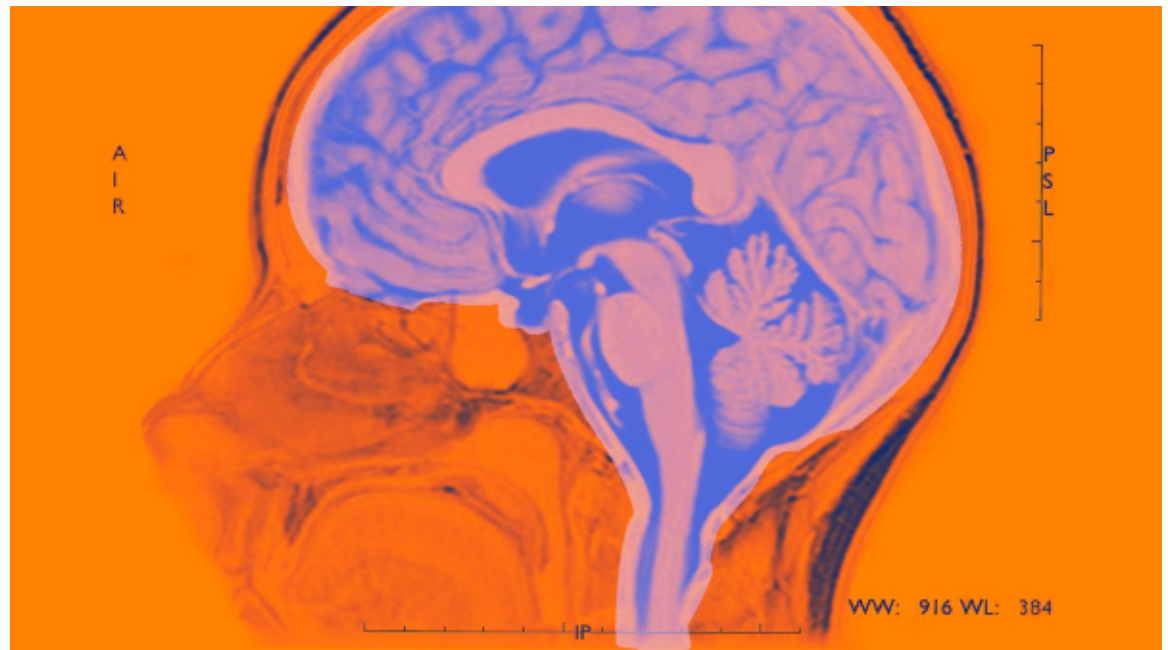


MARKET RESEARCH

Marketers Should Pay Attention to fMRI

by Uma R. Karmarkar, Carolyn Yoon and Hilke Plassmann
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Despite its popularity in academic settings, functional magnetic resonance imaging (fMRI) machines are rarely used as a marketing tool in the corporate world. When we surveyed 64 individuals from neuromarketing firms, only 31% reported ever using fMRI machines — and, of course, only a minority of companies engage such firms in the first place. This stands in stark contrast to results from a survey of 59 consumer neuroscience researchers in business schools; 71% reported using, or having used, the neuroimaging technique.

Why the gap? Academic researchers are often attracted to fMRI for its comprehensive ability to investigate a range of neural activity across the entire brain. But for a CMO weighing costs against

immediate benefits, the cost of an fMRI-based study might seem prohibitive. fMRI studies depend on access to specialized equipment most commonly found in medical or university settings, and the scanners require significant training to operate. Analyzing the resulting data also takes expertise and time. What's more, despite being at least three times more expensive than traditional methods, there has been scant evidence that fMRI reveals anything beyond what could be learned by just asking people for their opinions, making the technique hard to justify in a commercial setting.

We believe that may be about to change.

A number of recent studies suggest that neural data recorded from relatively small groups of people (<30) can not only predict market-level behavior, but can predict it better than traditional marketing tools. Data from fMRI scans has been shown to outperform behavioral data in predicting market-level music sales, charity donations, and even the relative persuasiveness of anti-smoking ad campaigns.

A critical demonstration of this ability arose from a [massive collaboration](#) between the Advertising Research Foundation (ARF), the Center for Neural Decision-Making at Temple University, and several members of the marketing department at NYU-Stern. In the multi-stage study, consumers of various ages watched 37 real television ads from six different companies, spanning 15 brands in the lab. The researchers compared commonly used behavioral marketing research methods with a raft of neuromarketing techniques including eye-tracking, which reveals what captures people's attention, facial emotion coding, which measures people's ongoing emotional responses in real-time, biometrics such as heart rate, and neural measurements using electroencephalography (EEG) and fMRI. The goal was to see which source of data could most accurately predict the effect of advertising on sales, specifically the percentage change in sales due to a 1% change in advertising effort.

Perhaps not surprisingly, traditional measures were an excellent predictor of how effective an ad would be. The novelty in this work was the ability to benchmark whether other methods could make a significant contribution *beyond* what the traditional measures could accomplish. And indeed, their analyses demonstrated that fMRI data was a uniquely valuable additional predictor of real world outcomes; it outperformed all the other methods.

What should make such results particularly exciting to marketers is the suggestion that only a very small number of people might be needed to predict how a large customer base will respond. If you knew that the brain patterns of only 30 people could predict the spending decisions of hundreds of thousands or even millions, than even an expensive study could well pay for itself many times over, especially in situations where large budgets are at stake.

The marketing study reinforced an already robust academic literature of novel fMRI-generated consumer insights. Indeed, one of the most well-known [consumer neuroscience studies](#) used fMRI to demonstrate how price can create a "marketing placebo effect." In that research, neural data revealed that showing a higher price tag while people were tasting identical wines did actually make the wine taste better – by changing the actual neural signature of the taste.

In [another academic study](#), fMRI revealed that the timing of when consumers see a price may entirely change the way they buy. When price came first, the neural data suggested that the decision question shifted from “do I like this?” to “is this worth it?” This allowed the investigators to predict specific types of purchases that would *benefit* from seeing prices early on.

All this exciting new research points to an important role for fMRI in marketing practice. It seems plausible that in the product design phase, fMRI may help identify which of several options has the strongest customer appeal. Similarly, in planning promotional campaigns, such as movie trailers or various forms of advertising, fMRI data may help identify the most effective messages. More broadly, as illustrated by the pricing findings, it can be used to better understand how marketing actions change people’s preferences and experiences, consciously or subconsciously. Companies should consider using fMRI in situations in which consumers are unlikely to say what they think, because they can’t or they won’t.

We don’t think that buying an fMRI scanner should be a serious option for most companies. But a company looking to adopt the technology can develop in-house expertise by hiring people who can conduct neuroimaging studies themselves, identify opportunities for the use of fMRI, and interpret the resulting data. In addition, several neuromarketing firms offer fMRI services, though some are more rigorous than others. We suggest that marketers only partner with firms that employ research scientists with significant training in the methodology, or have publicly named board members who carry scientific credentials. The firm should offer specific benchmarks and outcome metrics, be willing to discuss not only the benefits but also the limitations of the prospective findings, and be able to justify the use of fMRI over other, less-expensive neuromarketing techniques. *(Editors’ note: This paragraph has been updated from its original version.)*

In short, we believe that fMRI should be considered as part of a larger marketing portfolio that includes targeted use of traditional measures, physiological methods, and big data analytics. Forward-thinking CMOs who embrace this technology will find a competitive advantage in their enhanced ability to make more accurate predictions about customer behavior.

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