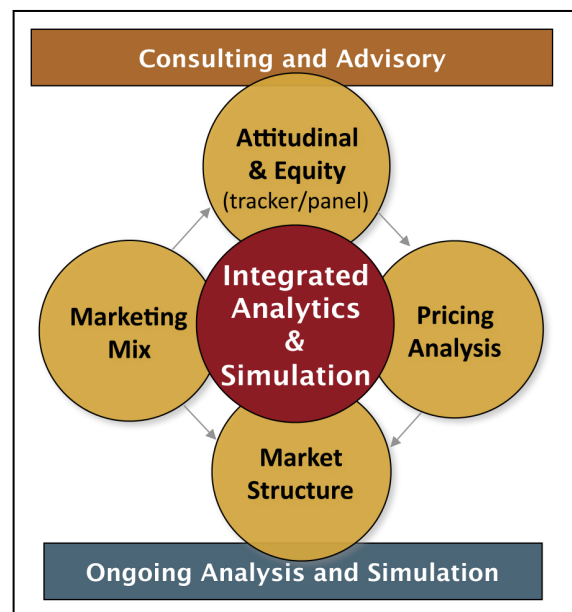
Focusing on who is responsible, accountable, consulted and informed throughout the MMM exercise is an important factor in securing cross-functional buy in.

3. Align Analytics with the Latest Business Challenges

Be sure to align analytics with the latest business questions and business planning processes. While the outcome of the modeling project will be a comprehensive report containing all results, gaining traction across the organization may require providing managers within each company function a report tailored to their specific needs. For example, sales may need only two metrics, but finance may need 20 different metrics.

4. Translate, Integrate, and Triangulate to Tell the Whole Story

Successful companies don't undertake mixed modeling in a silo; it is integrated with other strategies within the organization to achieve a "single point of truth." MMMs inherently have a significant amount of overlap with many other analytic and research programs. Those who have found success have established processes for integrating multiple analytic techniques through both mathematical and manual approaches. This allows stakeholders across various business functions to establish strategies and plans based on one truth and one set of metrics.



To maximize their effectiveness, analytics throughout the organization must be integrated so as to create a "single point of truth."



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5. Make It Forward-Looking

The emergence of software platforms to support the use of mix models is allowing many companies to build forward-looking, “what-if” business scenarios. In today’s rapidly-evolving business and economic landscape, the rear-view mirror or “backward-looking insights” are no longer relevant for many companies. Those who have found success are using these new tools to produce business planning and response scenarios that combine the results from MMMs with assumptions from business stakeholders and insights from other research programs.

6. Incorporate and Synergize Digital and Emerging Media

Beyond the “traditional” marketing media (TV, radio, print), it is now standard to include all digital media and, in some cases, social media in research and MMM projects. The biggest challenge for many companies is to understand the offline impact of online media. While measuring digital media tactics, modelers must remember that all impressions are not created equal. To deliver actionable insights, digital advertising impressions may need to be bucketed based on their objectives and target (e.g., behaviorally targets versus ad network impressions).

Another item to consider when measuring digital media is that it doesn’t exist in a vacuum, and there are often significant interactions with traditional media. For example, a consumer may see an ad on TV that then prompts them to search on the Internet. If modelers don’t test for these interactions, they could be over- or under-crediting one type of media incorrectly.

7. Manage Expectations

Successful organizations strike the right balance between pure gut and pure science to use their analytics effectively by understanding the strengths, limitations and appropriate application of MMM, which is an ongoing

and evolving process that in many organizations requires an investment of 2-3 years before reaching the desired maturity level.



Managing expectations and outlining the process for continually improving the MMM program over time with the cross-functional team is critical, especially for emerging media. To do this, marketers need to clearly establish expectations for the goals and insights gained by measuring each new/experimental program. “Big Bangs” in marketing come from experimentation and innovation. Ensuring that the same analytics that help your company increase revenue and profits do not stifle innovation is a critical challenge for marketing executives across all industries.

8. Update Analytics Frequently to Put the Right Information in the Hands of the Right People at the Right Time

When it comes to analytics, timely delivery of insights is critical for success. Successful organizations are updating their analytics in near real time and are constantly recalibrating them to changing internal and external conditions. Migrating from a “once a year study” to ongoing data updates and model refreshes that support tracking, diagnosis and course-correction isn’t just a data and system challenge. Achieving this goal requires the alignment of people, processes and technology to ensure that the insights delivered are timely, actionable and easy to use.



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9. Educate, Educate, Educate

To make MMM successful across the organization, it is necessary to continuously educate cross-functional stakeholders at every stage of the project. Prior to the start, encourage cross-company, peer-to-peer, and function-to-function knowledge sharing to ensure everyone has a base knowledge of all activities underway and the rationale for each. Then, train them again when the results are ready, so they understand what they are reading and how to use the results. Finally, always be sure to re-educate as changes occur to data collection processes and models.

10. Experiment with Complementary and Leading-edge Techniques

There are a number of analytic tools and techniques that "could" help companies address the latest business challenges and modeling roadblocks. But just because they are new and have established a bit of hype, doesn't mean that they will address outstanding needs and that managers should quickly jump ship. Experimenting with one or many combinations of new techniques could be a fruitful and engaging exercise.

Below are a few of the newer or complementary techniques to consider:

>>> For the media planners...In-Market Tests (Complementary)

Often, when marketing mix models are executed for the first time at a company, there are "big insights," that if implemented would require "big bets." To mitigate the risk of these bets, many companies will structure tests to validate these insights while providing additional planning insights. For example, a MMM study may indicate that there is an opportunity to shift a significant amount of the marketing budget from one media vehicle to another. A test could

validate this opportunity. The downside of these tests is typically the cost associated with them. To execute the test, marketers need to purchase media and commission the study. One of the newer beneficiaries of this method is digital media. Many companies are using this approach to perform market-level tests of digital media campaigns, then projecting the impact of these campaigns at a national level with a greater investment level.

>>> For the creatives...Consumer Funnel Analysis/Brand Equity Analysis (New)

MMMs are the industry standard for quantifying the drivers of short-term business performance (within 12 months), but many marketers continue to struggle to understand the impact of marketing efforts on changes in consumer attitudes and long-term brand equity. By applying similar techniques, industry leaders are able to understand the impact of marketing and key business drivers on each point in their consumer funnel, then link changes in these funnel metrics to financial metrics. This analysis allows companies to establish a balance between programs that focus on short-term sales versus long-term brand building.

>>> For the techies...Agent-Based Modeling (New)

During the past few years, agent-based modeling has gained significant buzz for its utility in solving marketing problems. Agent-based modeling focuses on the phenomenon known as "emergent behavior," by establishing individual models of "agents" (customers, competitors, etc.), then combining these models to simulate the impact of simultaneous changes in "agents" and complex interactions across these "agents."



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SUMMARY

MMM is a powerful exercise for gaining breakthrough insights that can directly lead to improved ROI. Managed well, MMM can provide significant competitive advantage to companies across almost every industry, offering new, predictive insights that can directly result in revenue and profit increases, and creating a "single point of truth" with which every function of a company can work toward a common set of goals. MMM can deliver powerful insights that will never see the light of day or make a significant impact if managed poorly.

Executives eager to upgrade their implementation of MMM should conduct an exhaustive study of successes and failures prior to undertaking a new MMM exercise.

Companies with limited MMM experience should consider involving subject experts who can help the company's cross-functional team successfully navigate the many decisions involved.

If you have questions or need more information, please contact:

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