Finding New Possibilities in Online Data

By David Midgley , INSEAD Professor of Marketing

Analytic techniques developed by academics can help marketing professionals extract useful insights from customer data.

Thanks to the digital market space, CMOs know more about their customers than ever before. Clickstream data, for example, provide customer-level visibility over usage of websites and other digital properties. However, it can be very difficult to extract larger meaning from such rich data sets, let alone translate data-driven insights into strategic initiatives that weren't possible before.

This, I humbly submit, is where academic research can play a role. In fact (as my comprehensive article "**Strategic Marketing for the C-Suite**" explains in greater detail), recent research has yielded findings that bear directly upon the most vexing questions faced by today's data-swamped CMOs, such as: *What customers should I target, and how? How can online data help me control cannibalisation across platforms? How can I optimise my e-commerce marketing mix?*

Banner morphing

The perennial question of targeted advertising is a prime example. Compared to pre-digital channels such as print and broadcast advertising, online marketing theoretically allows for far more precise targeting and segmentation. However, click-through rates for display advertising online remain pitifully low. A 2014 article published in **Marketing Science** proffered a possible solution: an algorithm enabling websites to deliver ads suited to each user's cognitive process, as reflected in his or her clickstream. This was the first large-scale study exploring how "**website morphing**" could be applied to online advertising.

Working with leading tech news site CNET.com, the authors launched a real-world experiment involving more than 100,000 consumers and 450,000 banners. Their morphing algorithm was developed based on a laboratory study modeling the connection between website users' responses to a cognitive questionnaire and their clickstream data on the site. When banner morphing was combined with CNET's pre-existing practice of context-based ad delivery, click-through rates almost doubled.

In a subsequent experiment involving a simulation website for prospective car buyers, banners targeted to cognitive styles produced a significant increase in click-throughs, as well as the extent to which customers considered purchasing the advertised brand.

Omni-channel data integration

Clickstream data, as useful as it is, conveys only part of the customer journey. In today's omni-channel world, platform-switching has become an unconscious habit. Traditional messaging may influence consumption or purchase on digital media, and vice versa — but assembling these splintered data streams into a meaningful whole presents an ongoing challenge, especially since fine-grained data sets for traditional media such as television are often unavailable.

A 2013 paper in **Journal of Marketing Research** used an innovative data-fusion approach to address this problem, or, as the authors termed it, "to relate the aggregate behaviour observed for one channel to the observed individual-level behaviour for the other channels, thus enabling us to make a coherent inference about the joint distribution of behaviour across all channels."

To test their statistical model, they used multi-platform (traditional website, mobile website, and streaming video) media consumption data for a random sample of 2,000 North American ESPN viewers during the 2010 FIFA World Cup. They concluded that the model did well at predicting features of the actual data set that would be of interest to media planners, such as daily and cumulative reach for online and mobile platforms, co-usage among platforms, and individual usage.

Models like this one could help companies make potentially wiser investments. For example, after playing out alternative scenarios, the authors posited that if ESPN had economised on mobile content, by limiting coverage on the platform to the most exciting matches, it would have reached the same number of viewers.

How to spot an influencer

The most striking feature of the new market space is enhanced connectivity between customers. A 2011 paper in *Journal of Marketing Research* charts how word-of-mouth affected the growth of an invitation-only European social network in its earliest years, before it received significant media exposure. Examining a sample of 250,000 users, the authors focused on the specific factors that apparently influenced people's decision whether to join the fledgling network. Interestingly, they found that the degree of connectedness within an individual's group of friends was often as much of a motivator as the size of the group — in other words, tightly-knit communities exerted greater influence than loose ones.

In addition, the authors found that on the whole, the more popular members (i.e., those with the most friends) were less influential. The highest proportional influence was enjoyed by people who bridged discrete and detached social groups, and were thus able to bring new clusters of participants into the social network.

The findings here suggest that online influence is not a popularity contest. To spot influencers among the online crowd, companies must incorporate network structure and interconnectedness into their data analysis.

Products as influencers

In a certain sense, e-commerce environments could be thought of as social networks for products. When embedded within a web of recommendation

hyperlinks (as on Amazon.com), a product creates value not only through direct self-generated revenue but also by pointing consumers to other items in the network. In other words, e-commerce sites monetise the affinities products have with one another.

A 2013 article in **_Journal of Marketing_** homes in on this often-overlooked source of value, using an algorithm similar to Google PageRank to analyse cross-product effects among more than 900,000 books sold on Amazon during one day in 2010. The authors found that low-selling titles produced more value for the network through recommendations than their direct revenue would indicate, while bestsellers absorbed more network value than they contributed. Indeed, bestsellers comprised just 42 percent of the highest "net influencer" titles on Amazon that day. Taking into account network effects, the authors concluded that low sellers were underestimated and bestsellers were overestimated—a distortion that perhaps speaks to the need to reassess the value of the "long tail".

Conclusion

Online data doesn't tell us anything essential about the customer that we didn't already know. Marketers have long been aware that customers are complex and differ from one another, employ various channels to interact with brands, and pay attention to word-of-mouth from peers. However, the availability of online data now allows us to understand the customer in more depth and quantify these variables more precisely. Academic researchers, in turn, are helping to improve the ways in which data can be translated into forms that marketers, with their strategic acumen, can capitalise upon to optimise the customer journey.

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