

## Enlisting “Virtual Customers” to Aid in New Product Development

How many times have you agonized over design decisions, wishing you could quickly pull consumers into your decision-making process? Have you ever wanted to gather customer input to refine a product, but found it was too expensive or complex to create prototypes? These needs have been expressed time and again by product and service development teams. Now the Internet is enabling product developers to have an unprecedented level of customer access.

Researchers at the MIT Sloan School of Management have used new computational algorithms, multimedia visualization tools, and the interactivity of the Web to create a set of Web-based tools that enable product developers to have frequent and timely feedback from customers. This feedback is precisely the high-quality data needed to support feature and design decisions.

Sloan marketing professor and AMS cofounder John Hauser and his co-author, Ely Dahan, assistant professor of management science at Sloan, recently wrote a research paper titled, “The Virtual Customer: Communication, Conceptualization and Computation” (PDF version available at our web site.) In it they discuss six interactive, web-based methods for gathering customer input. These methods were developed by faculty and students at the Virtual Customer Initiative, a program underway at MIT’s Center for Innovation in Product Development. Faculty members involved in VCI include Ely Dahan, John Hauser, Drazen Prelec, and Duncan Simester. Tools include:

**Web-Based Conjoint Analysis** – Conjoint is the most widely used method for understanding how customers trade off product features. VCI has transported this methodology to the Web.

**Fast Polyhedral-Adaptive-Conjoint Estimation** – By exploiting new computational algorithms to select questions rapidly, the FastPace tool gathers considerable information on preferences, using far fewer questions than existing methods. This makes conjoint faster and more practical . . . a distinct advantage, given the impatient nature of Internet research respondents.

**User Design** – Customers design their own products, using a drag-and-drop application. It computes costs and engineering constraints automatically, displaying the revised product and price “at the touch of the mouse.”

**Virtual Concept Testing** – Rather than creating expensive physical prototypes, teams can test virtual prototypes with customers in a media-rich presentation environment.

**Information Pump** – An interactive game (Web based or in-person) with fine-tuned incentives that encourage respondents to tell the truth and think hard. It ‘pumps’ information from customers, revealing their perceptions about new concepts. (See article on page 2.)

**Securities Trading of Concepts (STOC)** – Product concepts become ‘securities,’ which respondents buy/sell in a stock market-like setting.

These methods have been applied successfully and validated by researchers at Sloan and can be customized for use by any company. Applied Marketing Science is working with Sloan faculty members and our own clients to adapt these tools for more widespread use.

— Eileen Moran

# Pump, Don't Pull

Focus groups are often used to refine new product ideas or concept statements. You want to be sure that customers understand what the product is, what it will do and do for them, how it works, etc. You want to find the elements of the idea that are exciting and appealing. So you get a group of potential customers together, you show them pictures or models, along with a written description, and you get their reactions.

But while focus groups may sometimes be a very good approach for concept testing and refinement, they do have their drawbacks. Certain groups can make you feel like you are pulling teeth – the moderator seems to be the only one working hard. You are not always sure the participants really mean what they are saying. You wonder if the participants are just “yea - saying” or if they are afraid of the big guy sitting next to the moderator. And figuring out what they aren't telling you is impossible.

Drazen Prelec, professor of marketing at the MIT Sloan School of Management, has developed a fascinating new way to pump this critically important information from a group of potential customers. His *Information Pump* is a computer-facilitated “game” that participants “play” to reveal what they really believe, feel, think, and understand about a new product concept or prototype. After a two-hour Information Pump session, marketers have a detailed roadmap for what they need to do to make the product more appealing, more understandable, and more successful.

The game itself is fairly simple: players take turns making true or false statements about the product and guessing whether the statements made by other players are true or false. The statements posed by the “declarer” can include references to virtually every aspect of the product – its physical characteristics, how the product

would work, who would use the product, who it would appeal to, when it might be used or not used, what it could replace, etc.

One player has a special role. The “detective” doesn't get to see (or taste or touch) the product, but she can see the statements and the true or false answers of the other players. Her job is to use the information from the previous statements and their answers to guess whether the current declarer's statement is true or false. Declarers score points by making statements that the detective cannot guess, but that the other players who can see the product will answer correctly. The scoring system rewards truthfulness and creativity – trying to mislead the other players doesn't help you. Working hard to come up with a unique statement that pumps really new information into the game is worth a lot.

Because the Information Pump is computer-facilitated, the game moves along quickly. At each turn the “declarer” types in his statement and whether it is true or false. The other players (and the detective) then type in their guesses. The scores are calculated and displayed, and the next declarer takes over. And one huge benefit is that the client sponsoring the research can actually be a game participant (but obviously not the detective), not just an observer behind the mirror. This gives marketers a personal, first-hand experience with the way their customers react to and interpret their product ideas.

As Mary Poppins said, “In every job that must be done, there is an element of fun. You find the fun, and poof, the job's a game.”

— *Bob Klein*

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