voice-of-customer

Methods

What is the best source of new-product ideas?

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Note: This article is the extended version, which was edited to fit in the Winter 2010 issue of Marketing Management. The shortened version of this article can be found in that issue, on pages 38-43.
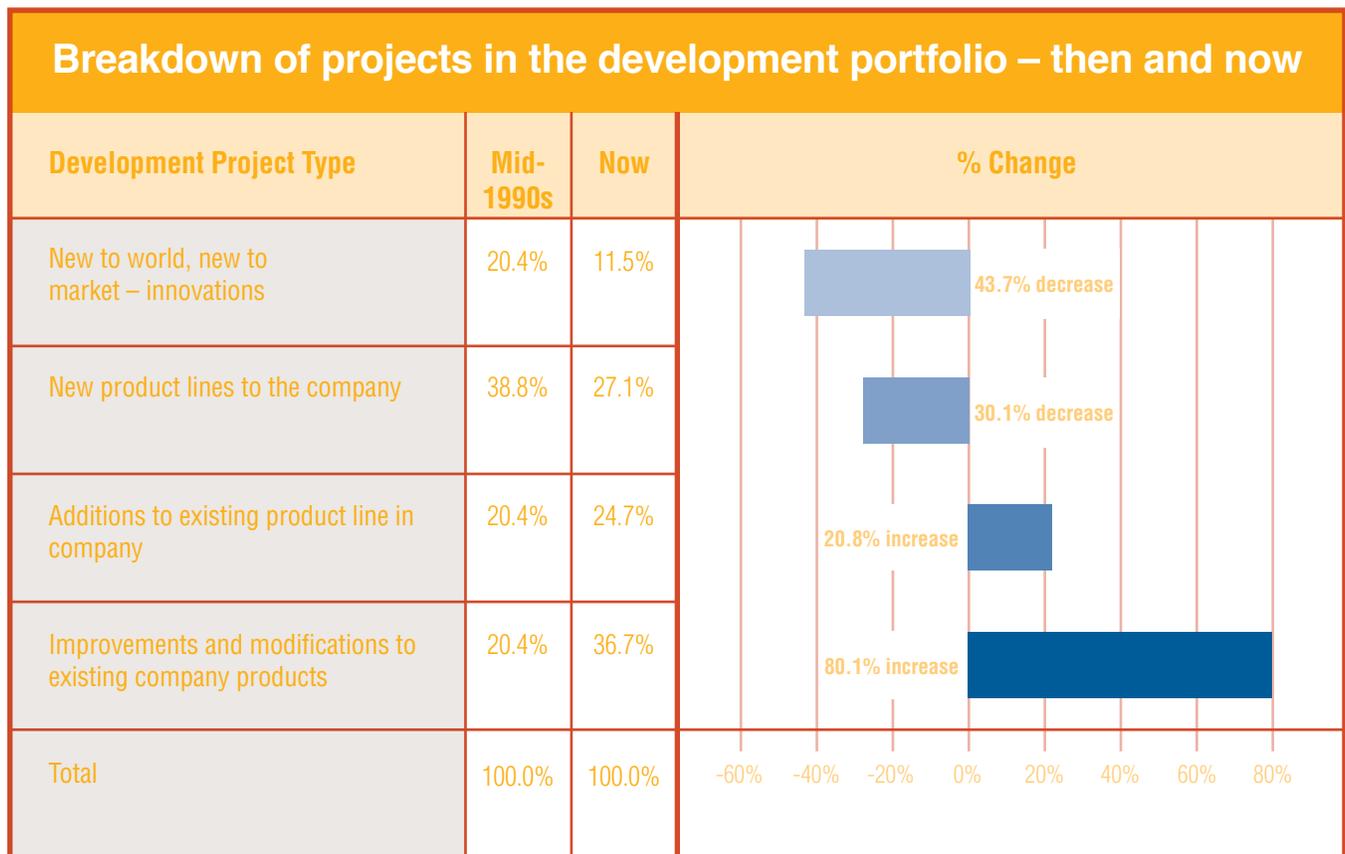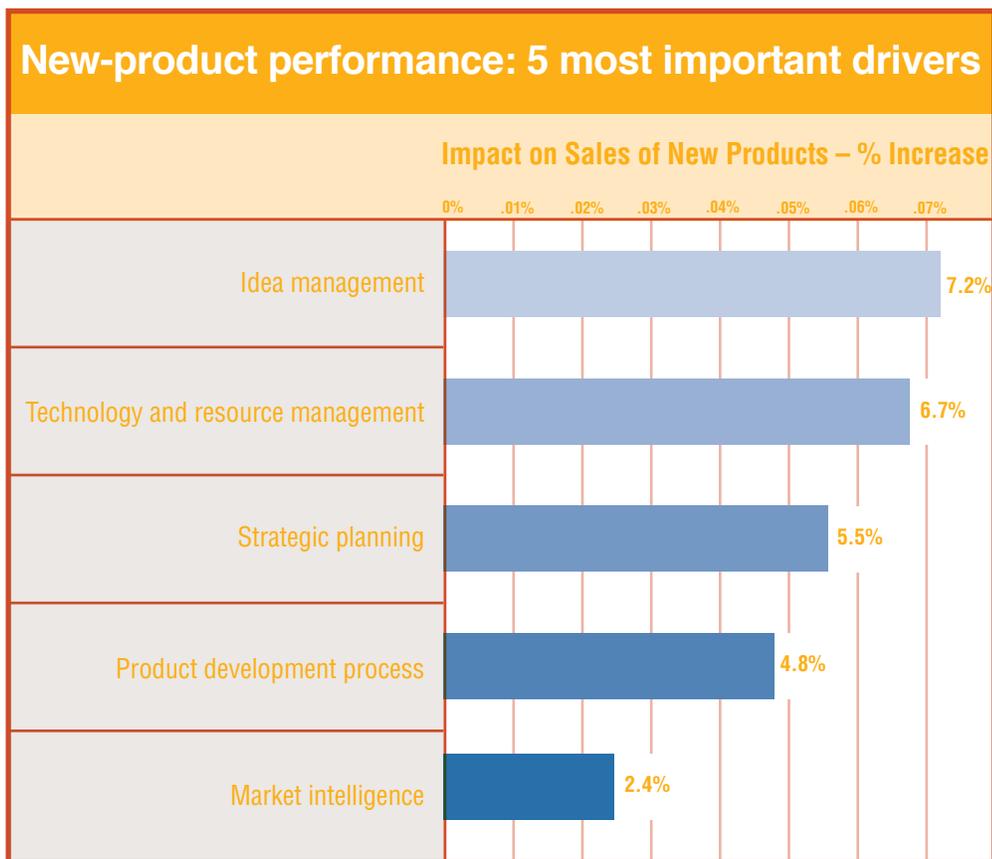
Blockbuster Product Shortage

The aggressive revenue growth goals of most firms point to the need for a deliberate, systematic and managed approach to generating game-changing new product ideas. We identify a number of sources of new product ideas, and then report the results of a survey of 150 firms to identify which sources are the most popular, and more important, which sources are the most effective—in terms of generating robust new product ideas. The results are provocative when we compare a number of voice-of-customer (VoC) methods

for idea generation against other popular sources of ideas.

In spite of the desire for breakthrough new product ideas, recent data suggests that quite the opposite is occurring. For example, the nature of new-product development portfolios has shifted dramatically in the last 15 years—away from bolder, larger and more innovative projects to smaller, lower risk projects. (See chart below.) Clearly, companies cannot achieve their aggressive product innovation goals if they continue to focus on small, incremental development products and projects.

The quest for competitive advantage and achieving significant increases in sales and profits though product development means that the portfolio of projects must change. For that to happen will require new, bold and innovative product ideas—some real game-changers and blockbuster

Breakdown of projects in the development portfolio – then and now

Development Project Type	Mid-1990s	Now	% Change
New to world, new to market – innovations	20.4%	11.5%	43.7% decrease
New product lines to the company	38.8%	27.1%	30.1% decrease
Additions to existing product line in company	20.4%	24.7%	20.8% increase
Improvements and modifications to existing company products	20.4%	36.7%	80.1% increase
Total	100.0%	100.0%	-60% -40% -20% 0% 20% 40% 60% 80%

New-product performance: 5 most important drivers

Impact on Sales of New Products – % Increase

Driver	% Increase
Idea management	7.2%
Technology and resource management	6.7%
Strategic planning	5.5%
Product development process	4.8%
Market intelligence	2.4%

Scale: 0%, .01%, .02%, .03%, .04%, .05%, .06%, .07%

Source: A.D. Little Innovation Excellence Study, 2005

ideas. Of five best practices identified, idea management has the strongest impact on the increase in sales by new products. (See chart above.) Having effective idea management results in an extra 7.2 percent of sales from new products.

However, a major benchmarking study undertaken by one of the authors reveals that only 19 percent of businesses have a proficient ideation front-end to feed their development funnel and only 31 percent of firms have an effective method for selecting which ideas to invest in. To a certain extent, the best performing businesses model the way in this benchmarking study: More than three times as many best performers boast a well-executed ideation phase when compared to the poorer performing firms. But even among best performers, there is much room for improvement. Similarly, 54 percent of best performers have an effective idea screening system in place, almost four times as many as for poor performing firms.

Best Idea Sources

To begin crafting an effective ideation system, identify potential sources of ideas: Where do the good ideas come from? And more importantly, where should they be coming from, and which valuable sources are you missing? Favorite idea sources may be evident in your company, but there is a lack of substantial research to reveal the most effective idea sources.

• Our data on 18 different sources of new product ideas provide some provocative conclusions about the most popular vs. the most effective sources of new product ideas, and how well voice-of-customer (VoC) methods fare relative to all the other approaches. The idea sources, including eight VoC methods, are:

• Six "open innovation" approaches. Note that open innovation has become a popular topic in recent years, and a handful of proponents have made a strong case for the approach. Open innovation (as opposed to closed innovation) opens the firm's doors to ideas, technology solutions, intellectual property and even fully developed products to those thousands of people—scientists, private inventors, small businesses—who lie outside your company, and may very well have your next new product winner.

• Two strategic approaches including the use of peripheral vision and exploiting disruptive technologies. More on these strategic methods for comparison later.

• Two other popular methods are very well-known and need little explanation, namely internal idea generation (seeking ideas from one's own employees) and patent mapping and mining (looking at competitive patent activity).

Two key considerations are:

• Popularity, or how extensively each ideation method is used, and

• management's perception of the effectiveness of the method in generating excellent, high-value new product ideas.

The ideation four-quadrant diagram shown on page 42 reveals the popularity and effectiveness of each of the 18 methods. The popularity is measured by percentage of firms that extensively use each method, shown on the horizontal axis. Usage was captured on a 0-10 scale; "extensive users" are those that checked the top third of this 10-point usage

scale. Rated effectiveness of each method is shown as a 0-10 scale on the vertical axis in the diagram, but only for users of that method. The argument here is that non-users do not have enough experience with the method to rate its effectiveness. Ideation methods that are both popular and effective are in the desirable upper right quadrant.

VoC Methods

Eight VoC methods were investigated, including ethnography, focus groups and lead-user analysis. Some VoC methods are very extensively used, notably customer visit teams, focus groups to identify customer problems and the lead user method—as noted by the diamonds in the upper right quadrant on the diagram. Other newer methods, such as ethnography, forming a community of enthusiasts or letting the customer help design the product—are less popular. Regardless of popularity, however, VoC methods are rated highly by users in terms of effectiveness, and constitute the top five best rated methods of the 18. Indeed, most of the VoC methods fare very well, receiving solid effectiveness scores from users—all in the top half of the ideation quadrant diagram.

Ethnographic research or "camping out." Ethnography involves camping out with customers or observing customers for extended periods, and watching and probing as they use or misuse products. It is ranked No. 1 of all 18 methods, in terms of effectiveness in generating new product ideas.

Although ethnography has become a popular topic in product innovation literature, the method is not so popular among practitioners—as seen by its unique location in the upper left quadrant on the ideation quadrant diagram. The method sees limited use for ideation, ranking No. 13 in popularity with only 12.9 percent of firms extensively using ethnography. But in spite of its lack of popularity, the method gets top marks for effectiveness: It has the highest effectiveness score of 6.8 out of 10. (For comparison, the average effectiveness score for all 18 methods is 5.6; the standard deviation is 0.73, so a score of 6.8 is relatively speaking "strong").

AN EXAMPLE: *Drägerwerk is an international leader in the field of medical and safety technology, and its Dräger Safety subsidiary provides products, services and solutions for risk management for personal and facility protection. One of the company's product lines, breathalyzer testing devices, is used by police forces to test alcohol levels in suspected drunk drivers. The aim was*

BRIEFLY

- **Most companies' developement portfolios suffer from a lack of of blockbuster new products.**

- **Generating breakthrough ideas is the first step, but it's difficult to find the best idea sources.**

- **Voice-of-customer methods give the best ideas, while open innovation yields disappointing results.**

to develop a new European product line, but the project needed direction and lacked blockbuster ideas.

Two VoC study teams were formed, and after some training on how to do ethnographic research, began their camping out exercises in the U.K., the Netherlands and Germany. In all countries, the teams spent time at police stations, conducting
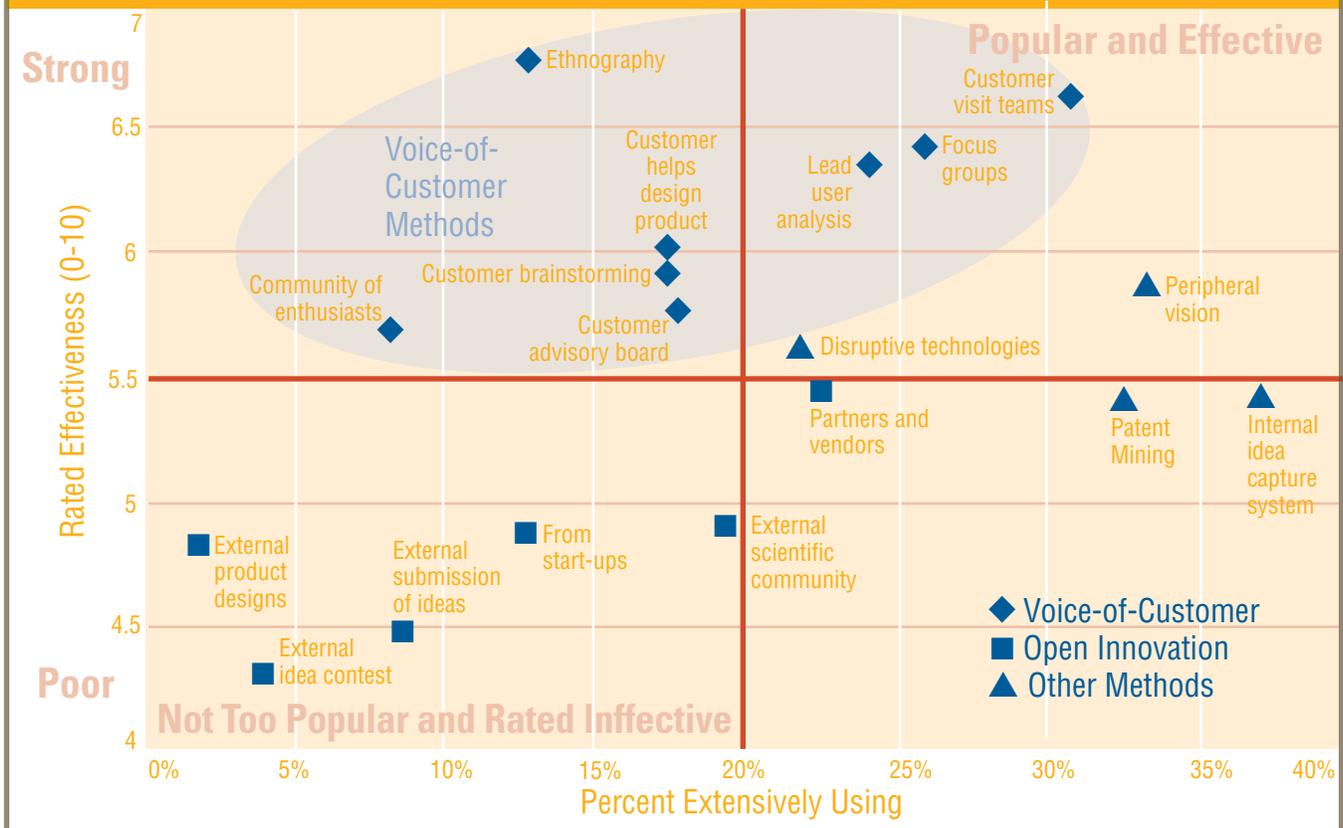
Ethnography provides perhaps the greatest insights into users' unmet and unarticulated needs, applications and problems.

interviews with police officers and their supervisors. But the real learning and insights came from their night-time vigils—the camping out exercise—where the VoC teams worked beside the police officers as they ran their night-time roadside spot checks on drivers. These insights provided the key to a new product with significant competitive advantage.

For example, the British VoC team soon realized how difficult a job the police officers have when they maintain order and control over a careful of exuberant young drinkers fresh from the nearby pub. The command issued by police to those that they suspect are drunk was, as always: "Remain in the car!" The breathalyzer test device was then passed through the driver's window by the officer (who wore latex gloves for fear of HIV), and the driver was instructed to blow into the mouth-piece. It took two minutes to get a full reading.

Meanwhile, the other officer had also pulled over another car. Now they had to manage two cars full of people who they suspected were drunk. Quite clearly, the police officers were somewhat intimidated by the task of crowd control: They were outnumbered, and the lads in the cars were twice the size and

Ideation four quadrant diagram – effectiveness versus popularity

Rated Effectiveness (0-10) — vertical axis (4 to 7)
Percent Extensively Using — horizontal axis (0% to 40%)

Strong / Poor

Popular and Effective

Not Too Popular and Rated Inffective

Voice-of-Customer Methods

Ethnography
Customer helps design product
Customer brainstorming
Community of enthusiasts
Customer advisory board
Lead user analysis
Customer visit teams
Focus groups
Peripheral vision
Disruptive technologies
Partners and vendors
Patent Mining
Internal idea capture system
External product designs
External submission of ideas
From start-ups
External scientific community
External idea contest

◆ Voice-of-Customer
■ Open Innovation
▲ Other Methods

half the age of the officers (who incidentally did not carry guns). Note that the officers never admitted to intimidation during the formal daytime interviews.

To overcome the problem of crowd control and intimidation, the team came up with one solution: Speed up the process. The aim was to substantially reduce the two minute wait-time that was creating the queue. This was achieved by developing a 10-second test device. A second observation was that, because of the dials on the U.K. version of the instrument, it could only be used on right-hand-side drivers in the U.K. Thus, when a left-hand-side driver from France or Germany was pulled over in the U.K., the police could not conduct the test quite as quickly. And because of time pressures, they really had no option but to simply wave the car through. This behavior was never revealed to their supervisors, nor in the formal interviews. The solution here was to design an ambidextrous testing instrument: an arm with the mouthpiece attached that could be swung over the top of the test device depending on whether a right-hand or left-hand drive vehicle was pulled over.

These are just two of the 10 novel feature-ideas that made the new Dräger product line a huge success. Each idea was not, in itself, a breakthrough, but when each of the 10 new features and benefits were added together, the new product was indeed a

blockbuster and absolutely delighted police forces.

Ethnography is a relatively new method for identifying unmet needs, although this general type of research—cultural anthropology—has been around for decades. The main advantage is the depth of knowledge that one gains. Properly undertaken, such research can probe and uncover needs, behaviors and opportunities far more profoundly than any of the other methods. Thus, ethnography provides perhaps the greatest insights into users' unmet and unarticulated needs, applications and problems—and hence is a very powerful source of breakthrough ideas.

The main disadvantage is exactly that: Because it is so deep, it takes a great deal of time and is expensive to undertake. On the other hand, look at the payoffs and the fact it is rated No. 1 in terms of effectiveness. Also, the time can be reduced by shortening the length of visit per customer site. For example, Fluke, a manufacturer of hand-held instruments, spends about one day per customer site in their "day-in-the-life-of" research. Proxy methods can also be used: For example, Johnsonville Sausage, a major U.S. food producer, installed video cameras in household kitchens to observe consumers as they cooked meals, looking for new opportunities for sausages.

Another word of warning is that this observational method relies very much on the skill of the researcher or observer. If your people lack observation and listening skills, or are poor at drawing inferences and integrating information, then the method loses effectiveness. Just because a person has an MBA or an engineering degree does not make them a first-rate cultural anthropologist. Some talent and training is needed.

Additionally the method does not suit all product types and markets. For example, employing ethnography at a construction site, or in a factory or hospital is quite feasible; but camping out in someone's kitchen or bathroom is a bit more of a challenge. In spite of low usage and some of these limitations, the method is proven to work, and is definitely recommended.

Customer-visit teams. Here, teams visit customers or users. And they employ in-depth interviews based on a carefully-crafted interview guide to uncover user problems, needs and wants for new products. The method is ranked No. 4 in popularity with 30.7 percent of firms extensively using this method. Note however that the method is ranked No. 2 by users for effectiveness (a strong 6.6 rating out of 10). In terms of a combination of popularity and effectiveness, this method is No .1, in the far upper right corner of the ideation quadrant diagram.

In practice, customer sites are identified, and agreement with the customer for such a visit is obtained. For a business customer, the interviewers try to arrange for a small group of customer people to be available, namely the key purchase influencers. The typical interview team is about three people, and is cross functional: marketing, sales and technical. Technical people must be involved so that they can acquire face-to-face learning too (rather than receiving the information second-hand and filtered). Besides, marketing is too important to be left to marketing people!

The recommendation from users is to do the interviews oneself, and not to outsource this research. Outsourcing the interviews means the research company gets the benefit of first-hand learning, while the product-developer receives a rather sterile report of the results. The only exception is where the product-developer hires a market research firm to help design the study, and to train and help the developer's people on how to do the interviews and interpret the data.

When conducting the interviews, a structured and well-

crafted conversation guide is essential. This guide lays out the questions and topics, ensures completeness and consistency across interviews, and provides a place to record answers. Needs, functions and benefits sought by users are explored, not just features, and thus the best questions tend to be indirect and inferential:

Example: "When you lie in bed at night, and think about this product, what keeps you awake?"

Direct questions, while more obvious, tend to yield obvious answers and hence are not too useful:

Example: "What do you want in your new product?"

The indirect questions yield much greater insights into users' likes, dislikes, problems, points of pain and unmet and unspoken needs.

Once the interview is complete, the interview team should do a walk-about, spending time with the customer where the product is actually used. Often, by watching people use, misuse and abuse the product, further insights into unmet needs are gained.

AN EXAMPLE: Smart-Pump 2000 was an ill-fated project within the huge Goulds Industrial Pumps Division (New York) that was spawned by a single customer request. The customer asked a Goulds salesman: "Why don't you build an intelligent pump— one that can sense its own operating environment, and adjust its mode of operation to minimize wear and tear, minimize pump downtime, and maximize pump life?" A great idea, and it sailed through the Idea Gate and on into Development with little or no further customer research as the Smart-Pump 2000 project. The final product consisted of an intelligent pump with multiple

Who the Firms Are

A total of 160 U.S. firms took part in the ideation survey. There is a bias toward larger firms, with 45.3 percent having more than $1 billion annual sales. Only 24.9 percent have sales less than $100 million. There is also a bias toward B-to-B or industrial product firms (67.8 percent) vs. 26.6 percent consumer (5.6 percent are both), a reflection of the breakdown of U.S. research and development spending.

sensors located both upstream and downstream measuring pressure, flow and temperature. These sensors were connected to a microprocessor (computer) that controlled a variable speed motor. The pump could adjust its speed in response to different operating conditions and thereby reduce wear and maintenance.

Smart Pump was launched with great fanfare in 2001 and proved to be a huge dud. The smart technology was brilliant, but the value proposition and product were weak. All was not lost, however. Sensing that the technology was indeed solid, Goulds' management had another try. By this time, however, Goulds' technical and marketing people had been through extensive training on VoC, and employed the technique on the new Smart Pump project. Teams of three people—technical, sales and marketing—undertook in-depth interviews at key users, and also undertook walk-throughs at customer facilities where pumps were used.

Their conclusions: While pump maintenance was an issue, it was not an overriding one. The customers' major point of pain, however, was skyrocketing electrical power costs. These pumps, often high horsepower, run flat out and consume lots of power. What the visit teams also observed was that beside each pump is a flow valve—often in the half-closed position. "That's how we control the volume or flow," explained users.

To the Goulds team, this was absurd: "It's like driving a car with one's foot to the floor on the accelerator and then using the handbrake to control the speed—very inefficient." The new Smart Pump was obvious: a much simpler version of the original Smart Pump, with a sensor downstream and upstream to measure flow demand and supply, a simple microprocessor and a variable speed drive. When demand is low, the pump slows down, and significant electrical power is saved. In a new installation, there's not even a need for a valve: the pump is the flow controller. In a retrofit installation, Smart Pump pays for itself in less than a year in power savings.

The product has been a huge success, but it was only through VoC work—in particular the observation and walk-about facet of the visits—that the insight leading to the breakthrough was discovered.

In-depth customer interviews have a number of strengths as a VoC technique. Because customer visits are a field research technique, they are valuable for gaining real insights into the customer's world. The major advantages users claim are the ability to identify and focus on customer problems and unspoken needs during these interview sessions—a vital source of product ideas. Additionally, closer relationships can be developed with customers. And because the interview structure is flexible and the questions are open-ended, they allow the opportunity for surprises that might not be gained by other tools—such as quantitative research. Finally, using cross-functional interview teams promotes a shared vision and understanding of what customers need and expect.

The main challenges are getting customers to cooperate (to agree to the session, and to provide honest answers), finding the time to do this valuable study (in-depth interviews at multiple customer sites do take more effort than most of the methods), training the interviewers and designing a robust interview guide with the right questions. In spite of the challenges, however, this VoC visit team method is definitely recommended.

Customer focus groups doing problem detection. In this VoC method, focus groups are run with customers or users to identify needs, wants, problems, points of pain and suggestions for new products. (Note that in product development, focus groups are most often used to test concepts, not to generate ideas; this is the exception). The focus group moderator skillfully focuses the discussion on problems or wants, and helps users walk through their problems.

AN ILLUSTRATION: A manufacturer of lawn-and-garden tractors invites a group of small tractor owners to a Saturday morning event at a local rural hotel. Demonstration tractors are in the car park for the invitees to ride on, and make comments about. Company people mingle with the crowd and listen and take notes.

Having sample products on display as customers gather for the event helps to promote discussion and problem detection. Customers are encouraged to interact with the products, make comments and get in the right mood. Company people can also mix with the customers to listen, probe and gain insights—and even take video of users as they interact with products at the event.

Then the focus group moderator moves the 12-person customer group into a meeting room, and begins the focus group discussion with a broad non-threatening question: "Introduce yourself and tell about your lawn tractor." The idea behind focus groups is to start very broadly and then to narrow down and focus on specific issues that arise.

The next question is: "Think of the last time you used your tractor and something bad happened to you. Please tell us about it." As the discussion questions become narrower and more focused, issues begin to arise and are discussed at great length. Whenever a major issue or serious problem arises, the moderator focuses or drills down into the issue: He directs the discussion there. But solutions are not sought, problems are merely identified and defined.

Meanwhile, in another room, watching the proceedings on closed-circuit television, is a group of company people—in this case, design engineers and some marketing people. Once the problems are identified by the customer-focus group, the company room shifts into a brainstorming mode. Solutions are proposed and sketched on flip charts.

Next the proposed solutions, one flip-chart sheet at a time, are taken into the customer focus-group room for discussion and evaluation. Here, the tractor owners rip the conceptual solutions apart,

and in so doing, devastate the design engineers still watching all this on TV. And more problems and issues are raised. Armed with this new information and feedback, the design engineers continue brainstorming, and come up with even better solutions.

And round and round the process goes from the brainstorming group to the focus group and then back again. It is a series of iterations, until an ideal solution is proposed that the designers think is feasible, and which the customers agree that they like.

The method is ranked No. 5 in popularity, with 25.5 percent of firms extensively using focus groups for problem identification and ideation. Its effectiveness is ranked No. 3 by users, with a positive effectiveness score of 6.4 out of 10.

Groups are a cost-effective and time-efficient way to tap into the voice of the customer, and thus see much use—especially in gaining insights in consumer goods markets. The method shares the same strengths as the visit team approach above, namely the ability to identify problems and to drill down into these problems

Group discussions involving 8-12 people are often much more animated, insightful, creative and provocative than an interview involving just two or three people, simply because one group member feeds off another group member's comments, and the conversation and energy level build up. Groups also have the advantage that, although the sample size is small, a reasonably representative group of customers can be assembled fairly easily with care. Additionally, much of the legwork can be outsourced to a market research firm.

There are several words of caution about groups, however. Challenges include getting the right customers to agree to participate (a particular problem with business-to-business customers), finding the right moderator with focus group skills and product knowledge and cost. The sample size of group attendees may be quite limited, and may not be totally representative of the market. The small size also makes drawing quantitative conclusions all but impossible. In business-to-business situations, it is often more difficult to assemble a group of customers from different geographies, although a trade-show venue can be used. One must also be careful not to invite competitors to the same session. Another potential drawback is potential biases in the group discussion, for example, that one strong and dominant person sways the entire group to a certain conclusion. Had that person not attended, the group would have reached quite a different end point. Finally, group effectiveness is dependent to large extent on the skill and neutrality of the group moderator or facilitator; a biased or ineffective moderator will direct the group to an invalid conclusion, or few profound conclusions at all. In spite of the challenges, however, this method is definitely recommended!

Lead user analysis. This VoC method, pioneered by Von Hippel, has been around since the 1980s, but has only caught on in the last decade. The theory is that if one works

with innovative customers, then innovative product ideas are the result. The technique often entails assembling a group of particularly innovative customers or users (a group workshop) to identify problems and potential solutions.

The method is positioned very close to customer focus groups in the ideation quadrant diagram, and proves to be quite popular—with 24 percent of firms extensively using the approach. And the method is effective: ranked No. 4 on average by users, with a positive effectiveness score of 6.4 out of 10.

AN EXAMPLE: At Hilti, a leading European manufacturer of demolition, fastening and concrete drilling equipment, lead-user analysis is extensively used. First, lead users are identified: leading edge, innovative customers in the construction or demolition field. Hilti's direct sales force provides guidance here. Hilti's Innovation Management Department then invites a group of these lead users for a weekend retreat, where they watch, listen and attempt to understand lead users' problems. Suggestions and possible solutions from lead users are fashioned into tentative new product concepts. Hilti management claims that this lead user technique has been used with great success across a wide variety of product groups within the company.

The advantage of the method is that innovative customers, who are ahead of the wave, are quite likely to have the industry's next new product, and this method is how one can uncover what it is.

The major challenges are identifying who the innovative customers or users are, getting them to participate in an off-site workshop, and then structuring and running the workshop session properly. Using referrals is one approach to identifying possible participants, but this can be tedious and problematic. 3M management indicates that it surveys customers and asks questions about whether or not the customer had modified the product. This method is definitely recommended.

The customer or user designs. This novel method has received much attention in recent years, and has been made possible in part because of new information technology and Internet tools. Here, customers or users are invited to help the product developer design the next new product—and in so doing, provide many ideas for significant product improvement.

AN EXAMPLE: Swarovski Enlightened (a division of the Austrian crystal company Swarovski) in collaboration with HYVE AG (a German-based company specialized in innovation communities), invited designers and creative consumers from all over the world to engage in a watch-design-community *(http://enlightened-watch-design-contest.com; http://www.forrester.com/Groundswell/embracing/watch_design.html. The community*

creation was based on an Internet design contest, which was open to designers (for example, design students) and also to people who are generally interested in watches and gemstones. Users were invited to submit designs and/or to vote on the designs created by other users. Voters could even comment on designs and provide suggestions for improvements.

The contest was conducted in two ways: Using a watch configuration toolkit, participants were able to create or configure their own watch designs by selecting from 24 components (case and bezel, wristband, background, clock face) in various colors and through the selection and placement of 108 different gemstones. In the second method, freely created watch designs could be submitted by contestants. Monetary prizes were offered for the three best freely created designs, and non-cash prizes for the best configured designs and the most active voters.

The lively community spread like a virus across cultural boundaries, from Austria to the United States, and even created a buzz in China, India, Russia, Turkey and Iran. Within eight weeks, the website had more than 7.5 million hits. Websites, design communities and even magazines and blogs referred to the contest without any Swarovski advertising and promotional spending.

More than 1,650 participants joined the community to showcase their talent and submit their designs. In total, they created more than 2,000 watch designs in different segments ranging from classic to sporty and from abstract to realistic. The designs of the best artists were presented at Baselworld, the largest global watch fair, and are now available.

The "customer designs" method has not caught on widely, however, with an overall popularity ranking of No. 11 (only 16.4 percent of firms extensively use the approach). In spite of its limited popularity, however, it ranks No. 5 in terms of effectiveness, with a positive score of 6 out of 10 and above the average rating for the 18 methods. The big advantage of this method is that informed users are in the best position to design the next breakthrough new product, simply because they know their needs and what they want. But the method can only be applied to certain categories of products. For example, allowing users to design products where the science is beyond the knowledge of the user—pharmaceuticals, aerospace equipment, telecommunications equipment—won't work. But it does work for some categories: witness Lego's web-based DesignByMe (aimed at kids) and the Swarovski example. Additionally, there is the challenge of employing effective tools (for example, the right web-based toolkits) to allow users to create product designs. Nonetheless, in spite of only modest popularity, "the customer designs" method is definitely recommended for certain industries and product types.

Customer brainstorming. This VoC method is often employed at a customer event in the case of business-to-business markets, or instead of a focus group session for consumer products. It entails gathering a group of users, and then employing formal brainstorming sessions with customers or users to come up with new product ideas. Often inverse brainstorming is used to begin the session in order to uncover product deficiencies and shortcomings. Then brainstorming follows to propose solutions to the identified deficiencies.

Overall, this method is only moderately popular (with 17.4 percent of firms extensively using, No. 11 in popularity). Effectiveness is above the average for all 18 methods, ranked No. 6 in terms of generating quality ideas by users.

AN EXAMPLE: C&K, an ITT Industries business unit based in the United States, manufactures a complete range of industrial switches—for example, the on-off switch found on printers, laptops or desktop computers. The head of the business hosts a "customer day" on innovation. Salespeople work diligently to ensure that knowledgeable and key customers attend: from the automotive industry, the computers and servers sector, industrial equipment manufacturers; and the lab and scientific equipment industry. Guest speakers are invited to provide enlightening talks on the innovation topic, so that customers receive good value for the day. As part of the day, two group sessions are held.

Session I: Attendees are split into groups by market segment or industry, and assigned the challenging question: "What's wrong with switches in your sector or in your equipment?" Also included on each team are company people—technical and marketing—from C&K. This inverse brainstorming session identifies many problems with switches: the fact that switches occupy too much space on servers, with servers becoming smaller each year or that seat belt switches in automobiles (switches that turns that light off on the dashboard when you buckle up) are problematic, because they take so much wear and tear. Each of the four teams reports back a long list of very creative ways in which the current products and solutions are deficient.

Session II: Later in the day, the same teams are asked to select the three greatest problems or deficiencies identified in the inverse brainstorming session, and then to brainstorm for about 30 minutes on each major problem. Here the rules of brainstorming are applied: No criticism allowed. At the end, the teams quickly identify the best ideas and report back a short list.

One idea in response to the problematic seat belt switch is the idea of a switch with no moving parts—one that relies on a magnetic field. Currently, C&K and a major auto original equipment manufacturer are working together to replace the electromechanical seat belt switch with a magnetic one—with huge potential for C&K.

The inverse brainstorming approach followed by tradi-

tional brainstorming is a tried-and-proven methodology for ideation, and many users claim that great ideas are the result of such sessions. But there are costs and difficulties: Organizing the event can be time-consuming, getting business customers to participate is always a challenge, and there are difficulties in setting up a group session when members from the same industry (potential competitors) are involved. The approach is recommended, in spite of its limited popularity.

Customer advisory board or panel. This VoC approach has been around for decades, and entails using a customer advisory board or user group to advise on problems and what new products are needed. In spite of its durability, the method is only moderately popular, with only 17.6 percent of firms extensively using it for ideation: No. 10 in popularity. Users rate the effectiveness of advisory boards for ideation above average: No. 8 in ranking.

Few respondents had much good to say about advisory boards as a solid source of quality ideas, but part of the problem is the way the meetings are organized—more as a discussion session than a structured attempt to identify hot new product opportunities. Thus, customer advisory boards are fine to use for maintaining good customer relations, but are not at the top of the list for idea generation.

Community of enthusiasts. This is yet another VoC method, whereby the product-developer company forms a community of enthusiasts who discuss the product category, often on the Internet; in so doing, problems are identified and ideas for new products emerge. The method is not popular at all as a source of ideas, with only 8 percent of firms extensively using it (ranked No. 15 in popularity). Similarly, the method is rated the least effective of the eight VoC methods (ranked No. 9 in effectiveness), but still above average.

The major advantage is that once set up, this community can be maintained fairly inexpensively—for example, as an online community. By analyzing the comments and messages, one gains insights into what is really going on in the user community—including problems and desires. The challenge is that this method requires considerable skill, insight and time to undertake content analysis. A second challenge is that the method likely only applies to a handful of product classes: for example sports equipment, computer software, or where customers are likely to band together into enthusiast groups or clubs. In spite of very low usage, the method should be considered for applicable product categories.

Other Ideation Methods

A number of other ideation methods were also investigated, and are shown in the ideation quadrant diagram for comparison. Here is a quick summary:

Open innovation. In spite of all the hype about "open innovation," surprisingly these open methods proved not to be very popular—nor are they perceived to be particularly effective as sources of new-product ideas. Indeed as a group, most are in the lower left quadrant in the ideation quadrant diagram.

Six different open innovation approaches to getting new product ideas were investigated. Note that the most popular approach—ideas from partners and vendors—has been around for a long time, and while it is an open innovation method per se, it certainly is not a new method. The three most effective open innovation methods are ideas from partners and vendors, ideas from the external scientific community and ideas from start-up businesses. None of these open innovation approaches is as effective as an idea source as the eight VoC methods, however, perhaps because of their newness, or perhaps because of their limited applicability.

Open innovation has the advantage of tapping into inventors, scientists, designers, vendors, consumers and small-businesses for ideas, intellectual property, technology and even finished products—a huge number of sources and people well beyond the limited capabilities of your own engineering or R&D departments. The major disadvantage is that many of the open methods, as a source of new-product ideas, only apply to certain product categories (for example, Procter & Gamble endorses the method strongly, as evidenced by its effective "Connect & Develop" website; whereas GE argues that seeking ideas for locomotives or jet engines from the outside world is a little impractical). A second challenge is the amount of time and work it takes to scan, solicit, handle and process the ideas or intellectual property: "It takes an army of people," one source indicated about his well-known firm's open innovation effort.

Strategic methods. "Top down" or strategic approaches include two methods shown in the diagram for comparison to VoC approaches. Exploiting disruptive technologies is frequently cited in the literature, and indeed is fairly popular (ranked No. 8 out of 18), with 21.6 percent extensively using it. Proponents of this method argue that disruptive technologies—radical and step-changes in a technology—pose great threats to the incumbent firms, and thus provide great opportunities to those firms who see the disruptions coming. The approach here is to formally monitor technological trends and to identify potential disruptive or radical and step-change technologies, and most importantly, to define the resulting new product ideas. The effectiveness of monitoring disruptive technologies is somewhat disappointing as a source of new-product ideas, however; it is ranked No. 10 out of 18 by users, and about

equal to the least effective of the VoC approaches.

The second strategic method, peripheral vision, is a deliberate and formal strategic exercise whereby you assess the external world, identifying trends and threats, and in the process, define potential new products. The approach is based on the tenet that most firms get blindsided by major external events, and miss opportunities for new products because they lack peripheral vision. Peripheral vision proves to be a very popular approach to generating new product ideas (perhaps under a different name), and is ranked No. 2 out of 18, with 33.1 percent of firms extensively using this strategic approach. Effectiveness is also positively rated: a No. 7 ranking from users.

Patent mapping. Patent mapping and patent mining are well-known and quite popular. While the techniques are useful for identifying areas of competitive activity and hence potential areas of focus, they do not generate new product ideas per se. As a result, effectiveness is ranked lower at No. 14 on average, well below the VoC methods.

Internal idea capture. Setting up an internal idea capture system is, not surprisingly, the most popular ideation method. This typically involves formally soliciting new product ideas from your own employees (often via an internal website or using purchased software), and then screening and handling these ideas via some form of formal and structured process. Ranked No. 1 overall in terms of extensive us-

age, 37.4 percent of firms extensively use this approach. But effectiveness is disappointing: internal idea capture systems are ranked No. 12 in effectiveness (tied with patent mapping) and are rated even poorer among extensive users.

Your Customer Has Your Next New Product Idea

If you are not employing VoC to generate new product ideas, then you are missing some major innovation opportunities. We have outlined eight different VoC methods designed to generate robust or game-changing new product ideas. The majority of businesses today are not yet employing these methods extensively, or they are not using them correctly or consistently. The examples of how these methods work and how they are implemented, illustrated in this article, provide a guide on how and when to use these methods. And the data in the ideation quadrant diagram speak for themselves: Best performing businesses are reaping the benefits of using VoC to generate great new product ideas to feed their development funnel. **MM**

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ADDITIONAL READING

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