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Break Through

"Self portrait" by King Lawrence
(B.S. Management '00)

plus: Nobel Work: 10 Years Later • How to Say No • Class Notes

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Research by **Bin Gu**

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More than marketing:

Social media transforms R&D, knowledge management, decision-making and more

If your company has a social media manager, chances are, that person reports into the marketing department. Given that the Pew Research Center found 72 percent of online adults are active on some form of social networking site, marketing is an appropriate home for a company's social media initiatives.

But, it's not necessarily the only department that should be using social media, according to Bin Gu, a professor of information systems at the W. P. Carey School of Business.

A large portion of Gu's research centers on social media, and his investigations lead him to call this phenomenon a "disruptive innovation" because it breaks barriers both within firms and between firms and customers. Among other changes, he notes that now "customers and the general public have become part of the production function" for firms. Businesses will see social media as more than a way to get things sold. It's also a way to get things done, he says.

R&D: Tapping into the wisdom of the world

Innovation is on Gu's list of great things firms are doing with social media, and he's recently turned his investigative eye toward the world of crowdsourcing. Unlike outsourcing, where firms turn a function over to another company to manage, crowdsourcing is the act of posting a problem or question on the Internet and letting the masses online find an answer.

The process lets firms "tap into the wisdom of external people," Gu notes. "The firm is not limited to the knowledge of



internal R&D staff." It minimizes risk, too, he adds, because "there is no failure cost," he says. "People don't get paid unless they have a solution that is acceptable to the posting firm."

At the center of Gu's recent research is Kaggle.com, a crowdsourcing site that challenges IT experts around the world to vie for the best predictive analytics solution to big, knotty questions. Among the big-name users of the site you'll find NASA, which used Kaggle to improve the accuracy of imaging dark matter. Allstate Insurance turned to this resource to reduce customer churn and improve estimates on claims costs. Ford sought early detection of driver drowsiness. And, an unnamed, \$100-plus billion oil and gas company tapped the Kaggle community to better predict oil reserves.

What makes research teams successful on Kaggle? Gu crunched some data himself to find out. Specifically, he examined the win ratio of competing teams, as well as the characteristics of the team members and their communication exchanges. "There are two general types of capabilities involved," Gu explains. "One is technical capability, or how well people know data mining. The other is social capability."

Gu examined the interaction of the two to determine the combination of capabilities likely to be most successful in tackling a contest. "What we found in the teams that were most successful is that the team leaders have high social capabilities and others on the team have high technical capabilities," he says. "The leader needs social capabilities to coordinate and solicit knowledge out of highly technical team members."

This finding indicates firms might want to look for similar team dynamics, he adds. "When crowdsourcing within a firm, you must match people with good social capabilities and good technical capabilities. In a competitive environment, this becomes even more crucial."

Knowledge management: Breaking the internal barriers

Group dynamics also come into play when using social media for company knowledge sharing, according to research conducted by Gu. He teamed with two other scholars to explore what made enterprise social networks useful – or not useful – for a large oil and gas firm with some 200 communities sharing information online. Gu says this firm has invested heavily in knowledge sharing. It has staff devoted to the process, as well as a manager for each of the 200 communities in the enterprise social network. "Knowledge sharing really means money to them. It can cost millions of dollars for each hour an oil rig has to stop drilling because of a technical problem," he says.

So, Gu and his colleagues tried to understand what factors encourage knowledge sharing, and he found two of extreme importance. "One we called internal cohesion," he says. "It means everyone participates in the online communities." Not surprisingly, if only a few people participate, the community can't flourish, a circumstance Gu found in around 15 percent of the communities studied.

What did surprise the researchers was the second factor needed for meaningful knowledge sharing: "external participation," or members who participate in external communities. External

participation may take away a member's time in a focal community, but they could bring in new knowledge. Gu found that for the most successful problem solving, groups need both cohesion and a fair share of multi-group teammates. "If you don't have external participation, you won't have new knowledge coming in," Gu says.

Decision-making: The increasing influence of customers

Problem-solving isn't the only area where social media participants take on important roles in an organization's operations. As noted earlier, Gu sees customers now becoming an integral part of the production function itself.

This production concept can be applied beyond the company producing a product or service for sale. Gu likens the business of politics to a manufacturing operation, where the politician's policymaking activity, such as voting in Congress, constitutes firm output, and constituents buy the politician's product with votes of their own. Since social media breaks the barriers between

businesses and customers, Gu wondered if politicians' participation in social media changes the way congressional members vote on legislation.

He discovered that it does, after doing a careful analysis of congressional members' voting records before and after they started tweeting. "Generally, congressional members became more conservative" in their voting after the Twitter

“Social media now penetrates throughout firm operations, it's a more disruptive force than many realize.”

interaction began, Gu found. That was an across-the-board impact.

"What was really interesting is that the shift can be almost entirely explained by members of congress changing their votes to be closer to the position of voters if there was a mismatch," he adds. "Before engaging constituents through Twitter, there were often gaps between political leanings of constituents and the congressional members' votes. After the social media engagement, we see the congressional representative comes closer to the voters' positions."

Validating buzz about buzz: Coming back to marketing

Gu also has looked at social media from a marketing perspective, and he's uncovered findings marketers should note. For instance, one of his studies, with W. P. Carey information systems professor Ben Shao and doctoral student, Chunxiao Li, showed there's good reason for understanding the difference between firm-generated buzz and consumer-generated buzz.

"Social media performs two functions. One is information dissemination and the other is socializing," he says. "Different social media sites serve different purposes. Twitter is better for information dissemination and Facebook is better for **continued on page 34**