Consumer mix modelling

Modelling techniques are advancing and while Consumer Mix Modelling has similarities to Marketing Mix Modelling, it overcomes many of MMM's limitations and can measure marketing RoI at more sophisticated levels

By Simeon Duckworth and Jeremy Pounder, *Mindshare*, and Paul Ward, *Kantar Worldpanel*

Marketing Mix Modelling (MMM) has been the gold standard method of measuring advertising RoI for over 30 years. Using aggregated sales data, it can quantify and predict marketing RoI, isolating one driver from another. It is reasonably easy to implement, largely working with existing streams of aggregate data and it can yield significant improvements in RoI, with 15-20% improvements not untypical. Given these benefits, it is slightly surprising that it is not used more by advertisers. As the Israeli-American psychologist Daniel Kahneman has pointed out, even simple models frequently outperform the biases inherent in informal decision processes.

However, traditional MMM has faced three problems that have inhibited its widespread adoption. Firstly, it is perceived to be more useful for broad strategic decisions, such as portfolio budget allocation, but less useful for the day-to-day optimisation on 'how' to improve RoI. Secondly, it measures incremental sales over the short to medium term, but doesn't capture long-term brand value. Thirdly, it uses language that is unfamiliar to many people and works with concepts that are self-referential to the model – 'base-sales',

'adstocks' or 'response curves' – which can't be cross-referenced with other sources.

At both Mindshare and Kantar, we are working to develop the next generation of MMM, which we call Consumer Mix Modelling (CMM). CMM makes use of the growing amount of single-source data to measure marketing effectiveness. Just like

traditional MMM, it estimates the influence of the marketing mix on purchasing by looking for variation in, for example, media exposure across time and individual consumers and how that correlates to purchasing. Also, like MMM, it can take into account multiple elements of the marketing mix, such as advertising, price promotion and seasonality.

But, because it works at an individual consumer level, it is more actionable; more capable of measuring consumer relationships with brands; better suited to measuring digital media; and tailored to an increasingly addressable advertising future.

CMM is more actionable for the marketer because it can measure marketing RoI at an audience level and therefore direct targeting decisions. These can be predefined audiences, e.g. 'brand switchers', but also can be target audiences identified by specific campaign advertising effectiveness. Combined with more sophisticated planning tools, CMM can weigh the benefits of micro and macro targeting, evaluate how creative or content 'fits' with different audiences and whether media targets are too tightly or loosely drawn. In comparison with MMM, there is also much greater potential for the analysis to be scaled with higher degrees of automation. This means analysis can be carried out and fed into decision making much more quickly.

Whereas MMM struggles to measure the impact of communication on long-term brand value, CMM can address this by measuring RoI by segment against loyal behaviour, switchers, promotional buyers and so on. This can help measure the long-term impact of advertising by tracking the long-term behaviour of the acquisition group as well as identifying whether advertising works harder to retain or to attract new customers. It is also possible to introduce attitudinal measures to the analysis by using add-on surveys among a specific sample. This helps explain consumer behaviour more deeply and why particular channels have proved more or less effective.

In addition, CMM can measure digital activity more accurately than traditional MMM by using single-source data. Generally, causality is very difficult to measure with digital media because exposure to advertising is highly linked to the intent to buy or at least search for information. CMM goes beyond current A/B testing approaches because it allows us to model 'synergy' along the decision journey and not just isolated channels (e.g. the interaction between brand loyalty, search, content and TV).

It also allows us to take advantage of increasingly addressable media which enable greater experimentation and testing of media

and creative. The experimental approaches that CMM facilitates help make learning about effectiveness faster and more rigorous.

Two categories where CMM has distinct benefits over traditional MMM are entertainment and consumer packaged goods (CPG). In entertainment, the marketing function is in a constant state of launching new programmes, films, and albums, so the product is continually changing. With CPG, perhaps two thirds of the reason for investing in advertising is to build a brand – yet MMM tends to measure RoI in only the medium term.

Over the past five years, Mindshare has measured the impact of marketing on more than 1,000 programmes for a major UK broadcaster. Measuring the advertising effectiveness of marketing on TV viewing behaviour is complex, primarily because each programme marketed is essentially a unique, one-off product. This means that when evaluating marketing effectiveness we are trying to assess a series of one-off launches for different products, rather than a number of campaigns supporting one continuous product line.

The good news is that TV broadcasters have a unique asset to measure marketing effectiveness – the Broadcasters' Audience Research Board (BARB). BARB provides minute-by-minute viewing data for 5,100 households and 11,500 individuals in the UK. It is effectively a single-source panel, allowing us to see whether someone who has seen a trailer for a programme not only watched the programme but also whether they would have likely watched it anyway because they were watching the programme before or they like that type of content. We can also enhance that data with 'fused' data on likely exposure to press, PR and outdoor.

FIGURE 1
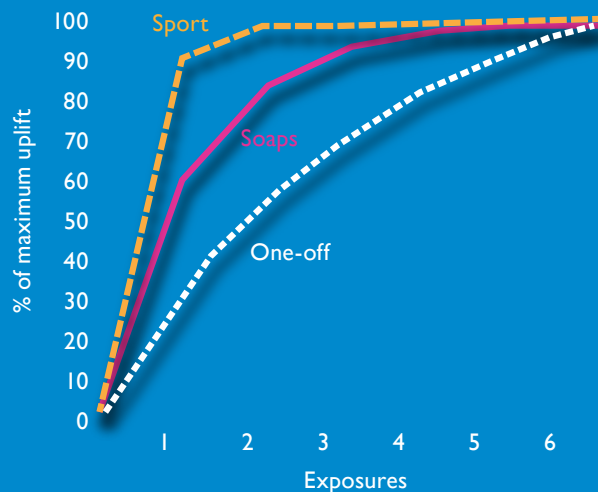
We have measured 1,037 programmes, equating to almost 16,000 episodes and 10.35 billion viewing occasions to gain insights into how advertising varies by a range of factors including programme, episode, genre, audience and day-part. To wring extra insight from the data, we use a Bayesian Consumer Mix Model that uses the history of past measurement to set 'priors' for key model parameters. This allows us to measure important nuances with a higher degree of certainty. The granularity of this approach lets us measure marketing performance at both the aggregate and the programme level.

For any given show, it is perhaps not surprising that scheduling is the most important driver of tune-in. But that we are 60% more likely to watch a show if we saw the show before is testament that we are more 'couch potato' than 'flicker'. We have also shown that programme marketing is important, and can contribute around 20% of the audience.

The real strength of the approach though lies in its ability to unpick the variation between content, context and audience and allow us to continually optimise marketing and media planning. We have found that the genre of content promoted has a big impact on advertising effectiveness. One-off dramas, for example, only maximise their viewing uplift from media after five exposures. For

sport, this occurs after one exposure (the announcement that the event is on) and soaps two to three (once the storyline has been communicated) (Figure 1).

The particular context surrounding a programme also has a big impact on marketing effectiveness. For instance, we have shown that viewers who have viewed a previous series require considerably fewer exposures to elicit a response. We have also demonstrated that beyond episode two in a series, marketing support has a negligible effect on viewing.

A key advantage of CMM is to link market effectiveness with audience segmentation. We have developed viewing-driven segments (e.g. Drama Lovers), used them to optimise multimedia campaigns, monitored viewing behaviour and marketing effectiveness – all within one model. We have also identified cross-promotion audiences by finding the viewers that are incremental and which programmes they watch.

In the past two years, CPG advertisers have asked the following questions: is digital advertising paying back in the short term? If so, how is it working? Are we assigning too much to digital advertising alone and not enough to the synergy between traditional advertising and digital?

At Kantar Worldpanel, we have been using single-source data to assess the role of advertising in driving CPG sales for the past 15 years. For the past five of those years, we have incorporated digital data into that mix by directly tagging ads and collecting cookies from our households' computers. By applying CMM, we can demonstrate the causality between exposure and actual purchase. Working with our partners, Europanel, we have rolled this capability out to the major geographical centres – France, Germany, Spain, China, Brazil, Russia – enabling us to collect a metadatabase of the effectiveness of advertising by country and by platform.

Although advertising generally is seen by many people, only a small proportion of it is responsible for generating positive effects. Typically, 5% of all those households who are exposed to a campaign will significantly alter their purchase behaviour in the four weeks after exposure. This is particularly true of television advertising but also applies to digital advertising. The difference though is that the proportion of responders within

digital is higher than for TV, due to the inherent nature of the enhanced targeting. For TV, you reach many people who are not even remotely engaged in the category – for instance, nappy advertising. Digital however can pre-filter to get fewer disengaged targets and so less waste.

CMM also allows us to address the challenge of separating short-term or immediate effects from longer-term or brand equity effects. In real-life systems, people are the sum of millions of advertising exposures and thousands of shopping trips. All brands have large movements into and out of them during each purchase cycle and advertising works against all this to create a perturbation in the natural cycle. We have seen that advertising does not finish at the magic 28 days (or one purchase cycle) past the event though. Of those who respond to the advertising, around 10% will still be buying more than they were before the campaign started. This effectively becomes part of the base level or brand equity component in subsequent periods of analysis. The crucial part though is that by understanding who these people are and where they come from it is possible to optimise future campaigns not just to get short-term gains but to increase overall brand health. Classically, maximising 1+ exposure is a goal, but we look at the quality of that 1+ exposure both by channel and by respondent. In one recent campaign we overlaid a current segmentation onto the results and demonstrated a differentiation

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within the cluster groups. This then allowed the client, through a digital-based DM campaign, to focus effort onto predefined targets.

Very often we are asked how to integrate trade promotions and advertising spend. MMM studies conventionally look at synergies between the two and whether there is a need to run the two in tandem. By using single-source data we do not look just at how the campaigns interact, but how the consumers respond to them. We typically classify promotionally sensitive people as deal buyers (loyal to deals irrespective of brand) or give-away deal buyers (loyal to a brand when on deal). The rest are light or non-buyers or normal buyers with average sensitivity. It is by crossing this type of classification with a media campaign that we gain additional insights into how the two campaigns should be phased together.

CMM also enabled us to understand longer-term effects. For one CPG brand, we identified a key group of consumers, namely classic light buyers, barely buying into the brand, even if it was on promotion. During the advertising campaign, they were recruited and bought the brand, albeit needing the concurrent stimulus of a promotion. Interestingly, two months after the campaign finished and a promotion that they had previously ignored came on, they now re-bought the brand, giving a longer-term payback to the advertising. Without using single-source data, and classifying consumers into different responding groups, this key finding would not have come to light.

CONCLUSION

We believe that CMM will truly come of age over the next few years, as we are able to integrate data sets together to create a holistic single-source view of marketing and purchasing behaviour. As communications become increasingly addressable and personalised, CMM's ability to facilitate experimentation and measure marketing effectiveness at the segment level will see it become the next generation gold standard of RoI measurement.