



Network-based Marketing: Using Existing Customers to Help Sell to New Ones

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Marketers have long used all sorts of demographic and geographic data to target potential customers -- age, sex, education level, income, zip code. But there's another variable that companies may want to consider: Who is connected to whom?

A study, co-authored by [Shawndra Hill](#), Wharton professor of operations and information management, found that consumers are far more apt to buy a company's product if they are "network neighbors" with existing customers. Mining data from "social networks" -- who talks to whom or who emails whom -- could allow companies to pinpoint likely customers who otherwise would be overlooked. Hill, Foster Provost of NYU's Stern School and Chris Volinsky of AT&T Labs Research detail their findings in a paper titled, "Network-Based Marketing: Identifying Likely Adopters via Consumer Networks," published in May 2006 in the *Journal of Statistical Science*.

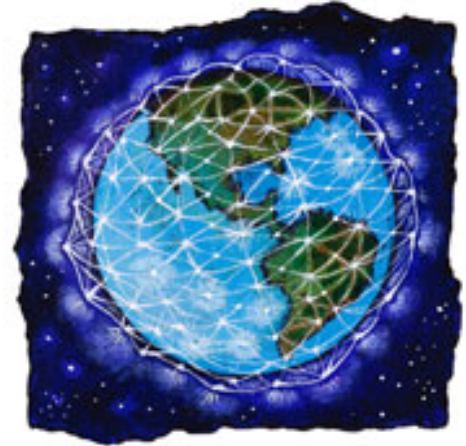
"One of the main concerns for any firm is when, how and to whom they should market their products," the authors write. "We provide strong evidence that whether and how well a consumer is linked to existing customers is a powerful characteristic on which to base direct marketing decisions. Our results indicate that a firm can benefit from the use of social networks to predict the likelihood of purchasing."

The study examines the influence of social networks by studying a large telecommunications firm that was marketing a new service. "Network neighbors -- those consumers linked to a prior customer -- adopt the service at a rate three to five times greater than baseline groups selected by the best practices of the firm's marketing team," the study finds. "In addition, analyzing the network allows the firm to acquire new customers who otherwise would have fallen through the cracks, because they would not have been identified based on traditional attributes."

While the research focuses on people linked by way of a telecommunications company, the findings can apply to other social networks, such as MySpace and Facebook, according to Hill. "What these networks are enabling you to do is find likely customers who you may not have complete information on. The networks enable you to find potential customers who are linked to your existing customer base."

The concept of network marketing -- a recognition that links between consumers help sell a product -- is not new. Often it involves word of mouth. If someone recommends a new restaurant to friends and acquaintances, who then in turn tell others about it, the network effect is at work. A famous person may be able to create a huge network of believers around a given product. Hill's paper offers the example of Oprah's Book Club. The TV star recommends a book to her viewers and suddenly it becomes a hit. Likewise, marketers helped create a buzz around *The Da Vinci Code* by mailing 10,000 free books to influential individuals and booksellers.

Some network marketing involves "implicit" rather than "explicit" advocacy, the paper notes. For



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instance, a woman carrying a designer handbag is, in effect, marketing the purse even if she doesn't tell her friends or coworkers that they should buy one. "Firms commonly capitalize on influential individuals (such as athletes) to advocate products simply by conspicuous adoption," the authors write.

The availability of vast databases of information these days can allow companies to do "network targeting," taking advantage of documented links between consumers. While traditional marketing research can offer detailed profiles of potential customers, and that's certainly useful, it doesn't reveal the social connections that exist between consumers.

The researchers focused on a large telecommunications firm that was marketing a new Internet-based communications service. The company organized a direct-mail campaign to target potential customers for the service using various demographic and geographic characteristics. Because the service involved new technology, the targeted group was deemed likely to be interested in high tech.

The company also made a marketing pitch to another group -- people who were "network neighbors," meaning they communicated with an existing customer of the service. (Company records allowed the researchers to see who communicated with whom, though names were kept anonymous.) "People who communicated with a customer who already had the service were more likely to purchase the product than people not communicating with someone in the network, about 3.4 times more likely," Hill says.

The take rate was highest for those "network neighbors" who were already considered good prospects using traditional marketing attributes: They were almost five times more likely to buy the service than people who did not communicate with an existing customer. But even "network neighbors" who were considered poor prospects using traditional marketing methods were about three times more likely to buy the service than consumers who looked like good prospects but had no connection to a customer.

"It is tempting to argue that we have shown that customers discuss the product and that discussion helps to improve take rates," the researchers write. But they could not prove that. "Telecommunications firms are not legally able to collect information regarding the actual content of the communication, so we are not able to determine if the consumers in question discussed the product," they note.

Another possibility is that because people often tend to talk to people like themselves, their buying tastes would be similar regardless of whether they ever discuss the product. "Social theory tells us that people who communicate with each other are more likely to be similar to each other, a concept called homophily," the researchers point out. "...Linked consumers probably are like-minded, and like-minded consumers tend to buy the same products."

It's possible, Hill says, that by tapping into consumer networks, companies are taking advantage of certain attributes that aren't identifiable through traditional marketing research. "It may well be that direct communications between people is a better indicator of deep similarity than any demographic or geographic attributes," the researchers write. In other words, who you talk to may be more important than where you live.

Gadgets vs. Grapes

Companies are forever looking for ways to identify and target potential customers; being able to do it better could both save them money and increase profits. Marketing campaigns are expensive and not effective if the right people aren't targeted. "Firms make marketing decisions based on how much they know about their customers and potential customers," the researchers say. "They may choose to mass market when they do not know much. With more information, they may market directly based on observed characteristics."

According to Hill, taking network data into consideration could help companies better focus and fine tune their marketing efforts, even when a company has the best marketing research at its disposal. But would the "network effect" work the same with all types of products? Hill and her team tried to answer that. "We expect the network-neighbor effect to manifest itself differently for different types of products," they write.

Specifically, they note, people are more likely to talk about "a new, high-tech gadget or a recently released movie. We expect there to be less buzz for less 'sexy' products, like a new deodorant or a sale on

grapes at the supermarket."

The researchers were able to test that theory because the telecommunications firm happened to be selling two products, its new Internet service and a new pricing plan. While network neighbors were far more likely to buy the new service, the "network effect" was not as pronounced when it came to signing up for the new pricing plan. "This difference might be due to the new service creating more word-of-mouth or perhaps we are seeing the effects of homophily," they write. Again, without knowing the content of the conversations, they couldn't say what was at play.

The researchers suggest that their findings could prove useful for a variety of companies, not just telecommunications businesses. "For example, eBay recently purchased Internet-telephony upstart Skype for \$2.6 billion; they now also will have large-scale, explicit data on who talks to whom," they write. "With gmail, Google's email service, Google now has access to explicit networks of consumer interrelationships and already is using gmail for marketing; directed network-based marketing might be a next step."

In addition, social networking sites such as MySpace, Friendster and Facebook could be "fruitful fields for network-based marketing." Blogs, which tend to attract people with similar interests, could also be harnessed.

As for concerns about privacy issues that are raised when companies use a customer's personal information to help sell their products, Hill acknowledges that firms that use direct target marketing walk a fine line between generating value for their consumers and intruding on their privacy. But, she says, "we show in our study that a wider variety of consumers are made aware of cost effective telecommunications products than would be aware of them without the targeted marketing strategy. Overall, the cost savings and additional features result in tangible benefits to the targeted consumers."

Ultimately, she says, "firms own their customers' data -- including email content and MySpace messages -- and legally can use it for such purposes as target marketing and fraud detection. Therefore, consumers should be aware that when they reveal both traditional and social network personal information to firms, this information might be used for target marketing or other purposes."

Hill has presented these findings and follow-up research at several conferences this year, including one on social networking sponsored by Yahoo. As more data that can be used to directly link consumers becomes available, the potential for network marketing will grow, she predicts.

She and her co-authors presented an interesting scenario of how even academic departments might take advantage of network marketing. "The enrollment in specialized classes could be bolstered by 'marketing' to those linked to existing students," they write. "Such links exist (e.g., via e-mail). It remains to design tactics for using them that are acceptable to all."

The full paper, "Network-Based Marketing: Identifying Likely Adopters via Consumer Networks" can be found at http://arxiv.org/PS_cache/math/pdf/0606/0606278.pdf

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