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Ideation for Product Innovation: What are the best methods?

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Ideation for product innovation: What are the best methods?

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Surprisingly little research has been done evaluating the burgeoning number of techniques used in the front end, particularly the “ideation” portion, where ideas come into the funnel before they are weeded out and evaluated. Our two authors, Bob Cooper and Scott Edgett, recently completed a study that sheds light on the comparative value of different ideation sources.

The aggressive revenue growth goals of most firms point to the need for a deliberate, systemic, and managed approach to generating game-changing new product ideas. According to a 2005 Arthur D. Little global study, of five best practices identified, idea management has the strongest impact on the increase in sales by new products. In other words, having effective idea management results in an extra 7.2 percent of sales from new products.¹

The first place to begin crafting an effective ideation system is by identifying potential sources of ideas: Where do the good ideas come from? And more important, 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 study looked at 18 different sources of new product ideas in business.² We sought to determine how extensively each method is used (its popularity), and to gauge management’s perception of the effectiveness of the method in generating excellent, high-value new product ideas. A total of 160 firms took part in the study; the breakdown of firms is in Exhibit 1.

Exhibit 2 reveals the popularity and effectiveness of each of the 18 methods in a magic ideation quadrant diagram.³ The popularity is measured by the percentage of firms that extensively use each method—shown across 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 Exhibit 2, 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.

Voice-of-customer methods

Eight voice-of-customer (VOC) methods were investigated, including ethnography, focus groups, and lead user analysis. Some VOC methods are used extensively, notably customer visit teams, focus groups to identify customer problems, and the lead user approach, as noted by the diamonds in the upper right quadrant

in Exhibit 2. 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. They constitute the top five 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 magic ideation quadrant diagram in Exhibit 2.

A closer look at VOC methods

The following discussion takes a more detailed look at each VOC method covered in the study. They are ranked below from most effective to least effective.

1. Ethnographic research: Ethnography has become a popular topic in product innovation literature; but ironically it is not so popular among practitioners, as seen by its unique location way up in the upper left quadrant on the magic ideation quadrant diagram (Exhibit 2). This approach involves camping out with or observing of customers for extended periods, watching and probing as they use or misuse products. The method sees limited use for ideation, ranking #13 in popularity with only 12.9 percent of firms extensively using it. In spite of its lack of popularity, the method gets top marks for effectiveness. Ethnography is ranked #1 of all methods among users, with a strong effectiveness score of 6.8 out of 10. (For comparison, the average effectiveness score for all 18 methods is 5.6, with a standard deviation of 0.73; so a score of 6.8 is, relatively speaking, “strong.”)

The method provides perhaps the greatest insights and depth of knowledge into users’ unmet and unarticulated needs, applications, and problems of all the ideation approaches we studied, according to users. But the cost and time of conducting such research—essentially cultural anthropology—is considerable, while the skill set of the researchers must be high (not every marketer is a trained cultural anthropologist). 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,

Cooper-Edgett Ideation Study

The objective: to determine how extensively each ideation method is used—that is, the popularity of the method—as well as to gauge management’s perception of the effectiveness of the method in generating excellent, high-value new product ideas. Over 160 companies took part in the study conducted in 2007.

—Robert Cooper and Scott Edgett

however, the method is definitely recommended!

2. Customer visit teams: With this approach, visit teams (cross-functional, typically three people) visit your customers or users; they use in-depth interviews based on a carefully-crafted interview guide to uncover user problems, needs, and wants for new products. The method is ranked #4 in popularity with 30.6 percent of firms extensively using this method. It is ranked #2 by users for effectiveness (a strong 6.6 rating out of 10). 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. 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!

3. Customer focus groups for problem detection: In this VOC method, focus groups are run with your customers or users to identify needs, wants, problems, points of pain, and new product suggestions. (Note that in product development, focus groups are

most often used to test concepts, not to generate ideas.) The focus group moderator skillfully focuses the discussion on problems or wants and helps users walk through their problems.

The method is ranked

#5 in popularity, with 25.5 percent of firms extensively using focus groups for problem identification and ideation. Its effectiveness is ranked #3 by users, with a positive effectiveness score of 6.4 out of 10. 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. Challenges include getting the right customers to agree to participate (a particular problem with business-to-business or B2B customers), finding the right moderator with focus group skills and product knowledge, and cost. This method is definitely recommended!

4. Lead user analysis: This VOC method, pioneered by Eric von Hippel, has been around since the 1980s, but has caught on only in the last decade.⁴ 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 #3, customer focus groups, in the magic ideation quadrant diagram; and it proves to be quite popular, with 24.0 percent of firms extensively using the approach. The method is thought to be effective, too, ranked #4 on average by users, with a positive effectiveness score of 6.4 out of 10. This method is definitely recommended.

The advantage of lead user analysis is that innovative customers, who are ahead of the wave, are hence quite likely to have your next new product idea; and this method is how you can uncover what it is. And the method works: For example, some businesses at 3M swear by the approach. Others are more neutral in their assessment. The major challenges are identifying who the innovative customers are, getting them to participate in an off-site workshop, and then structuring and running the workshop session properly.

5. The customer or user designs: This novel method has received much attention in recent years, and it has been made possible in part because of new information technology (IT) tools.⁵ Here, customers or users are invited to help you design your next new product. For example, an article by Stephan Thomke and von Hippel reports that:

Bush Boake Allen (BBA), a global supplier of specialty flavors to companies like Nestle, has built a tool kit that enables its customers to develop their own flavors, which BBA then manufactures. In the materials field, GE provides customers with Web-based tools for designing better plastic products. In software, a number of companies let users add custom-designed modules to their standard products and then commercialize the best of those components.⁶

The method has not caught on widely, however, with an overall popularity ranking of #11 (only 17.4 percent of firms extensively use the approach). In spite of its limited popularity, however, it ranks #5 in terms of effectiveness, with a positive score of 6.0 out of 10 and above the average rating for the 18 methods. The big plus of this method is that informed users are in the best position

“ There is a lack of substantial research to reveal the most effective idea sources.”

Exhibit 1: Breakdown of Firms in the Survey

Type of Business	Percent of Sample	Size of Firm (Annual Sales \$millions)	Percent of Sample
Business-to-Business	67.8%	Up to \$100	24.5%
Business-to-Consumer	26.6%	\$100 - 500	18.0%
Both	5.6%	\$500 -1000	12.2%
		More than \$1 Billion	45.3%

SOURCE: Cooper-Edgett Ideation Study

to design your 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, as in pharmaceuticals, aerospace equipment, or telecommunications equipment, won't work. 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.

6. Customer brainstorming: This VOC method is often employed at a customer event in the case of B2B markets, or in lieu of a focus group session for business-to-consumer (B2C) products. It entails gathering a group of users and then employing formal brainstorming sessions with them 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 it, sharing the #11 spot in popularity with "the customer designs"). Effectiveness is above the average for all 18 methods; it is ranked #6 by users in terms of generating quality ideas.

The inverse brainstorming approach followed by traditional 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 B2B customers to participate is always a challenge; and there are difficulties in setting up a group session when competitors are involved. The approach is

recommended in spite of its limited popularity.

7. Customer advisory board or panel: This VOC approach has been around for decades. It entails using a customer advisory board or user group to advise on problems and new products needs. In spite of its durability, the method is only moderately popular, with 17.6 percent of firms extensively using it for ideation, #10 in popularity. Users rate the effectiveness of advisory boards for ideation above average—#8 in the 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 structured, as more of a discussion session than an ordered 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.

8. Community of enthusiasts: This is yet another VOC method, whereby your company forms a community of enthusiasts who discuss your product, 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 8.0 percent of firms extensively using it (ranked #15 in popularity). Similarly, the method is rated the least effective of the eight VOC methods, at #9 in effectiveness; but it is 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

Ideation Methods Covered— Cooper-Edgett Ideation Study

Voice-of-Customer (VOC)

- Ethnographic research
- Customer visit teams
- Customer focus groups for problem detection
- Lead user analysis
- Customer or user designs
- Customer brainstorming
- Customer advisory board or panel
- Community of enthusiasts

Open innovation

- Partners and vendors
- Soliciting the external scientific/technical community
- Scanning small business and business startups
- Invite external finished product designs
- External submission of ideas
- External idea contest

Other

- Peripheral vision
- Disruptive technologies
- Patent mapping
- Idea capture internally

analyzing the comments and messages, one gains insights into what's really going on in the user community, their 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 or computer software) where customers are likely to band together into enthusiast groups or clubs. In spite of very low usage, we think the method should be considered for applicable product categories.

Open innovation approaches

Much has been written about open innovation in recent years, urging companies to look outside their organizations for new product ideas, intellectual property (IP), and even fully developed products.⁷ In spite of all the hype, however, these open innovation methods are neither very popular nor are they perceived to be particularly effective as sources of new product ideas, according to respondents in our study. Indeed, as a group, most are in the lower left quadrant of the magic ideation quadrant diagram (the solid boxes in Exhibit 2). Six different open innovation approaches to getting new product ideas were investigated in our study. 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 (as judged by users—Exhibit 2) are ideas from partners and vendors, ideas from the external scientific community, and ideas from startup businesses.

The reasons for the lack of popularity and the perceived ineffectiveness may be that some of the open innovation approaches are relatively new, and thus many companies have yet to experiment with them. And with their being so new, it is difficult or too early to evaluate their effectiveness. David Gann and Linus Dahlander

“Some...newer methods, such as ethnography, forming a community of enthusiasts, or letting the customer help design the product, are less popular.”

of London's Imperial College dispute this, arguing that open innovation is not so new, that "firms have always been open to some degree and that the benefits differ depending on their line of business."⁸ Those companies in industries with simpler technologies and B2C products (such as Procter & Gamble [P&G]) are good candidates for open innovation, with millions of consumers and would-be inventors the target; but companies in advanced-technology and complex products may find inviting ideas from the outside world to be less fruitful.

“Although the most popular of all methods...internal idea capture systems typically yield less-than-spectacular results.”

Yet another critique comes from capital-intensive industries, where products take a long time to develop and remain on sale for years.

GE's CEO Jeff Immelt observes that his firm is a leader in a number of fields, such as making jet engines and locomotives, which requires "doing things that almost nobody else in the world can do" and where IP rights and a degree of secrecy still matter.⁹ Mark Little, head of GE research, is even more skeptical and notes that outside ideas "don't really stick well here." He professes great satisfaction with the output of GE's own research laboratories: "We're pretty happy with the hand we've got."

A closer look at open innovation methods

We now turn to a detailed look at each open innovation method covered in the study, addressing them as they rank from most effective to least effective.

1. Partners and vendors: This open innovation method entails

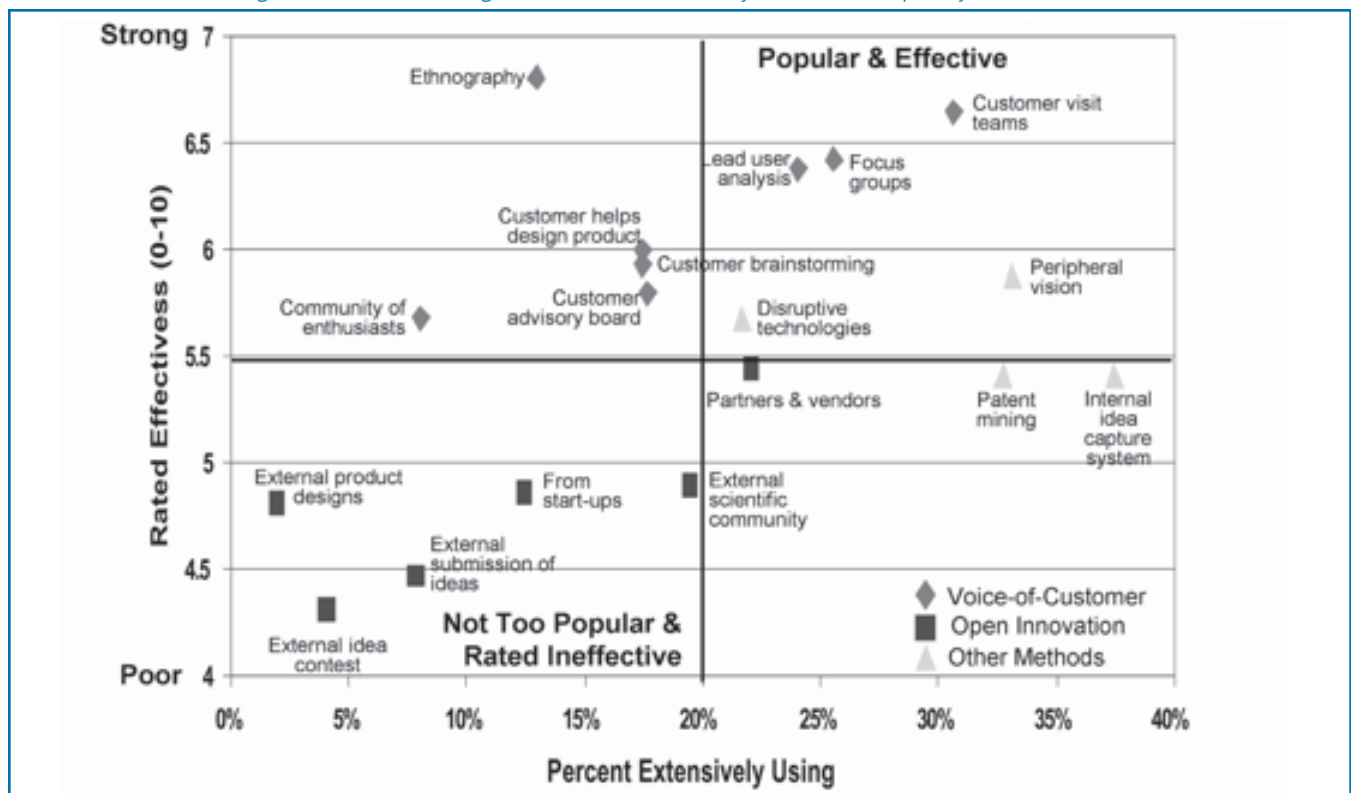
seeking new product ideas from outside partners and vendors. It is not a new approach, and it is quite popular: It ranked #7, with 22.1 percent of firms extensively using it. Effectiveness rankings slide a bit: The use of vendors and partners as a source of ideas is down the list at #11 out of 18 in effectiveness.

The advantages of this method are that vendors and partners bring to the table technical capabilities that may be beyond your scope of expertise. Buried within these capabilities are the seeds of your next great new product. The trouble is that vendors or partners may be equally as uncreative at ideation as you are, hence you cannot expect a plethora of great ideas from this source. Nonetheless, because it is a tried-and-proven approach, is quite popular, and yields decent effectiveness ratings, we recommend the approach; it is also the only open innovation method even close to the desirable upper right quadrant in the magic ideation quadrant diagram in Exhibit 2.

2. Accessing the external technical community: This open innovation approach solicits ideas and technology solutions from the external scientific and technical community. A number of online tools, such as NineSigma, Yet2.com, and Innocentive, make this access much easier today. The method is fairly popular (ranked #9 overall) with 19.5 percent of firms extensively using it. Note, however, that the method tends to be used more for seeking technology solutions online than for seeking new product ideas. And effectiveness for ideation suffers when gauged by users—ranked a low #14 with a poor effectiveness rating of only 4.9 out of 10. Thus this ideation method is fairly popular but yields poor to mediocre results.

3. Scanning small businesses and business startups: This open innovation approach accesses small and startup businesses to get ideas from these entrepreneurial firms. Although the method

Exhibit 2: The Magic Ideation Quadrant Diagram—Effectiveness (Rated by Users) Versus Popularity for Each of 18 Ideation Methods



SOURCE: Cooper-Edgett Ideation Study

seems logical, its overall popularity is low, ranked #14 out of 18. Effectiveness when gauged by users is also ranked very low, at #15, with a poor effectiveness rating of 4.9 out of 10.

The argument here is that you can bet that somewhere today there is a scientist or designer with the great next new product in your industry. The trouble is, he or she probably does not work for you, but is employed in a small or startup firm. Indeed, the track record of large and dominant firms in commercializing breakthrough innovations in most industries has been dismal, while the true innovations have come from newer or smaller firms. The challenge is that there are hundreds, perhaps thousands, of smaller enterprises that could be sources here; and accessing and vetting all the potential sources is no small task. The method is neither popular nor viewed as particularly effective, and it is dead center in the lower left (undesirable) quadrant of the magic ideation quadrant diagram.

4. External product designs: This open innovation method involves using the internet to invite your customers, users, and others from the external world to submit finished product designs (not just ideas). The method is sometimes called “crowdsourcing.” Examples are Threadless, a T-shirt company in Chicago that runs online contests

for T-shirt designs; and Muji, a Japanese furniture company that asks its catalogue members to submit furniture designs.¹⁰ This is a very novel and step-out method, and not surprisingly achieves the lowest popularity, ranking dead last, with only 2.0 percent of firms extensively using it. Effectiveness is lower-ranked as well, at #16 out of 18 (with a poor effectiveness rating by users of only 4.8 out of 10).

The advantage of the method is that the world becomes your product design house. You can capitalize on consumers’ desires to design and develop products, often for little or no financial gain. The example of open source software is often given by proponents of this method. Once again, however, this method has limited applicability. Its use is restricted largely to consumer products and relatively simple and creative goods (note that both examples given are creative design products for which consumers are likely to have creative insights). Crowdsourcing sounds like a neat method, but it’s not popular and results are weak. It is not recommended generally, but may suit a few firms similar to those mentioned above.

5. External submission of ideas: In this open innovation approach, your customers, users, and others in the external world are invited to submit their new product ideas, often via the internet and your Web site. P&G’s Connect & Develop system is an example.¹¹ Few companies have tried this approach, however. The popularity of this method ranks #16 out of 18, with only 7.9 percent of firms extensively using it. Surprisingly and in spite of the positive note spun in articles written about P&G’s system, effectiveness of external submission of ideas ranks a poor #17 out of 18 when rated by users—almost dead last—with a poor effectiveness rating of only 4.5 out of 10.

On the positive side, users of this method indicate that the entire world, including knowledgeable consumers, become your source

of ideas, greatly magnifying the possibilities beyond your own employees’ creative abilities. A major weakness is that the technique probably only applies to the world of consumer and technically-simple products. Further, it takes “an army of internal people,” as one executive commented, to review the ideas, assess and evaluate them, and get back to the submitter with a proposal. For example, one major European consumer goods company tried the approach for a while and then gave it up as far too time-consuming—“a lot of work for the very few good ideas we obtained.” This method is not popular and receives a poor effectiveness rating; try it if you wish, but it’s not high on our list of “to do” actions.

6. External idea contest: Another open innovation method, it involves hosting an ideation contest and inviting the external world to submit ideas. It is not a popular method, ranked #17 out of 18, with only 4.1 percent of firms extensively using external idea contests. Its effectiveness is similarly low, ranked dead last at #18 out of 18 (and a very poor effectiveness score of 4.3 out of 10). This method is an extension of open method #5 above—external submission of ideas—and shares the same positives, except there is an added incentive (and a little excitement of a contest with prizes) for the consumer. But like #5, the method is limited to simple consumer goods. Additionally there is the added cost and time of setting up a professionally-managed contest—all the rules, administration, and awarding of prizes. In summary, external idea contests are not popular at all. Nonetheless, they get good reviews from some heavy users, so it’s worth a look, but clearly is not the ideation method of choice for most firms.

Four other ideation methods

Among the 18 ideation methods we studied, there are four more that are consistently cited as useful idea sources. Two of the methods are very popular: patent mapping and internal idea capture systems; while two others are strategic or “top down” approaches, with one (exploiting disruptive technologies) cited frequently in the literature and the other—peripheral vision—rated as quite popular and fairly effective. Popularity and effectiveness ratings, again, are shown in the magic ideation quadrant diagram in Exhibit 2, where these four methods are shown as triangles and appear toward the right side of the diagram. Again, the methods are discussed below in order of effectiveness ranking.

1. Peripheral vision: In this deliberate and formal strategic exercise, you assess the external world to identify 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.¹² An example is Mattel’s failure to see the emerging trend that little girls grow up quickly, while a competitor introduced Bratz™ dolls—more grown-up and sophisticated dolls—and stole the market.

Peripheral vision is a very popular approach to generating new product ideas, and it is ranked #2 out of 18, with 33.1 percent of firms extensively using it. Effectiveness is also positively rated, with a #7 ranking from users. The challenge here is that while most firms we surveyed engage in such strategic exercises, often the effort is informal and unstructured; and while trends and events are identified, many firms simply fail to act on them. Given its popularity coupled with its positive effectiveness rating, we recommend employing peripheral vision as a strategic approach to ideation.

2. Disruptive technologies: Proponents of this approach ar-

“Surprisingly, effectiveness of external submission of ideas ranks a poor #17 out of 18 when rated by users, almost dead last.”

gue that disruptive technologies—radical and step-changes in a technology—pose great threats to the incumbent firms, and provide great opportunities to those firms that see the disruptions coming.¹³ The approach here is to monitor technological trends formally; to identify potential disruptive or radical or step-change technologies; and, most important, to define the resulting new product ideas. The method is fairly popular (ranked #8 out of 18), with 21.6 percent of firms extensively using it. The effectiveness of monitoring disruptive technologies is somewhat disappointing as a source of ideas, however: it is ranked #10 out of 18 by users.

In theory, the method makes a lot of sense. Disruptive technologies do generate major opportunities for those who see them coming and who have the courage to exploit them. The problem is that a true disruptive technology is not an everyday occurrence in one's industry, hence is not a prolific and ongoing source of ideas. Further, a major criticism leveled at current and past proponents of this approach¹⁴ is that analysis of disruptive technologies works best in hindsight. It's a good technique to explain what happened historically, but predicting disruptive technologies and their impact is much more difficult. Thus, in spite of all the hype on this method, it is not particularly popular and yields surprisingly mediocre results. We recommend it, but with some skepticism.

3. Patent mapping: This method involves mapping or mining others' patents to see where the technical and competitive activity is and to identify the potential areas for new products. It is a popular approach (ranked #3), with 32.7 percent of firms extensively employing this method. While the technique is useful for identifying areas of competitive activity and hence potential areas of focus, it does not generate new product ideas per se. As a result, its effectiveness is ranked lower, at #12. We rate it as a useful tool.

4. Idea capture internally: 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 Web page), and then screening and handling these ideas via some form of structured process. Ranked #1 overall in popularity, this approach was shown by our study to be used extensively by 37.4 percent of firms. Its effectiveness is disappointing, however. Internal idea capture systems are ranked #12 in effectiveness (tied with patent mapping).

While employees should be a major source of breakthrough ideas, the challenge is that most such systems to capture their ideas are poorly constructed and inadequately managed. For example, most employee-targeted ideation systems fail to specify the "search fields," often the result of a lack of a clearly articulated innovation strategy for the firm. The result is no focus or direction to the idea submissions, resulting in a scattergun approach with many off-strategy ideas. Thus, although the most popular of all methods, internal idea capture systems typically yield less-than-spectacular results. We recommend the approach but with a proviso: An innovation strategy must be in place to define areas of focus (the search fields) and clearly communicated to employees.

How to use the magic ideation quadrant diagram

The magic ideation quadrant diagram in Exhibit 2 gives a good overview of the popularity and effectiveness of various ideation methods and sources. Those in the desirable upper right quadrant—three VOC methods and two strategic approaches—are either highly recommended or worth taking a very close look at. Three other VOC approaches in the upper left quadrant

are definitely recommended, especially ethnography. The other methods found in the lower half of the magic ideation quadrant diagram fare more poorly on average, but should not be ruled out. These include all six open innovation approaches, on which the jury may still be out. Also, average ratings can lie, as these methods, while not effective for everyone, do receive positive comments from a limited subset of users. So take a look at these lower-rated methods, particularly if the method might fit your special situation, market, or industry.

Regardless of which approach you use, recognize that effective ideation is a vital part of a solid idea-to-launch system—a critical best practice. So install an idea generation, capture, and management system, building in some of the effective idea sources you have read about here.

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Endnotes

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2. For more detail on these ideation methods, see: R.G. Cooper and S.J. Edgett, *Generating Breakthrough New Product Ideas: Feeding the Innovation Funnel* (Ancaster, Ontario, Canada: Product Development Institute Inc., 2007). See: www.stage-gate.com.
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