A WARC & Magic Numbers report

Marketing mix modelling:
How to get started and ensure success

Getting started with marketing mix modelling (MMM)

Over the last couple of years there has been a resurgence of interest in the use of marketing mix modelling (MMM) to measure marketing outcomes.

The move away from cookie-based measurement techniques, along with advancements in AI and machine learning, mean MMM is now more attractive and accessible to advertisers than ever before.

However, while marketers may now have a better understanding of what MMM is, and why it's so useful, there is less information available that explains how to bring MMM into the marketing organisation and what to do once it's set up.

Information that helps marketers answer questions such as:

- How do I choose the right MMM supplier?
- How do I properly embed MMM in my organisation?
- What does the typical output of an MMM look like?
- How long does it take?
- And how much does it cost?

It was these types of questions that inspired us – WARC and Magic Numbers – to put together this guide for marketers seeking straight-forward and practical guidance on how to implement and manage MMM in their marketing organisation.

The guide is divided into five chapters, covering key topics including how to implement MMM successfully, how to interpret and use MMM results, and frequently asked questions about MMM.

At the end of the guide, we provide three case studies from brands that have successfully used MMM to drive improvements in their marketing.

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The view from Magic Numbers

When done right and communicated well, MMM gives people the confidence they need to make the right moves and succeed with their marketing.

Dr Grace Kite
Economist and Founder,
Magic Numbers

I love MMM. Not in that cringey way you see on CVs, where people claim a passion for work to impress a future boss. But in an unabashed, geeky, I know it's not cool but I can't help it, way.

It's because it's a brilliant tool for learning how the world ticks using data. Every project produces a roadmap for how and why things change. Different sectors, different countries, technical change, types of competition, price sensitivity, changing preferences, and most of all, why real people do what they do.

But it's not just learning for the sake of it. MMM, when it's done well and properly communicated, is a catalyst. It gives people in businesses the confidence to put the right pieces on the chessboard, make moves, and succeed. That's powerful. For business results and for career progress too.

That's why I was delighted to work with WARC on this guide, because I want all marketers to be able to use this fabulous tool, and get the best from it.

I'm proud of the pages you're about to read, they're full of super practical tips taken from my 20+ years experience with MMM: guidelines, checklists, pros and cons, and the experience of real life modern brands.

I hope they are pages that you find helpful now, but also that you can dip into in the future whenever you're thinking about how to get growth for your business.

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In this report

Against a backdrop of changes in privacy regulation and advancements in technology, there has been a resurgence of interest in the use of marketing mixed modelling (MMM) to measure marketing outcomes.

However, there remains a lack of knowledge about the steps required to bring MMM capabilities into the marketing organisation.

The purpose of this report is to provide tips and guidance to marketers on finding the right MMM supplier, as well as how to ensure success and interpret and use MMM results effectively.

Contents

Chapter 1

How to find the right supplier

Marketing mix modelling: How to get started and ensure success

Building a business case for investment

Before the search for an MMM supplier can commence, it is likely that senior stakeholders in the marketing organisation will need to see a compelling case for investment into the research.

For marketers, this means thinking about the reasons for investing in MMM expertise. Not only in terms of the value that MMM will deliver but also the practicalities of bringing MMM into the marketing organisation.

Addressing these questions will also be helpful in creating an informative and credible brief for prospective suppliers.

Things to think about when building a business case for MMM investment

Briefing components	Information to consider
Vision and objectives	• Business strategy & vision • Marketing strategy & vision • Marketing objectives over the next 1/2/3/5 years
Role of modelling output	• How MMM outputs will support the business/marketing vision and key objectives
Objectives for the modelling	• Key questions to be answered by modelling • Geographic scope for the modelling • Specific output requirements (if any) • Cadence of modelling (how many per annum)
Integration of modelling	• Integration of MMM with existing measurement tools and analytics systems (e.g. Tableau)
Summary of available data	• Data within the business that can be used for modelling purposes
Cost of modelling	• Cost implications of setting up MMM • Cost of modelling
Key stakeholders	• List of internal stakeholders for modelling (and their different needs)

Note: Some information above adapted from The IPA's 'Econometrics Explained 2', by Louise Cook. Read the full guide here.

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Making the right decisions

While the supplier's brief is being developed, there are two critical decisions to make before any search can formally commence.

One of those is where MMM expertise will be located. Here, many organisations will choose to minimise risk by finding an external partner to work with on modelling.

However, some organisations – with deeper resources and more complex needs – may choose to forgo external support and hire one or more MMM experts to work for their marketing organisations 'in-house'.

Advantages and risks of in-housing vs. outsourcing MMM: RAG analysis

| | Clear risk | Potential risk | Advantage |

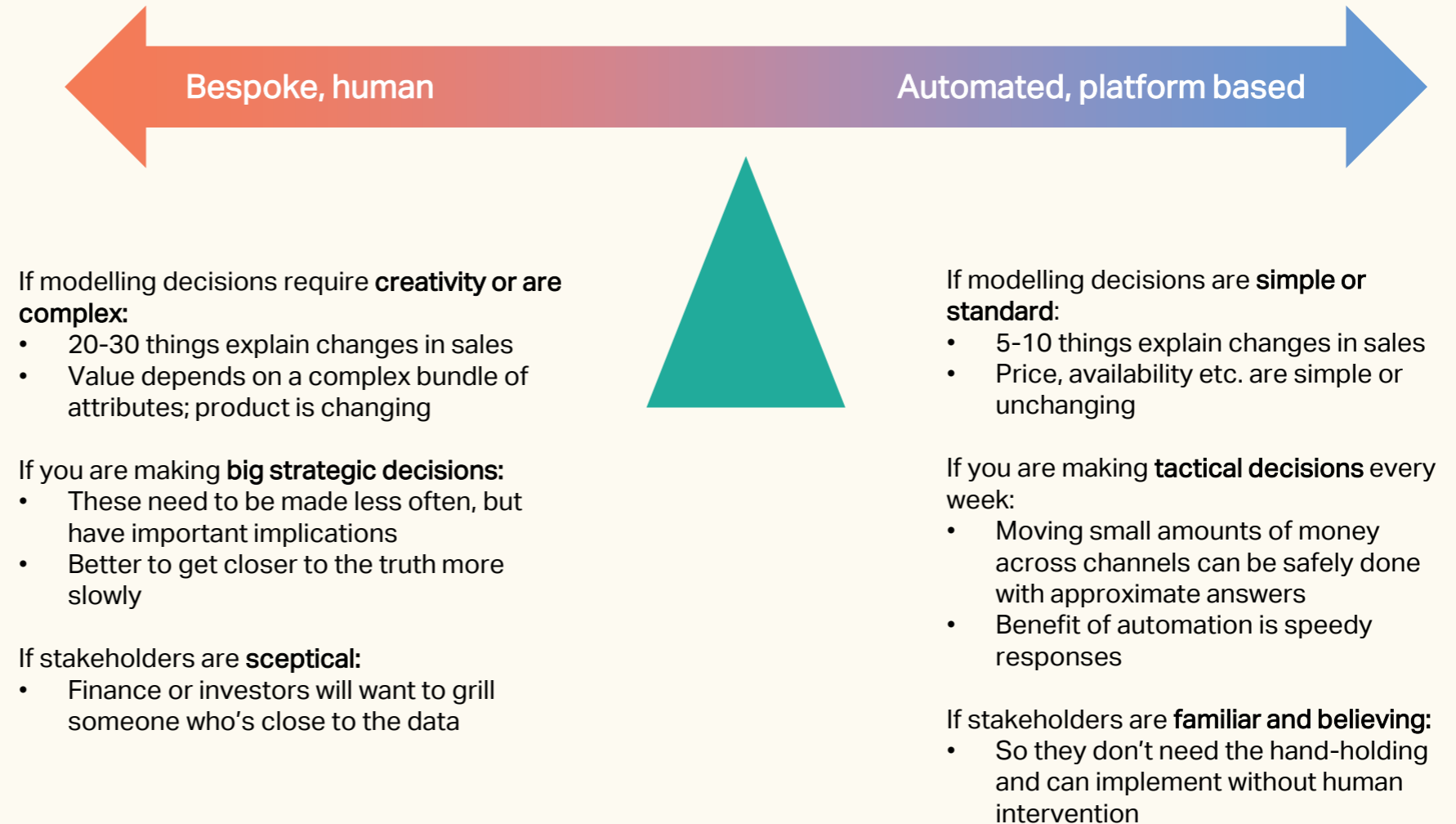| Criteria	In-house	Hybrid	Outsource
Experience	Unless you hire a big team, total experience with MMM will be limited	Possible to "buy in" experience but you do the work yourself	Experience from others like you and adjacent categories
Tools and software	Full control over modelling but all software requires experience	Modelling software like Scanmar/Robyn are available but need specialist guidance	You'll get decision tools but not the ability to rebuild whenever you like
Access to data	Standard data sources are available publicly	Standard data sources are available publicly	Fully automated collection & deep knowledge
Staff	MMM skills are hard to hire & retain outside of specialist teams	Access to specialist buddy helps retain MMM talent brought in	Specialist MMM talent most comfortable amongst their peers
Business knowledge	In-housing guarantees knowledge of the business	In-housing guarantees knowledge of the business	Collaboration really matters. Some suppliers are better than others
Always available	Your employees can query the model at any time	Your employees can query the model at any time	Depends on the nature of contracts, but some suppliers charge for queries

Source: Magic Numbers.

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Making the right decisions cont...

The other key decision to make is whether to use an automated, off-the-shelf MMM solution, or invest in something bespoke.

Which path is taken will depend on several factors including the importance of decisions to be made and the complexity of the business in question.

The graphic on the right illustrates some of the different considerations marketers need to make when deciding between an automated or bespoke solution.

Strengths and weaknesses of automated / platform-based vs. bespoke MMM solutions

Bespoke, human ← → Automated, platform based

If modelling decisions require **creativity or are complex:**
- 20-30 things explain changes in sales
- Value depends on a complex bundle of attributes; product is changing

If you are making **big strategic decisions:**
- These need to be made less often, but have important implications
- Better to get closer to the truth more slowly

If stakeholders are **sceptical:**
- Finance or investors will want to grill someone who's close to the data

If modelling decisions are **simple or standard:**
- 5-10 things explain changes in sales
- Price, availability etc. are simple or unchanging

If you are making **tactical decisions** every week:
- Moving small amounts of money across channels can be safely done with approximate answers
- Benefit of automation is speedy responses

If stakeholders are **familiar and believing:**
- So they don't need the hand-holding and can implement without human intervention

Note: In a recent open letter published on the WARC site, several measurement experts expressed concern about the growth and usage of automated solutions in marketing mix modelling. Read the full letter here.

Asking suppliers the right questions

When marketers are deciding on the right solution for their business, there are several different areas to investigate with prospective suppliers.

Some relate to the supplier's business model and setup, while other questions pertain to the breadth and depth of their modelling expertise.

Responses to the questions can be used to make an informed decision about which supplier is best able to meet the needs of the business.

Questions to ask suppliers about their business and modelling capabilities

General questions for suppliers	Questions for suppliers about their modelling
What guarantees can the supplier offer on transparency and independence?	Could our analysts who understand regression and data science look under the bonnet at the model and run statistical tests?
What is the experience level of the staff who will build models and ensure they are accurate and reliable?	Do you include at least two years of data, preferably three?
What is included in the project budget? What is the cost of asking additional questions or requesting follow ups?	Do you include factors like price, economy, seasonality, COVID in the models? And will you report on how these things affect our business?
Who will be responsible for presenting MMM results? How does the supplier approach presenting to different groups of stakeholders?	Do you measure how upper funnel ads like TV and YouTube affect outcomes in lower funnel ads like PPC?
Does the supplier use proprietary tools? How do they affect MMM outputs?	What would happen if results came back and we didn't believe them, say because they didn't line up with something else we knew?
	Will you be able to explain the model to our finance people? Will your numbers line up with theirs?
	Can you demonstrate to them that your models are good at forecasting?

Source: Magic Numbers.

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Mike Cross
Co-Founder
Measure Monks

Pitch decks from can be very convincing, but we've heard stories where 10 months of set up were followed by garbage results that were completely unusable. Making the wrong decisions off a bad model costs up to -40% of your media driven revenue, versus MMM applied properly which can deliver +30%. That's pretty costly to a CMO in austere times.

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Chapter 2

How to ensure success

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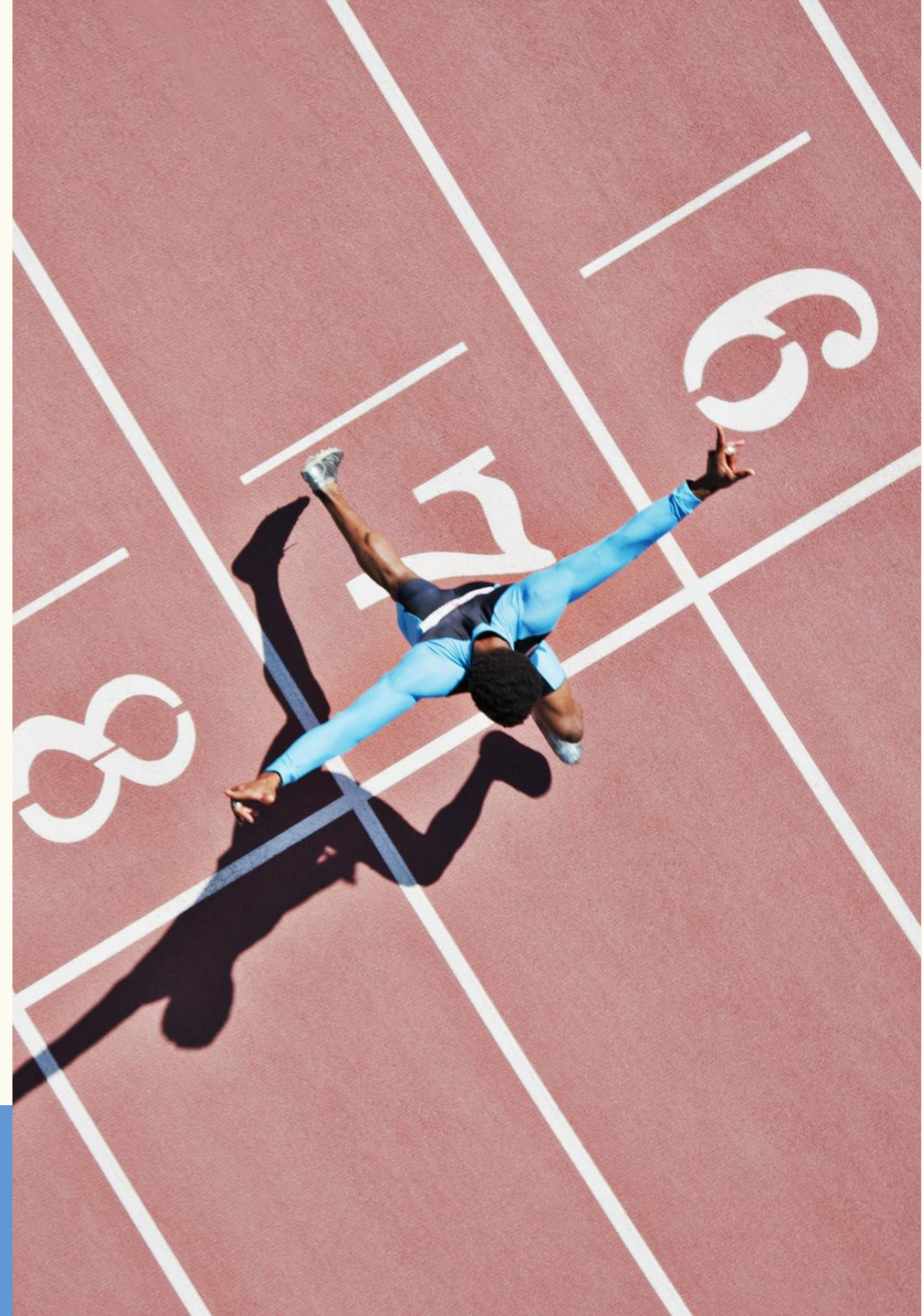
Knowing what you want to prove or disprove

Marketers will get more from their MMM project if they give the provider a clear set of questions to answer or hypotheses to test.

It is worthwhile making a long list of questions from across the organisation. Consider both live issues right now and things that always matter, or might matter next year.

MMM will not be able to answer everything. But if a wide range of stakeholders are consulted, then modelling should be able to produce a wealth of good and useful answers.

Example questions or hypothesis that could be tested with modelling

Area	Example question/hypothesis to test
Explaining our growth performance	• Which of all our growth initiatives have been responsible for our growth performance? • How has the economy affected us? • Does the cost-of-living crisis benefit us as more people trade down?
Justifying spend	• What was the payback in revenue and profit for our campaigns over the recent 3 years? • How does this vary by region we air in? And by time of year: Easter vs Summer vs Christmas?
Improving the media plan	• Which media channels work best by region? For new customers? For high value customers? • Which channels have long term effects, and which are best for sales right now? • Does effectiveness in performance channels improve when we're on air with our campaigns?
Operational & price	• What's the impact of customer (dis)satisfaction? • How have changes in price affected demand?
Looking ahead	• What's likely to happen if there's a recession next year? • Taking everything into account, what's the best way to acquire new and high value customers next year? • How much should we spend on media next year?

Note: This set of questions was co-created between the client and Magic Numbers. You'll get the most from MMM if you ask good questions of it.
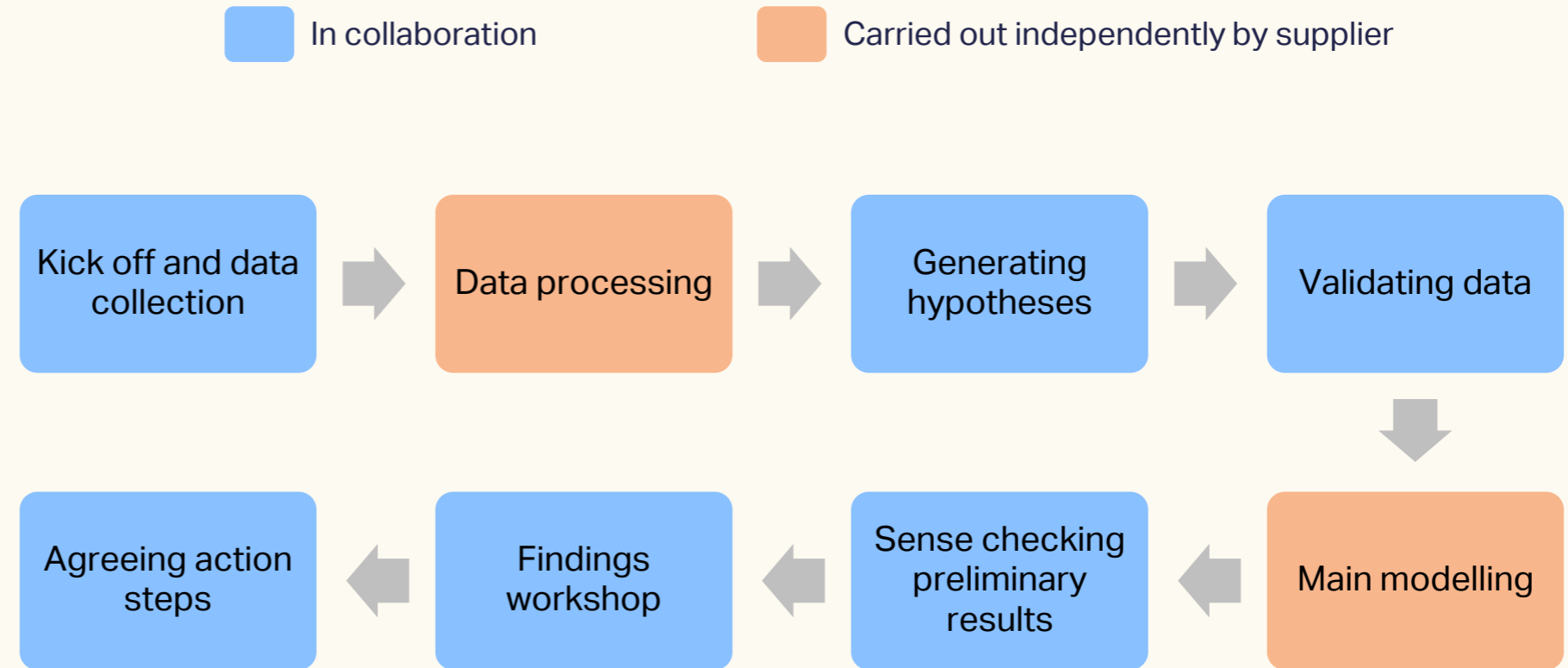
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Staying involved through the process

In any research project, results are better if both qualitative and quantitative knowledge is brought together.

With MMM, the subject under investigation is the marketing organisation and how it works. That means marketers need to input and be involved in the process, throughout.

The picture is an example of a project process that enables clients' qualitative input to be brought in at many different stages.

Example project process for an MMM research project

🟦 In collaboration　　🟧 Carried out independently by supplier

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Kick off and data collection → Data processing → Generating hypotheses → Validating data
                                                                              ↓
Agreeing action steps ← Findings workshop ← Sense checking preliminary results ← Main modelling
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Note: This is an example milestones plan for a MMM project incorporating lots of collaboration. At Magic Numbers, this has been proven successful at delivering believable and actionable findings

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Bringing others on the journey

It's important to reveal hunches and hypotheses that are believed as the work begins.

Then analysts should be asked to ensure that these hypotheses are tested to everyone's satisfaction.

It's also worth finding out the highest paid person's priorities and making sure their needs are managed through the process.

Finally, it is important to manage the sceptics. Find out who they are and get them involved in the process. If required, it may be helpful to set up a meeting where they can ask questions of the supplier.

Potential obstacles and challenges to manage through the process

People dismiss findings if they don't like results	"If this model is telling me things are great, then you know, I'm a hero, everything's great, I don't need to change anything. But if it is the other way around, suddenly there's a raft of reasons why they won't change things. They say they don't understand what the model is."
Internal analysts or finance can be suspicious	"There's inherent skepticism, particularly from finance people, about the role of marketing."
Some people are stuck in their beliefs	"It either confirms what you already know intuitively, or it becomes something that you don't believe because it doesn't confirm what you're thinking. So it's a bit of a catch 22 really."
The highest paid person can make or break it	"The programme was born out of an efficiency drive, and in the early days it found ways to save $xm. From then on, finance and the c-suite were on board. It meant they believed it when we said it was time to increase spend."

Note: The sell in is important because without it progress can be blocked. These are anonymous quotes from interviews with CMOs carried out by Magic Numbers.

Charles Quartey
Former Head of Media, Barclays

As years have gone on, more and more people have bought into what econometrics can do for us: helping us to budget and plan; helping us understand what ROIs are. It's about the journey and taking people along on that journey. As we've gone on the journey more are bought in. It's now seen as one source of truth, so that's a big tick for us.

Chapter 3

How to interpret and use results

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Socialising findings across the business

As mentioned, it is important to bring others in the organisation on the journey when conducting an MMM-based research project.

This is as true at the beginning as at the end of the project, when it is time to review the results.

The priorities of different stakeholder groups should have a bearing on how findings are socialised and presented across the organisation.

Remember, MMM can also be useful in resolving conflicts and debates between groups because of its ability to provide an objective assessment of marketing performance.

The value of MMM to different stakeholder groups

1 Senior clients
The most senior clients are the ones who make the big strategic decisions such as how to effectively distribute investment across the business. MMM can help with big decisions like how much to spend in total. It can also justify advertising spending, putting it in the language that the board, C-suite, and investors use to evaluate other spending.

2 Brand managers
Those in day-to-day charge of the brand focus more on granular issues and moving budget around to make sure things run optimally. Here MMM can help assess what has worked in the past and what could work best in future. It does this by answering questions like "To what extent does price affect sales?" or "Which media platforms perform most strongly?" and "When's the best time to advertise?"

3 Media planners
One of media planners' top priorities is to spend the client's money efficiently. MMM can be particularly helpful here as it can test for synergies amongst different media platforms as well as identify diminishing returns. It can also provide insight on customer groups that respond particularly well to a given media.

4 Creative agencies
Creative agencies are interested in how campaigns differ to one another in a number of performance indicators. With MMM it is possible to see how things like different message types can impact sales, and examine the phenomenon of creative 'wearout' across different lengths of time.

Note: Some information above adapted from The IPA's 'Econometrics Explained 2', by Louise Cook. Read the full guide here.

[MMM] is very useful – all internal debates are fights over resource – so being able to see what is going to affect what where is really very useful; it just closes down the endless debates.

Cheryl Calverly
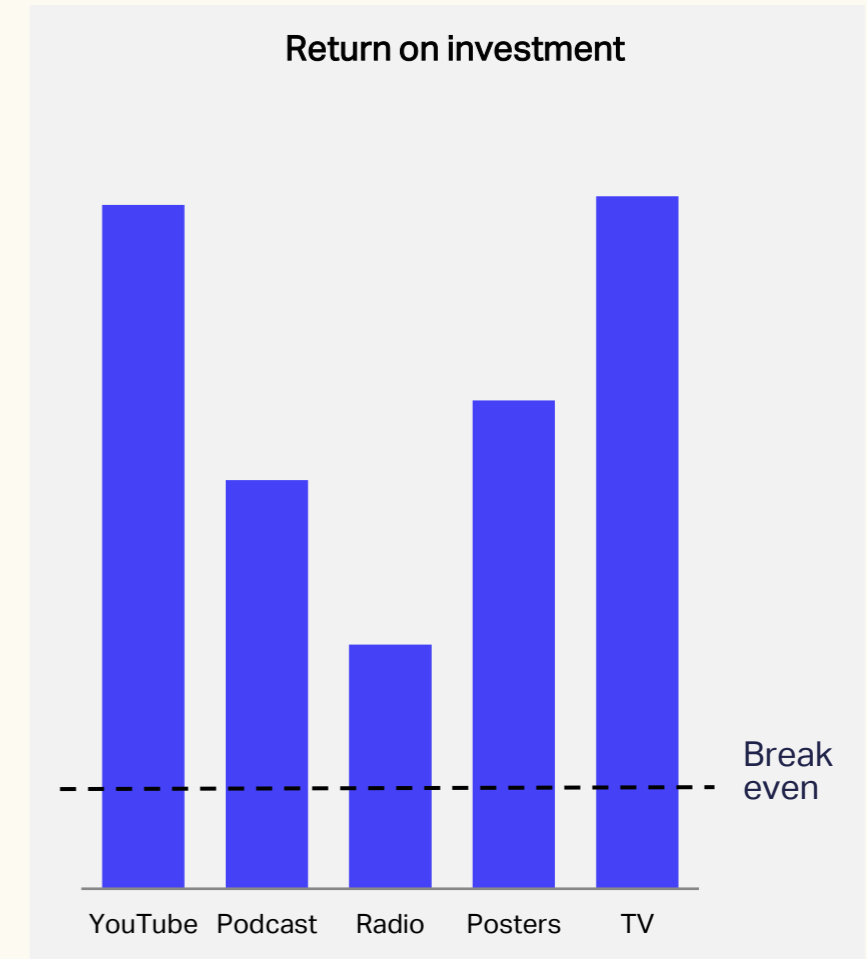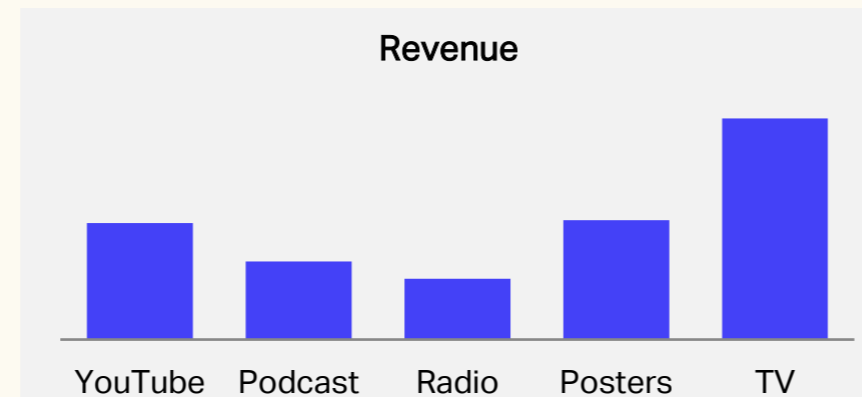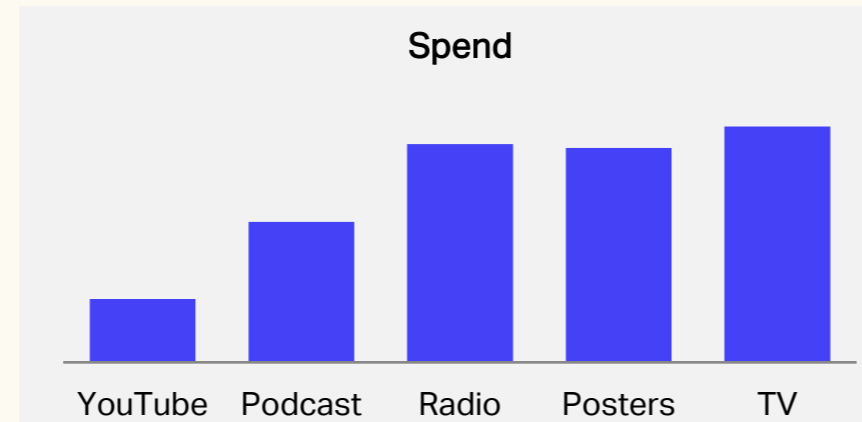Co-Founder, The Den and
former CEO of Eve Sleep

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What MMM output looks like

Cost-benefit or return-on-investment analysis is a core MMM output.

On the right, is an example of a return-on-investment (ROI) econometrics output. It has spend on different media channels in the top left, revenue that has been driven by that media in the bottom left, and then, on the right, revenue return on investment.

It tells you which media channels are the most cost-effective, and so, which you should use more in future. In this example, all channels were working well, but video outperformed the other channels. The next step was to spend more on YouTube and TV.

The key deliverable of MMM is a cost-benefit analysis

Spend — YouTube, Podcast, Radio, Posters, TV

Revenue — YouTube, Podcast, Radio, Posters, TV

Return on investment — YouTube, Podcast, Radio, Posters, TV — Break even

Source: Magic Numbers.

Why MMM results should go beyond only examining media

But it's not just individual media channels where you get a cost-benefit analysis. This slide is all about the costs and benefits of different price promotions.

On the chart, each blob is a promotion. Depth of discount is on the x-axis and resulting change in revenue is on the y-axis.

Before the change in strategy (blue) there was a tight relationship between depth of discount and the response in terms of revenue.
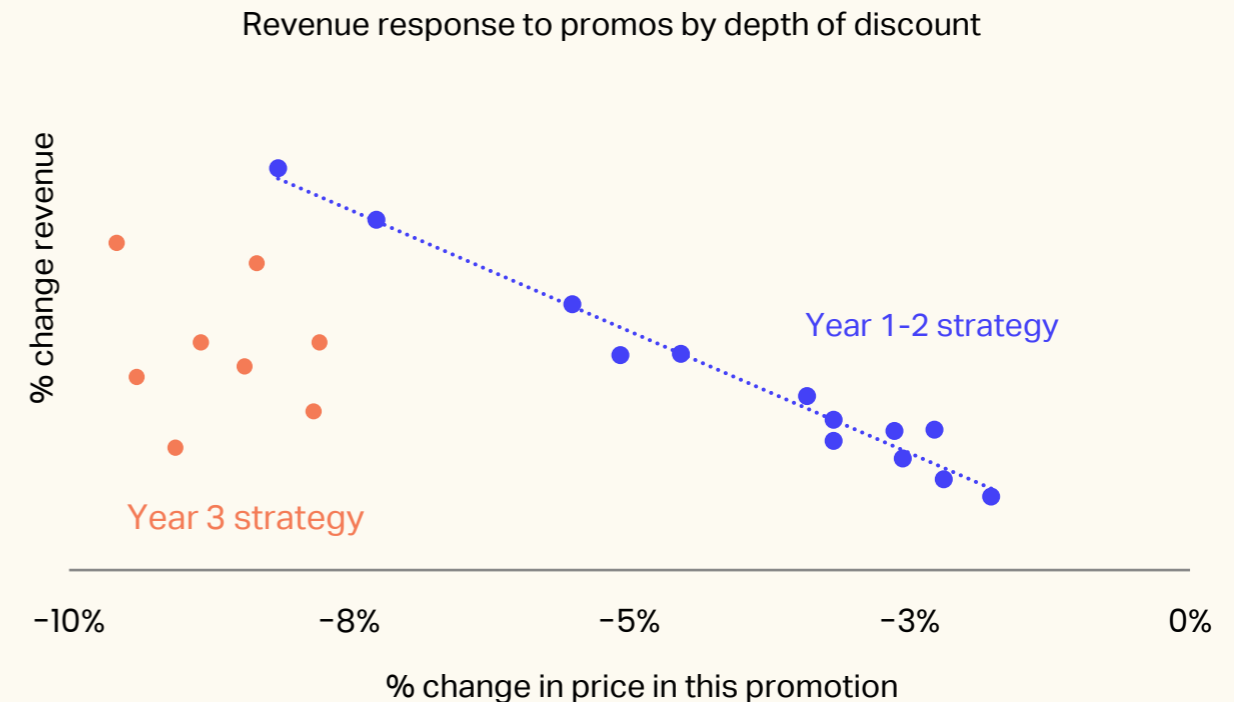
In other words, bigger discounts were leading to a significant uplift in purchases, resulting in higher revenues.

But in Year 3, after a change in strategy, the response wasn't as strong as you'd expect. These are shown in the orange-coloured blobs which appear below the dotted line.

Discounts were deeper, but customers weren't wowed by them. Advice from this analysis was to revert to the old strategy.

You should get cost-benefit for all drivers of sales, not just media

Shown here for price promotions

Revenue response to promos by depth of discount

% change revenue

Year 1-2 strategy

Year 3 strategy

-10%   -8%   -5%   -3%   0%

% change in price in this promotion
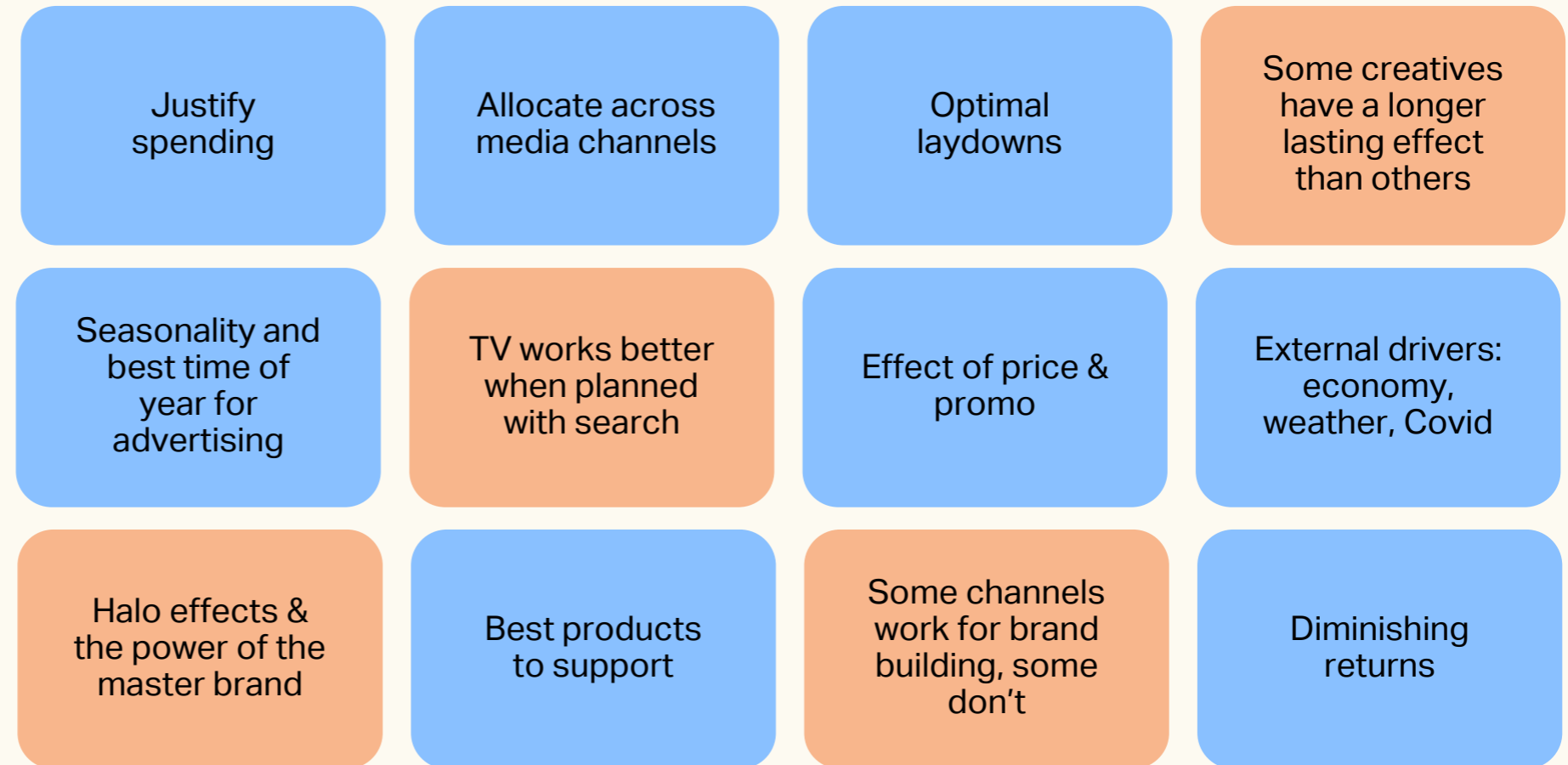
Source: Magic Numbers.

What else MMM can reveal

Beyond a cost-benefit analysis of media or price-promotions, MMM has the capacity to reveal a whole host of different relationships that were hitherto unappreciated or not visible.

These can include 'known unknowns' – such as the impact of seasonality on sales – that can nonetheless be useful in triggering a change in strategy.

But perhaps more intriguing is the ways in which MMM can reveal 'unknown unknowns'. That is, entirely new phenomena – such as how TV advertising drives search activity – that can change the way the organisation looks at marketing.

A whole range of other useful results

Including "lightbulb" moments when it reveals relationships that were previously not visible

Justify spending	Allocate across media channels	Optimal laydowns	Some creatives have a longer lasting effect than others
Seasonality and best time of year for advertising	TV works better when planned with search	Effect of price & promo	External drivers: economy, weather, Covid
Halo effects & the power of the master brand	Best products to support	Some channels work for brand building, some don't	Diminishing returns

Source: Magic Numbers.

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Learnings and actions taken by advertisers after receiving MMM results

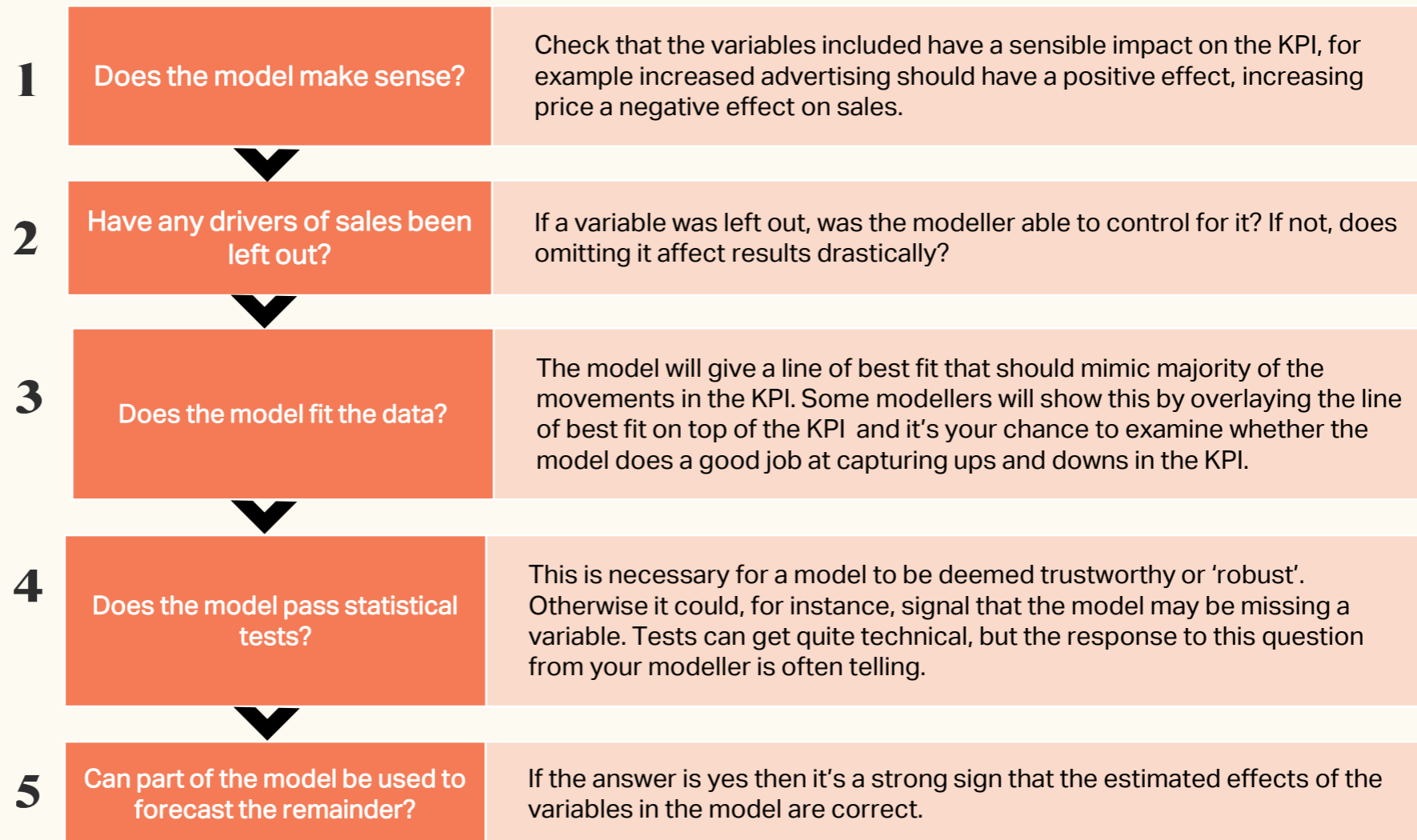| Client	They asked	They learned	They did next
123 Reg	What's the most important driver of domain sales? Which channels work best?	Price for .co.uk domains was important YouTube a stand out channel	YouTube
britbox	How can we get more free trial starts? Are our last-click attribution figures misleading? How badly?	Original new releases matter Facebook (reach) generating more awareness than last-click numbers would suggest	Facebook
Go Daddy.com	What's the best way to drive profit? Which channels work best?	One of their products was discovered to be more profitable and had more scope for growth vs. the other PPC & TV the best channels	TV
eFax	How do we get more subscribers? Are we spending too much on PPC? Which channels/platforms work best?	Focus on awareness building media Guided test & learn for PPC LinkedIn highlighted as a particularly effective platform	LinkedIn

Source: Magic Numbers.

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Questions to ask about your results

It can be intimidating to try and challenge something like MMM. After all, it's not an easy subject.

But it is important because a bad model can be misleading and damaging for the business. It will recommend things that may not benefit the business and even prove costly.

The modeler should make sure that results are robust, but it is important for you to know that things that may seem trivial – like having a variable missing from the model (when in fact it should really be there) – can lead to wrong conclusions.

Five questions to help you determine just how good a model is

1	Does the model make sense?	Check that the variables included have a sensible impact on the KPI, for example increased advertising should have a positive effect, increasing price a negative effect on sales.
2	Have any drivers of sales been left out?	If a variable was left out, was the modeller able to control for it? If not, does omitting it affect results drastically?
3	Does the model fit the data?	The model will give a line of best fit that should mimic majority of the movements in the KPI. Some modellers will show this by overlaying the line of best fit on top of the KPI and it's your chance to examine whether the model does a good job at capturing ups and downs in the KPI.
4	Does the model pass statistical tests?	This is necessary for a model to be deemed trustworthy or 'robust'. Otherwise it could, for instance, signal that the model may be missing a variable. Tests can get quite technical, but the response to this question from your modeller is often telling.
5	Can part of the model be used to forecast the remainder?	If the answer is yes then it's a strong sign that the estimated effects of the variables in the model are correct.

Note: Some information above adapted from The IPA's 'Econometrics Explained 2', by Louise Cook. Read the full guide here.

Chapter 5

Frequently asked questions

FAQs about MMM

|	
Do I really need MMM, or am I fine to carry on using attribution?	Digital Attribution is handy as a cheap tool to measure different choices within each digital media channel; for example different websites for display, or daypart for social. But it isn't suitable for comparing across channels because attribution methods are different in each digital channel. Attribution is also not suitable for evaluating true return on investment. This is because it ignores all other media as well as other touchpoints along the customer journey. The result of this is a likely overinflated digital ROI. MMM, on the other hand, delivers results while filtering out sales that would've happened anyway, so that it's a view of "incremental" sales from advertising. It does this by accounting for all other factors that could have influence a sale. These can be things specific to your business (e.g. price, product distribution, TV ad, web-redesign, etc.) or external factors (e.g. weather, competitor media spend, covid, etc.). By controlling for all of these factors, MMM delivers a holistic view on what is affecting the KPI. It's a view that is very useful for making strategic decisions, and also one that can be combined with last click for improved tactical decisions.
Can MMM really measure the long-term effects of advertising?	MMM is the only measurement method that's capable of measuring which channels have long-term effects and identifying the right mix between them for your particular business. That's incredibly valuable to senior marketers, in making the case for long-lasting campaigns in the first place. But also for helping the organisation to maintain commitment when such campaigns air and there's a need to be patient and wait for the payback.
Can MMM only look backwards, to assess previous marketing activity? Or can it also forecast and wargame the future?	MMM is a backward-looking analysis by default, but an understanding of the past is always the basis for forecasts. You can ask your provider to project forward under BAU assumptions to see whether you'll meet targets next year. You can also ask for a costed marketing plan to reach targets. You can also ask for tools that allow you to wargame different marketing plans. Basic tools will simulate the effect of media plans. Better ones will forecast your actual sales depending on media and other drivers. You can also get tools that enable you to check sales vs forecast to see if you're going off track.

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FAQs about MMM

How long will it take?	After collecting and validating all data, bespoke projects take 6-8 weeks for the initial build and 4 weeks for updates. Automated platform based solutions take up to 10 months to set up, but after that updates can be done in a week.
What data do I need?	You'll want to include data for all factors that could be impacting your KPI. Usually, this includes category trends, price, availability, product changes, external factors, paid, owned and earned media and competitor activity.
How much will it cost?	MMM costs depend on how many models you build. There's a trade off to navigate. More models means more detailed and granular findings. But it also means more resources are needed. Fewer models can sometimes risk grouping apples with pears. It might be building 2-4 models for between £50-£100k. It's a good idea to benchmark the costs of your MMM vs. 10% of your media budget. This is because implementing MMM routinely adds 10% to return on investment and often up to 20 or 30%, so if you spend less than 10% on it, you can be pretty sure the research will more than pay for itself.
Is MMM suitable for every business, regardless of maturity?	To run MMM you need two to three years of data, so if you're a business less than two years old, then it's probably not worthwhile investing in MMM just yet. If you're more than three years old, then it is helpful to use the media budget equation above to calculate whether a 10% increase in value from your budget will justify the cost of the research.

Chapter 6

Case Studies

Marketing mix modelling: How to get started and ensure success
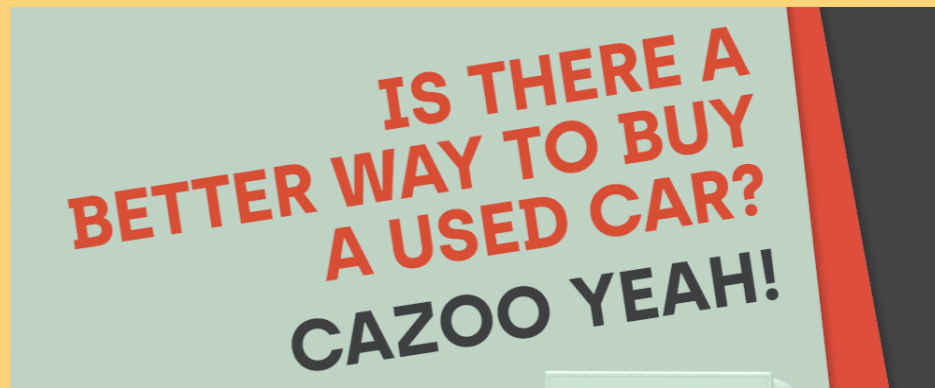
# Stirring souls and selling bowls through the secret power of cinema

Agency:
MullenLowe, the7stars

Advertiser:
Wagamama

Market:
UK

Wagamama, the Japanese-inspired restaurant, was one of a few in the 90s but started facing serious competition around 2018. Together with Brexit in 2016, an increase in food costs, and take over of delivery services the likes of Deliveroo and UberEats – the eat-in experience of Wagamama took a hit.

Tactics changed. Wagamama started focusing on increasing penetration. They would maintain their 16-34 target audience but decided to invest in brand building when others were focusing on activation. And instead of going for traditional TV they decided to invest in Cinema. Early regional tests proved Cinema was effective. Eventually, in 2019, they launched a full-on cinema campaign with support from other channels including TV and OOH.
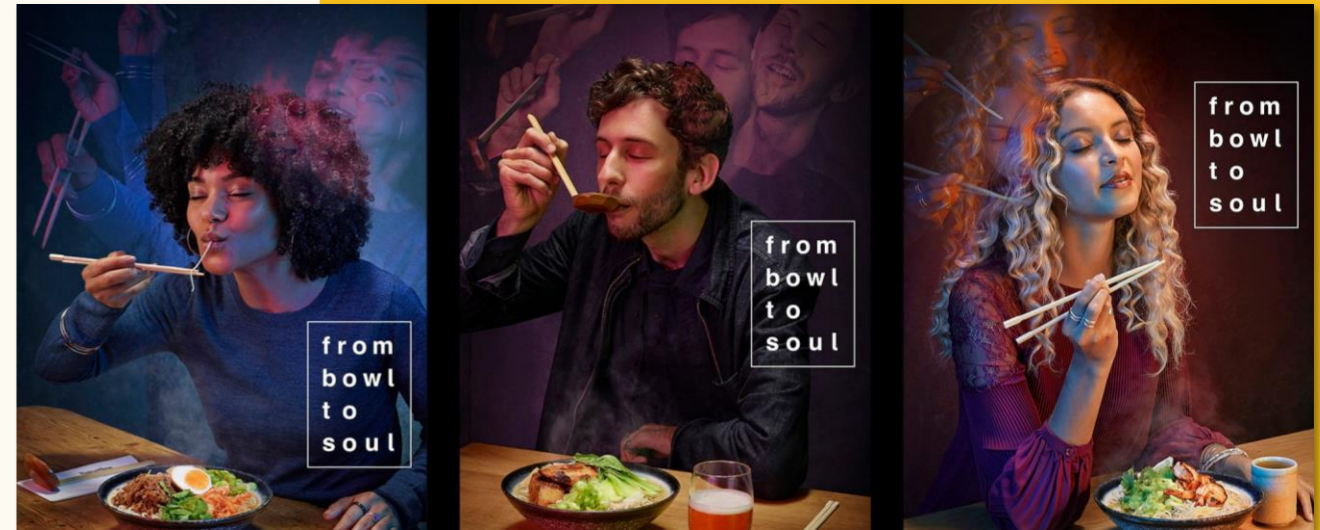
Results

£20.86m in incremental revenue

6% point penetration increase among those aged 16-34

Takeaways

- MMM showed cinema was a real success. Econometric modelling revealed it to be a massively successful campaign with a profit ROI of £5.21. It also showed that though there halo effects from delivery, 88% of total revenue was driven from eat-in which is more profitable – further validating the strategy.

View the case study

Understanding the impact of Covid on Schmackos sales

Agency:
adam&eveDDB

Advertiser:
Mars Petcare

Market:
Australia

Schmackos is an Australian dog treat brand that reigned as favourite amongst Australians for years until it fell out of favour and started seeing serious decline around 2013, hitting bottom in April 2020

Many new campaigns tried to reverse the trend but to no avail. As a result, media spend was cut and market share fell from c.30% to 20% in just two years.

Eventually, in mid-2020 the original claymated ads came back with slight makeover and the restricted budget went heavily on TV with a small amount on social. The new ads worked marvelously and as budgets grew, so did returns.

Dogs go WACKO for SCHMACKOS

Results

Increase in sales by **28%**

Rate of sale increased by *25%*

Market share went up by *4 percentage points*

Takeaways

- Sales started to pick up just about when Covid hit. Yet econometrics showed that the first national lockdown actually had a negative impact as it disrupted trade and caused a significant drop in distribution.

- MMM was able to analyse external variables to highlight the actual relationship between Covid and sales of Schmackos.

View the case study

Using offline media to generate confidence in an online brand
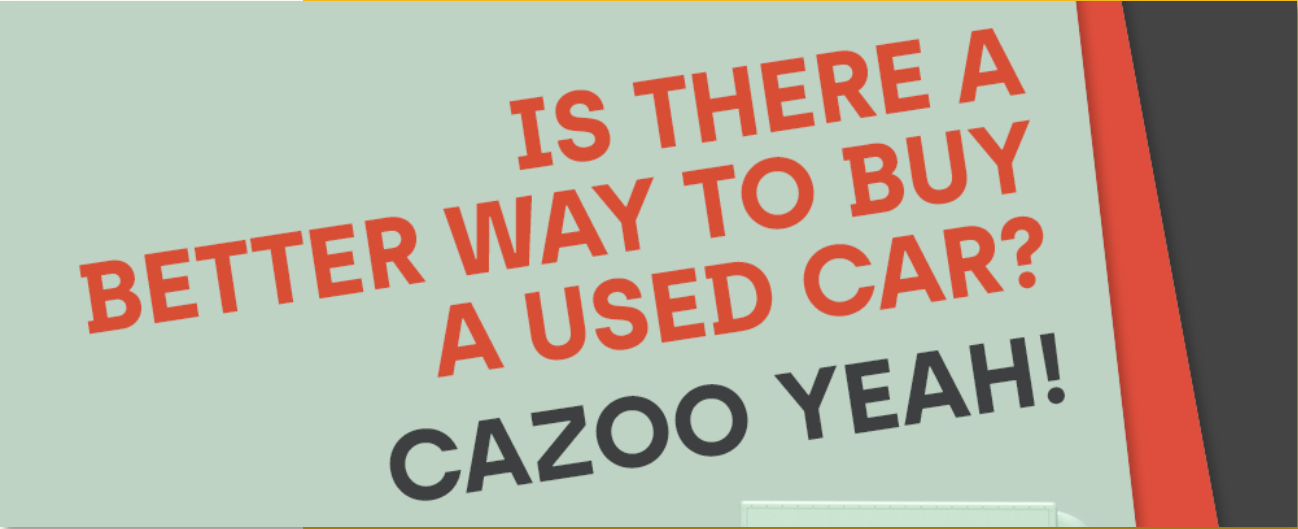

Agency:
Engine, Cazoo

Advertiser:
Cazoo

Market:
UK

Cazoo, an online car retailer, was able to cement its place as a trusted player in the UK used car market and get listed in the New York Stock Exchange in just under 2 years with the help of its marketing.

Up to 2020, very few transactions for used cars took place online. Cazoo's strategy was to disrupt the category by making online car shopping easy, convenient and trustworthy.

However, Cazoo had to secure a significant amount of funds before launching and needed to scale fast as its stock would quickly depreciate from there on. Through clever offline marketing tactics that aimed to increase consideration by instilling brand confidence, Cazoo was able to make significant strides.

Results

36.7% share price increase by 2021

18% non-mattress GSAD by 2021

£150m increase in GSAD during period

Takeaways

- It is unusual for online brands to heavily invest in offline channels, but econometrics proved that this was an effective tactic.

- Even for heavily-online brands, offline marketing can be highly effective. The challenge is in proving this type of marketing works – which is where MMM can be tremendously helpful.

View the case study

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- The future of measurement

- Evolving measurement: the democratisation of marketing mixed modelling (MMM)

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- A short guide to building marketing-mix-models in the new economy

- MMM and Experiments: The new paradigm to measure marketing effectiveness

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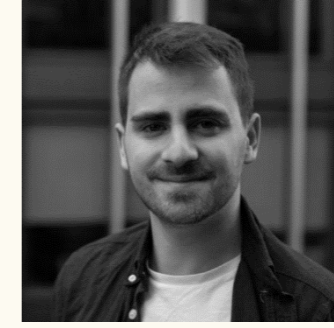WARC Strategy

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