Photograph by Opto

Research Notes

Customer-driven product innovation, hidden financial risks, consumer boycotts, and other topics of interest.

Research Notes by Des Dearlove and Stuart Crainer

The Innovation Game

Lars Bo Jeppesen (lbj.ivs@cbs.dk) and Måns J. Molin (mm.ivs@cbs.dk), "Consumers as Co-developers: Learning and Innovation Outside the Firm," IVS/Copenhagen Business School Working Paper Number 03-01. http://netec.mcc.ac.uk/WoPEc/data/Papers/ivsiivswp03-01.html

In traditional firms, product innovation is generally seen as an in-house competence. In contrast, the emerging computer games industry relies on external consumer communities to generate product enhancements.

The notion of consumers acting as codevelopers of product enhancements is not new. What is significant, argue Lars Bo Jeppesen and Måns J. Molin, two Ph.D. students at Copenhagen Business School, is that computer companies are deliberately creating mechanisms that encourage consumers to innovate.

A 2002 survey of 94 computer game products, for example, found that 83 percent of all computer game producers have created online communities around their products,

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and 35 percent offer both a community and toolkits to allow users to create product enhancements. The researchers examined how one leading computer games company, Westwood Studios, uses its online consumer community (www.eagames.com/official/cc/) to stimulate product extensions.

Founded in 1985, Westwood is among the world's most successful producers of PC games. In 2001, the company had two titles among the 20 best-selling computer game products in the U.S. The authors studied the Red Alert Forum Web site, which serves aficionados of Westwood's real-time battleground strategy game Command & Conquer: Red Alert 2 (C&C: RA2).

In 1996, the precursor of that game, Command & Conquer: Red Alert, set new sales records for the real-time strategy games segment. At about the same time, Westwood hired its first employee whose job was to engage with consumers online. Several more people were hired for the same function, and an internal reorganization to support online community management followed. A thriving online gaming community within its own Web domain became part of the company's strategy. By 2001, Westwood Online had become one of the most popular gaming sites, with more than 50,000 gamers playing more than half a million games every week.

At the Red Alert Forum, Westwood provides C&C: RA2 gaming enthusiasts with online toolkits that enable them to generate new content for the game, such as maps (or battlegrounds). The best new maps are made available to other C&C: RA2 gamers and extend the life cycle of the product.

Messrs. Jeppesen and Molin say Westwood Studios and other computer game companies' approach to external innovation has many benefits. For instance, consumers provide product enhancements at no cost; companies avoid having to pay a computer game art director. (There are parallels here with the Open Source programming movement, which facilitated development of the Linux operating system.)

The researchers calculate that an in-house designer costs $59,612 per year, and typically takes 10 days to create a high-quality map. C&C: RA2 enthusiasts frequently make maps of comparable quality. Westwood makes eight to 12 consumer-created maps available for download at any time, along with a similar number of professionally generated maps.

Significantly, too, the forum's first map-generating tool originated in the online community. A 16-year-old C&C: RA2 enthusiast in Germany had developed a map-editing tool called Final Alert 2. Westwood's online community managers were so impressed they contacted the youngster and worked with him to develop the tool for the community.

Messrs. Jeppesen and Molin conclude that three factors are critical to the process. First, consumers must be motivated to generate product enhancements. Development and use of the product should be a playful experience, involving a dedicated space or online domain. Peer recognition should be encouraged. Second, the presence of a certain type of consumer — with a deep knowledge of and interest in the product — is vital for user-driven innovation. Third, and perhaps most important, the authors note, a "product's openness to innovation" can be affected deliberately by adjusting the firm's control over design (for example, by providing

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online toolkits). This holds intriguing possibilities. Companies that master the process, for example, "may be able to launch 'half-finished' products which consumers work to conclude."

In this era of mass customization, the computer game companies have a model for engaging customers in innovation that's instructive for many kinds of companies.

Exposing Hidden Risks

Mario Draghi (mario.draghi@cs.com), Francesco Giavazzi (francesco.giavazzi@uni-bocconi.it), and Robert C. Merton (rmerton@hbs.edu), "Transparency, Risk Management and International Financial Fragility," National Bureau of Economic Research Working Paper Number w9806. www.nber.org/papers/w9806

The automatic reaction of businesspeople to Enron et al. has been to focus on problems with corporate governance. Here Mario Draghi, vice chairman of Goldman Sachs; Francesco Giavazzi, professor of economics at the International Bocconi University in Milan, Italy; and Nobel laureate Robert Merton, the John and Natty McArthur Professor at Harvard Business School, suggest that hidden risk is an equally pressing concern that needs exploration. According to the authors, individuals, institutions, and governments can accumulate substantial risks unintentionally and without knowing the consequences. The unwitting or thoughtless accumulation of risk, they say, may well be a more fertile breeding ground for financial crises than miscreant executives.

As an example of hidden risk, the authors examine defined-benefit pension plans. In an ideal world, companies would invest pension fund assets in comparatively low-risk securities. They do not. Instead, they seek to maximize income and flexibility. Typically, 60 percent of an American company's pension plan is invested in stocks. This leaves the plan open to the vicissitudes of interest rates and stock prices. The levels of risk are not visible on a balance sheet, which simply records the difference between the plan's assets and its liabilities.

In a good year, a plan's assets will increase and more than cover its liabilities. Under accounting rules, this excess becomes an intangible asset, a "prepaid benefit expense." This asset can then be used to appear to improve corporate performance. In 2001, for example, Verizon Communications drew on the returns from its pension plan to boost its net income. It reported net income of $389 million, but actually lost $1.8 billion. This financial juggling was made possible by Verizon's assumption that its pension plan would earn a return of 9.25 percent. This assumption was then fed into its income figures.

The authors cite research by Milliman USA, an actuarial consulting firm based in Seattle, Wash., which found that in 2001, 50 of the nation's largest corporations used $54.4 billion of excess returns from pension plans in calculating their net incomes. Their assumptions proved overly optimistic: The assets actually lost $35.8 billion.

These arrangements mean that corporations are more at risk to market volatility than would appear to be the case. The stakes are high. The General Motors Corporation's defined-benefit plan has assets of more than $73 billion.

Imagine, therefore, a scenario in which a major corporation goes bankrupt. In this case, the Pension Benefit Guaranty Corporation

(PBGC), a federal institution, provides partial guarantees to the beneficiaries of company plans. In effect, by investing in stocks, companies are transferring some of the risk to the government. The effects are already being felt. In FY2002, the PBGC recorded an operating loss of $3.64 billion for its Single-Employer Program. In the previous year, it had a surplus of $7.73 billion.

Why We Boycott

Jill Gabrielle Klein (jill.klein@insead.edu), N. Craig Smith (ncsmith@london.edu), and Andrew John (andrew.john@aya.yale.edu), "Why We Boycott: Consumer Motivations for Boycott Participation and Marketer Responses," London Business School Centre for Marketing Working Paper Number 03-702. http://facultyresearch.london.edu/docs/03-702.pdf

On a range of issues and around the world, consumers seem increasingly prepared to vote with their dollars. International tensions over the war in Iraq, for example, led American consumers to boycott French wine and cheese, while Europeans shunned American cola and cigarettes. One German Web site (www.consumers-against-war.de) even published a blacklist of 25 U.S. companies, including General Electric Company, the General Motors Corporation, and the Dell Computer Corporation.

The factors that cause individuals to boycott particular companies or products are just beginning to be explored. Jill Gabrielle Klein, associate professor of marketing at the business school INSEAD in France; N. Craig Smith, associate professor of marketing and business ethics at London Business School; and Andrew John, managing director of the consulting firm AJK Executive, note that citizen boycotts have a long and influential history. They have frequently been used to further the cause of disadvantaged groups.

In the U.S., for example, boycotts played a role in the spread of trade unions at the end of the 19th century, and, in 1955, a bus boycott in Montgomery, Ala., became a rallying point for the modern civil rights movement.

More recently, Professor Klein, Professor Smith, and Mr. John note, consumer boycotts have increasingly focused on corporate practices. In many cases, they have been orchestrated, or at least encouraged, by pressure groups or nongovernmental organizations.

The researchers cite two well-known examples from the 1990s. Urged on by the environmental activist group Greenpeace, European consumers boycotted Shell over its plan to dump the Brent Spar oil platform. Nike also faced an international boycott over allegations of sweatshop conditions among some of its Asian suppliers. Both cases resulted in the companies' making public concessions to appease the boycotters.

According to the authors, these boycotts, and others like them, signal that understanding the cause of consumer boycotts is increasingly important for management decision making. Their research applied cost-benefit analysis to explore how and why individuals decide to boycott. An actual boycott of a Europe-based multinational, prompted by the company's decision to close a number of its factories, resulting in layoffs, allowed them to test their findings in the real world.

The paper proposes a framework companies can use in monitoring and responding to potential boycott situations. Most usefully, however, the authors conclude that four factors could trigger or discourage boycott participation.

First is the "desire to make a difference": Consumers who believe that boycotting is appropriate and likely to be effective are more inclined to participate. Not surprisingly, the more heinous a consumer regarded the company's actions to be, the more inclined that consumer was to boycott. Second is the "scope for self-enhancement": The extent to which a consumer's own self-esteem or sense of righteousness is boosted by boycotting will also affect his or her willingness to participate.

The third factor is the presence of "counterarguments." For example, a company that convincingly argues that boycotting will actually harm the people it is meant to help is likely to dissuade some potential boycotters. Other counterarguments could be linked to the idea that the individual consumer is too small to have an impact.

The fourth factor is the cost to the consumer of "constrained consumption" — the decision not to buy a preferred product. The value attached to the product by the consumer will affect his or her willingness to boycott. Of these four factors, the first and the last appear to have the biggest impact.

The article also notes that companies facing a boycott often curtail their spending on advertising in an attempt to keep a low profile. But Professor Klein, Professor Smith, and Mr. John argue this may not be the right approach. Such communications, they say, can be used to remind boycotters of product attributes that once attracted them, thus reestablishing positive associations with the brand. Moreover, the authors believe communicating the harmful effects of boycotting may reduce the boycotters' "feel-good" factor and thus reduce participation. For example, they say a firm facing a boycott over low wages for overseas workers could make a public statement reminding protesters that their boycott could lead to factory closures, leaving the overseas workers without a job.

Individual Dynamics in Group Decisions

Malcolm R. Clark
(mclark@ecel.uwa.edu.au) and
Anthony E. Boardman
(Anthony.Boardman@ubc.ca),
"Group Decision-Making Effectiveness: The Effect of Conflict,"
Presented to the International Association for Conflict Management (IACM) Conference, June 2003.
http://ssrn.com/abstract=401120

Good decision making in groups is never easy — and those who study management are forever in search of ways to help make this complex human interaction more productive. Malcolm R. Clark, a doctoral student at the University of Western Australia's Graduate School of Management, and Anthony E. Boardman, the Van Dusen Professor of Business Administration at the University of British Columbia, study the role of conflict in group decision making.

There are in the academic literature four accepted variables in the decision-making process. In their paper, the authors label them "task conflict" (called "cognitive conflict" by others), "relationship conflict," the understanding of decisions, and the commitment to decisions.

Task conflict is the largely constructive debate that happens before a decision is made. Most commonly, task conflict centers on clarification and the giving of opinions. Relationship conflict refers to the nature of the relationships among group members. The authors' research on these variables included a sample of 84 MBA students. The students worked in groups of four on a specially tailored strategic management case study. The conflict among the groups was then analyzed.

Mr. Clark and Professor Boardman conclude that the level of relationship conflict (defined as the amount of tension that exists among group members) is crucial in whether understanding of the decision and commitment to the decision will be attained. Both understanding and commitment can be achieved if the level of relationship conflict remains moderate. If relationship conflict is high, decision understanding may be unaffected, but commitment suffers. Task conflict is of lesser importance, though some degree of task conflict is useful because it fosters understanding and then commitment.

The question, then, is how to moderate relationship conflict. The authors have four suggestions: train people to expect others to have alternative views; increase awareness that task conflict is not a threat to the eventual decision; encourage people to conduct task conflict with mutual respect; and make changes if relationship conflict gets out of hand.

The researchers' work suggests that group decision making is delicately poised within a maelstrom of conflicting opinions, emotions, understandings, and commitments. The glue that binds groups together appears weak. Instead, each individual holds the power to influence the group dynamic.

Useful reading to accompany this article, therefore, is another paper presented at the 2003 IACM Conference, "Group Identity and Attachment: Two Paths to Trust and Cooperation in Groups," by Susan Brodt, of the Fuqua School of Business at Duke University, and M. Audrey Korsgaard, of the Moore School of Business at the University of South Carolina. It is available at http://ssrn.com/abstract=402040.

Professors Brodt and Korsgaard also argue that the spirit of cooperation is an individual rather than a group dynamic. A successful group is based on the individually determined cooperation of each participant rather than some collective notion of cooperation. The degree to which individual members identify with the group determines the level of trust and cooperation within the group. The authors stress, however, that effective cooperation is not defined by compliance or conformity.

A deeper understanding of how individuals become trusting and

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cooperative participants in a group brings us closer to understanding how to reduce the relationship conflict that undermines group decision making.

Gregarious Knowledge Networkers
Ronald S. Burt
(ron.burt@gsb.uchicago.edu),
"Social Origins of Good Ideas,"
University of Chicago Working Paper.
http://gsbwww.uchicago.edu/fac/ronald.burt/research/SOGI.pdf

The strangely insistent stereotype of how the best ideas are formed says that generating ideas is simply a matter of solitary contemplation in pursuit of a "Eureka!" moment. This stereotype lionizes the solitary thinker. In contrast, the research of Ronald S. Burt, the Hobart W. Williams Professor of Sociology and Strategy at the University of Chicago, supports the notion that good ideas tend to emerge from gregarious networkers rather than bohemian hermits.

Idea generators have networks that cross what Professor Burt calls structural holes — the spaces between different clusters of people and ideas within the organization. They can, for example, pick up on an idea in a completely different arena and translate it to their current area of interest. They make unusual and broad-ranging links. Their creativity is not a matter of pure originality but of imaginative bridge building, linking people and diverse — sometimes apparently incompatible — ideas. People who can build such bridges between clusters are effective producers of ideas and should be rewarded, promoted, and motivated accordingly. (Professor Burt's research is limited to innovation within companies, but it also applies to external collaborations.)

This makes intuitive sense. The trouble is proving it. Professor Burt presents some anecdotal evidence — for example, the CEO of a chemical company noted that his scientists were best stimulated to come up with new ideas by interacting with people from other disciplines.

Better evidence comes from Professor Burt's analysis of a group of 673 managers responsible for the supply chain at a large electronics company. The managers were asked, "From your perspective, what is the one thing that you would change to improve [the company's] supply chain management?" Two senior managers then ranked the responses — all 455 of them — according to their potential to create value. (Many were dismissed.) Professor Burt then analyzed the ideas against the status of the managers in the organization and the networks they used in coming up with ideas.

This confirmed his hypothesis that those who have connections and networks with different social groups are more likely to come up with the best ideas. Significantly, this company also supported this phenomenon in its company's reward systems. People who made connections across structural holes (for example, people who were identified as brokers of information) were given a higher salary than peers, were more likely to be promoted, and received more positive evaluations. The downside, however, was that the reward systems didn't go far enough: The idea generators seemed more driven to display their brilliance than to execute their ideas. After the exercise was complete, Professor Burt found that only 16 of the people behind the top 100 ideas had actually pushed them forward. For most, coming up with the idea and being recognized was enough.

In addition, the idea elite was self-perpetuating. Whereas the bridge builders were confident and received a ready audience for their ideas, those below them in the corporate firmament had neither the confidence nor the audience.

Product Variety Online

Erik Brynjolfsson (erikb@mit.edu), Michael D. Smith (mds@cmu.edu), and Yu (Jeffrey) Hu (yuhu@mit.edu), "Consumer Surplus in the Digital Economy: Estimating the Value of Increased Product Variety at Online Booksellers," MIT Sloan School of Management Working Paper Number 4305-03. http://ssrn.com/abstract=400940

Many people now routinely purchase commodity products online. The most popular explanation for this is that increased price competition online results in lower average selling prices. But three academics argue that the greater variety of products offered by online retailers far outweighs the price advantages. Yet, they say, the economic effect of increased product variety is largely ignored.

Erik Brynjolfsson, the George and Sandi Schussel Professor of Management at the MIT Sloan School of Management; Michael D. Smith, assistant professor of information technology and marketing at the H. John Heinz III School of Public Policy and Management at Carnegie Mellon University; and Yu (Jeffrey) Hu, of the MIT Sloan School of Management, base their findings on a study of the online book market.

Centralized warehouses and shipping agreements with distributors enable online booksellers to offer a greater selection of unique titles than physical bookstores can. Amazon.com and Barnesandnoble.com, for example, allow consumers to buy any of the 2.3 million books in print, as well as millions more used and out-of-print titles. Physical bookstores, in comparison, typically carry between 40,000 and 100,000 titles on their shelves.

The greater product variety offered by electronic markets is especially beneficial for purchasing items that are hard to find in physical stores. Through an online bookstore, for example, one copy of an obscure book held at a central warehouse is available to anyone with Internet access. The professors argue that easier access to scarce items creates economic value for consumers who might otherwise find the costs involved in locating an obscure title prohibitive. Indeed, some publishers link the rise of online bookstores to an increase in sales of books on their backlists. The director of MIT Press, for instance, attributes a 12 percent increase in sales of backlist titles directly to increased online access to backlists.

Still, the value to consumers of having a larger selection of products available online remains unknown. As a first step toward quantifying this, Professors Brynjolfsson, Smith, and Hu analyzed the market for obscure book titles — that is, the market for books not readily available through physical bookstores — to estimate the economic value created by online bookstores that offer increased product variety.

They conclude that lower prices due to greater efficiency in Internet book markets in general provide significant benefits to consumers. But they also show that "the increased online availability of previously hard-to-find products had a positive impact on consumer welfare that was five to 14 times larger." In 2000, this increase in consumer welfare had a monetary value of between $731 million and $1.03 billion. Using econometric modeling, the researchers determined consumer welfare by calculating how much it would cost to provide the same economic value to the consumer if there were no online channel.

Other online markets, such as those for music, movies, computer hardware and software, and consumer electronics, are able to offer more choice and convenience than even the largest physical stores. For example, despite being 230,000 square feet, Wal-Mart Supercenters carry only one-sixth of the inventory of Walmart.com.

The findings confirm what many consumers and retailers already know — that with small-value commodity purchases, we shop online as much or more for convenience and choice as for price. In shedding light on this issue, the authors also illuminate other previously neglected aspects of the retail experience. For example, the way in which we understand the value proposition of physical stores also remains relatively undeveloped. In particular, the economic value of physical contact with a product or access to an expert's knowledge remains largely unquantified. The challenge for retailers is to find new ways of combining the online and physical experience to optimize economic value for consumers. ✚