A semistructured approach can generate great ideas even in familiar settings – and works better than unfettered brainstorming or strict quantitative analysis.

Breakthrough Thinking from Inside the Box

by Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye

IMAGINE THAT WE ASKED YOU to invent an idea for a new business in the next 20 minutes. The task is so broad and vague that you would probably think you couldn't do it. We have often seen people give up without really trying when confronted with such an amorphous challenge.

Instead, let us pose a narrower question: What do Rollerblades, Häagen-Dazs ice cream, and Spider-Man movies have in common? The answer is they are all based on the same business concept. In each case, a firm has taken something children love and reproduced it in an extreme, more expensive form for adults. The same notion has led to over 25 new product categories, including gourmet jelly beans, baseball

fantasy camps, $200 sneakers, 20-foot-high sand castles for corporate parties, paintball, space tourism, and Disney collectibles. Now that you see this, we are confident you could think of how to reproduce something that was emotionally powerful to you as a child in an expensive form for adults. That's because we have conducted this exercise as a warm-up to our workshops with hundreds of managers, and they have always generated interesting ideas.

What did we just do, and why did it work? In our quest for breakthrough ideas, we didn't ask you to think outside the box. Nor did we ask you to think more intently inside your usual box. We gave you a new box and asked you to think inside that.

Most managers and professionals are quite capable of thinking effectively inside a box. They live with constraints all the time and automatically explore alternatives, combinations, and permutations within their confined space. We have found that if you systematically constrain the scope of their thinking (but not too much), people are adept at fully exploring the possibilities, and they can regularly generate lots of good ideas – and occasionally some great ones. Setting the right constraints is a matter of asking the right kinds of questions: ones that create boxes that are useful, but different, from the boxes your people currently think in.

Ten years ago, as part of a larger project for McKinsey's strategy practice, we led a team of consultants who developed such an approach to brainstorming. It involves posing concrete questions and orchestrating the process for answering those questions. Since then we have successfully used this method with more than 150 clients engaged in everything from major product innovations and industry-shaping moves to simple process improvements. Our technique helped a consumer goods company identify an opportunity for a chilled beverage that captured 20% of the market in the first six months after its launch. A print media company used it to come up with ways to triple the firm's penetration of the Hispanic market. A plastic pipe manufacturer uncovered an immediately exploitable opportunity to reduce costs by 75%. A regional bank came up with a process that more than doubled the sales productivity of the branches involved in the pilot. Even those whose job it is to be creative have benefited from the methodology: The editors of a group of prominent magazines who had been stuck in a rut in their efforts to come up with story angles have begun using the approach to develop fresh new articles for every issue.

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Now that it has been road tested, we'd like to share our approach. A good place to begin is to examine what's wrong with conventional approaches to brainstorming.

Why Brainstorming Doesn't Work

Many managers fail to generate a stream of solid ideas because they employ two common techniques: They encourage their people to go wild and think outside the box or they assign them the task of slicing and dicing the old boxes (in the form of existing market and financial data or specially commissioned market research) in new ways.

The problem with the first method is that most people are not very good at unstructured, abstract brainstorming. Imagine a random product you are trying to improve in a typical facilitated brainstorming session. Outside-the-box possibilities could include making the product bigger or smaller, lighter or heavier, prettier or more rugged (or changing its appearance in any of a hundred ways). Further ideas could involve making the product more expensive or less, or maybe breaking it into parts or bundling it with other products. They could involve changing the product's functionality, durability, ease of use, or the way it fits with other products. Or its availability, affordability, or repairability. How do you know which dimensions are fruitful to explore? More often than not, the facilitator will say, "There are no bad ideas," which only compounds the confusion. Without some guidance, people cannot judge whether they should continue in the direction of their first notion or change course altogether. They cannot handle the uncertainty, and they shut down.

The second method – slicing the data in new ways – almost always produces only small to middling insights, for different reasons. The contents of every database are structured to correspond to insights that are already recognized, not ones that aren't. (Why are sales data often organized by region? Because someone already knows that the contrasts from region to region are meaningful.) Moreover, any insights produced by recrunching publicly available numbers will probably be discovered quickly by competitors' armies of MBAs, who are most likely using the same techniques and the same data as your people.

Market research suffers from another sort of limitation. Whenever an organization embarks on a journey to come up with a big, new idea, someone inevitably declares, "We should ask the customer, because customers aren't stupid, you know." True, customers aren't stupid, and they can tell you if they perceive your product to be inferior to competitors' offerings in some particular way. However, they can rarely tell you whether they need or want a product that they have never seen or imagined. Market surveys famously said the ultimate demand for computers was five units. That people didn't need Xeroxes because they would never need more than three copies of anything and carbon paper could handle it. That cellular phone demand was limited. That

the Sony Walkman would be a flop. Market research can be invaluable in getting reactions to an idea once it is fully formed and tangibly demonstrated to the customer. It rarely, however, finds the latent need.

Our approach takes a middle path between the two extremes of boundless speculation and quantitative data analysis. When you ask questions that create new boxes to think inside, you can prevent people from getting lost in the cosmos and give them a basis for making and comparing choices and for knowing whether they're making progress. But posing the right questions is only half the battle. How you organize and conduct brainstorming sessions also matters enormously. You must redesign your ideation processes so that they remove obstacles that interfere with the flow of ideas – such as most people's aversion to speaking in groups of more than ten. We'll talk about the process of structuring an effective brainstorming session in a moment. But first, let's examine more closely where great questions come from.

Asking the Right Questions

In conducting its research ten years ago, the McKinsey team learned of a study by Mihaly Csikszentmihalyi, then a psychology professor at the University of Chicago. In its descriptions of how Nobel laureates and other creative people achieved their breakthroughs, an interesting insight emerged: Once they asked themselves the right question, their ideas flowed rapidly. This revelation prompted us to examine how the most successful companies in recent history had achieved their positions. We looked at two groups: The first were already large companies that became industry-shaping enterprises in a relatively short time. The second grew from garage-based start-ups into firms with more than $1 billion in (profitable) sales in less than six years. In every case, their successes were built on breakthrough ideas that redefined the products and services in their markets.

We found that a number of their innovations sprang from responses to particular questions. But, subsequently, we realized that it didn't matter whether they had actually asked a question or not. What mattered was whether there was a question that *could* have uncovered the kind of extraordinary opportunities that CNN, Google, USA Today, eBay, and Amazon identified and exploited.

We then zeroed in on 50 breakthrough ideas from a spectrum of industries and reverse engineered them to find the focused questions that could have led any intelligent manager to the same epiphany. Obviously, some of the questions were specific to their industries. However, we found many that are universally applicable, including those featured in the exhibit "21 Great Questions for Developing New Products."

One question that can generate insights in any business is, "What is the biggest hassle about using or buying our product or service that people unnecessarily tolerate with-
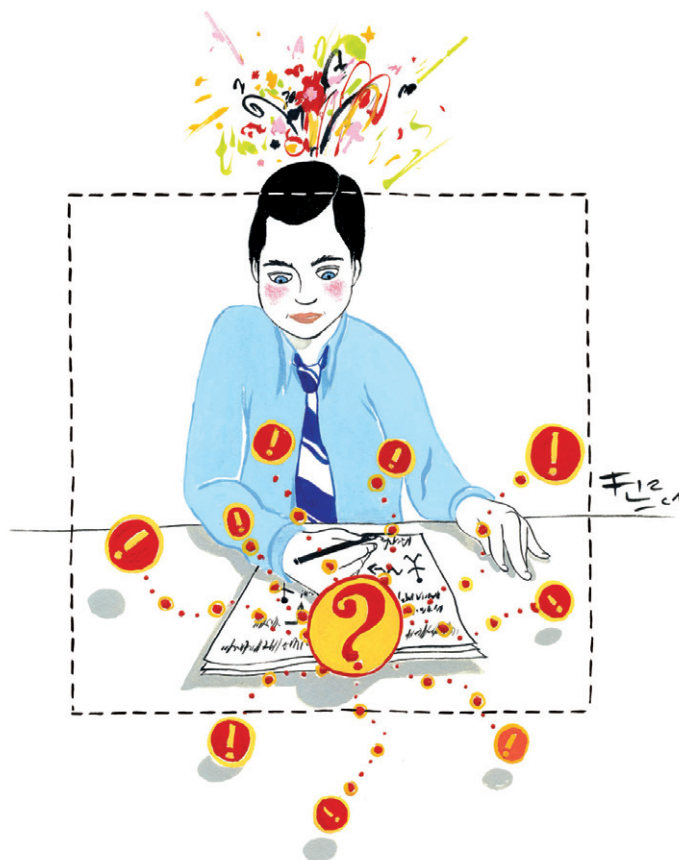
The most fertile questions focus the mind on valuable overlooked corners of the universe of possible improvements.

out knowing it?" Entrepreneurs who focused on eliminating such hassles gave us Jiffy Lube (on demand, fast turnaround oil changes), CarMax (used cars with warranties purchased in a pleasant environment at reasonable, fixed prices), prepaid cell phones that can be bought off-the-shelf (thus avoiding the 20-minute setup process and the risk of racking up unexpectedly high phone bills), and something as low-tech as single-use packages of real fire logs (for those who have no place to store a cord of wood).

The world is still full of such opportunities. Take gasoline retailing. What's the biggest "invisible" hassle? Having to go to a gas station. The average car is driven only about 500 hours a year and sits somewhere – often in a large parking lot – for the remaining 95% of the time. What if a small tanker truck could visit that parking lot and fill up any subscriber's vehicle displaying a "please fill this car" flag? Would it work? Operational issues would have to be overcome, of

21 Great Questions
for Developing New Products

"De-average" buyers and users

Which customers use or purchase our product in the most unusual way?

Do any customers need vastly more or less sales and service attention than most?

For which customers are the support costs (order entry, tracking, customer-specific design) either unusually high or unusually low?

Could we still meet the needs of a significant subset of customers if we stripped 25% of the hard or soft costs out of our product?

Who spends at least 50% of what our product costs to adapt it to their specific needs?

Explore unexpected successes

Who uses our product in ways we never expected or intended?

Who uses our product in surprisingly large quantities?

Look beyond the boundaries of our business

Who else is dealing with the same generic problem as we are but for an entirely different reason? How have they addressed it?

What major breakthroughs in efficiency or effectiveness have we made in our business that could be applied in another industry?

What information about customers and product use is created as a by-product of our business that could be the key to radically improving the economics of another business?

Examine binding constraints

What is the biggest hassle of purchasing or using our product?

What are some examples of ad hoc modifications that customers have made to our product?

For which current customers is our product least suited?

For what particular usage occasions is our product least suited?

Which customers does the industry prefer not to serve, and why?

Which customers could be major users, if only we could remove one specific barrier we've never previously considered?

Imagine perfection

How would we do things differently if we had perfect information about our buyers, usage, distribution channels, and so on?

How would our product change if it were tailored for every customer?

Revisit the premises underlying our processes and products

Which technologies embedded in our product have changed the most since the product was last redesigned?

Which technologies underlying our production processes have changed the most since we last rebuilt our manufacturing and distribution systems?

Which customers' needs are shifting most rapidly? What will they be in five years?

course. But just ask any motorist pumping gas at a self-service station on a cold, rainy day how he or she likes the idea.

The same questions can, of course, lead to different ideas. Consider the opportunities that different divisions of a bank might generate by pondering the question, "For which subset of users are the procedures associated with our product least suited?" This exercise could prompt the lending department to focus on marginally profitable loans to small businesses for which the paperwork is burdensome to both sides. One possible remedy the bank might offer: industrial pawn shops, which, like their consumer counterparts, would allow a business to secure a loan by parking an asset in exchange, minimizing the need for documentation. The same question could spark the bank's credit card division to think about which potential customers might not be well represented in the credit-history databases owned by external credit bureaus. This line of questioning could lead to a business initiative aimed at marketing credit cards to immigrants who have good credit histories in their home countries but no credit history in the United States. Similarly, asking, "Who does not use my product for one particular reason?" has already led to the creation of several museums for the blind, where information is delivered through aural, tactile, and olfactory sensations.

The most fertile questions focus the mind on a subset of possibilities that differ markedly from those explored before, guiding people to valuable overlooked corners of the universe of possible improvements. To develop your own list, ask yourself every time you come across a new business idea that you think is really clever, "What question would have caused me to see this opportunity first?" In other words, reverse engineer every great idea or innovation you see. That's what we did to invent the question about the ice cream, Rollerblades, and Spider-Man that we use in our warm-up exercise. Using this approach, we have built and tested an arsenal of more than 250 questions.

Should you want to be more systematic about the search for new questions, you can employ a simple logic tree that starts with a high-level question and successively breaks it down into more tightly defined probes. This rigor has proven useful even in unusual settings. For example, imagine you are the editor of a trendy mass-market magazine that covers popular music. Your articles consist mainly of interviews with and profiles of new bands, singers, and occasionally a venerable star. But the formula is getting tired. A simple tool like the exhibit "A Music Magazine's Logic Tree for Generating Fresh Article Ideas" could assist you in pursuing a much wider range of story angles on the same trends and keep readers engaged.

We have found that the right level of abstraction tends to occur about three to six levels down the tree. If you stop at the first level, the question would be too broad; if you were to continue too far down, the questions would start becoming too specific to generate useful answers. In addition to aiding you in coming up with novel ideas, such trees can also help you see when you are stuck in a rut and are producing conceptually similar ideas. If all your ideas originate from the same few questions, you'll profit substantially from exploring the other branches of the tree.

Better Orchestrating the Process

The fact is, virtually all brainstorming sessions violate the fundamentals of how human beings actually think and work together. Consider the following all-too-familiar situation.

About 20 people – most of them chosen for political reasons – gather in a room. The leader is either their boss, whose presence makes some people reluctant to offer what may be perceived as a silly idea, or a "creativity moderator," who neither understands the business nor thinks he should have to. Three pushy people dominate the session with their pet ideas, while the others sit in silence. After the group is instructed to think outside the box, ideas pop up randomly: "Let's paint it blue!" "We can sell it in Germany." "How about an upscale version?" "The problem is the sales force." Since "there are no bad ideas," preposterous dreams consume much of the time and energy. ("If we could invent a cheap pill that could substitute for gasoline….") Finally, because everyone knows you cannot force people to come up with good ideas, participants think it's okay to produce nothing – or to not follow up on anything the workshop did create.

Now let's adjust the process, aligning each step with what we know about how people work best in groups:

> # We once had the top six executives of a $100 billion company working full tilt because each had bet $20 that his team could come up with the best idea.

Bound the range of acceptable ideas, then select and tailor the questions accordingly. How often have you heard someone say after a brainstorming session, "I had thought of that but didn't say it because I didn't think it was the kind of idea you were looking for"? How often have you been presented with ideas that were patently infeasible given your budget, staffing, or time constraints? How often have people offered up incremental steps when you were looking for a big idea? All of these problems are easily avoided if you take the time, before the meeting, to clarify what constitutes the criteria for, and boundaries of, a good idea in your particular case. Do you want big ideas or safe, surefire winners? How much money can the company afford to spend? What level of staffing is the company willing to commit? How soon do you need a payback?

Then consider the particular requirements of the problem you're trying to solve. That will help you avoid asking questions that will lead to the same insight. For example, if all customers can use your product in only one way (like large cranes used inside industrial plants), it doesn't pay to ask, "For which current customers are our products least suited?" and also, "For what particular usage occasions is our product least suited?" since in this case, those questions will result in the same answer. However, those two questions might produce excellent and distinct insights in situations where each customer uses the product in several ways and the customers are themselves quite different from one another (which is the case for automobiles, for example). When choosing

managers in the late 1980s, "How can I reduce costs?" would probably have elicited solid but incremental ideas like "consolidate shipments" or "reduce store staffing." On the other hand, asking them, "What element of our business would we have to eliminate to cut costs 50%, and are there customers who do not need that element?" could have led the vendor to beat Michael Dell in pioneering the mail-order distribution model that so successfully challenged the retail store approach to selling personal computers.

The number of questions in your portfolio will depend on the size of your brainstorming group and the time available. For reasons that will become obvious below, you will need one question for every four or five participants every 30 minutes. However, you might consider giving your best question or two to more than one group if you can't think of enough excellent questions to go around. Finally, test each question on yourself. Which ones make you think of the most ideas?

Select participants who can produce original insights. Sure, you always have to invite some people for political reasons who will not contribute much. But make sure there are enough other people who *can* contribute. If, for instance, you intend to ask, "Who is using our product in ways we did not expect or intend?" or "Who is using our product in enormous amounts?" you should plan to include participants who are in a position to know firsthand. There's a very good chance these people will not be on your own staff and may be found in unexpected places. For example, the surprising potential for a line of foods aimed at elderly consumers was discovered

> ## Put all those pushy people who feel compelled to dominate the discussion in the same group. That will prevent them from silencing the 16 people in the other groups.

among possible questions, go for those that approach the problem from angles that are as far as possible from the ways you have approached it in the past. As a whole, think of the series of questions as a portfolio, each one creating a distinct box that comes at your situation from a different point of view.

Once you've settled these parameters, you will be able to tailor the language of your questions to best fit your specific goals and constraints. The wording of questions that will generate radical ideas differs substantially from that which will generate moderate, low-risk ideas. On the one hand, for example, a leader of a computer vendor who asked his senior

a number of years ago by a sales manager who found that one of his reps in Florida sold much more baby food than his territory's demographics suggested should be possible. Eventually, the salesman revealed his secret: People in nursing homes were eating the baby food. Similarly, mountain bikes were the result of bicycle manufacturers learning about a subset of customers who, having subjected their bikes to extreme abuse, kept replacing them very frequently.

Ensure that everyone is fully engaged. You must accept that under normal brainstorming circumstances most of your attendees will care less about the success of the meeting than you do. Therefore, don't be shy about resorting
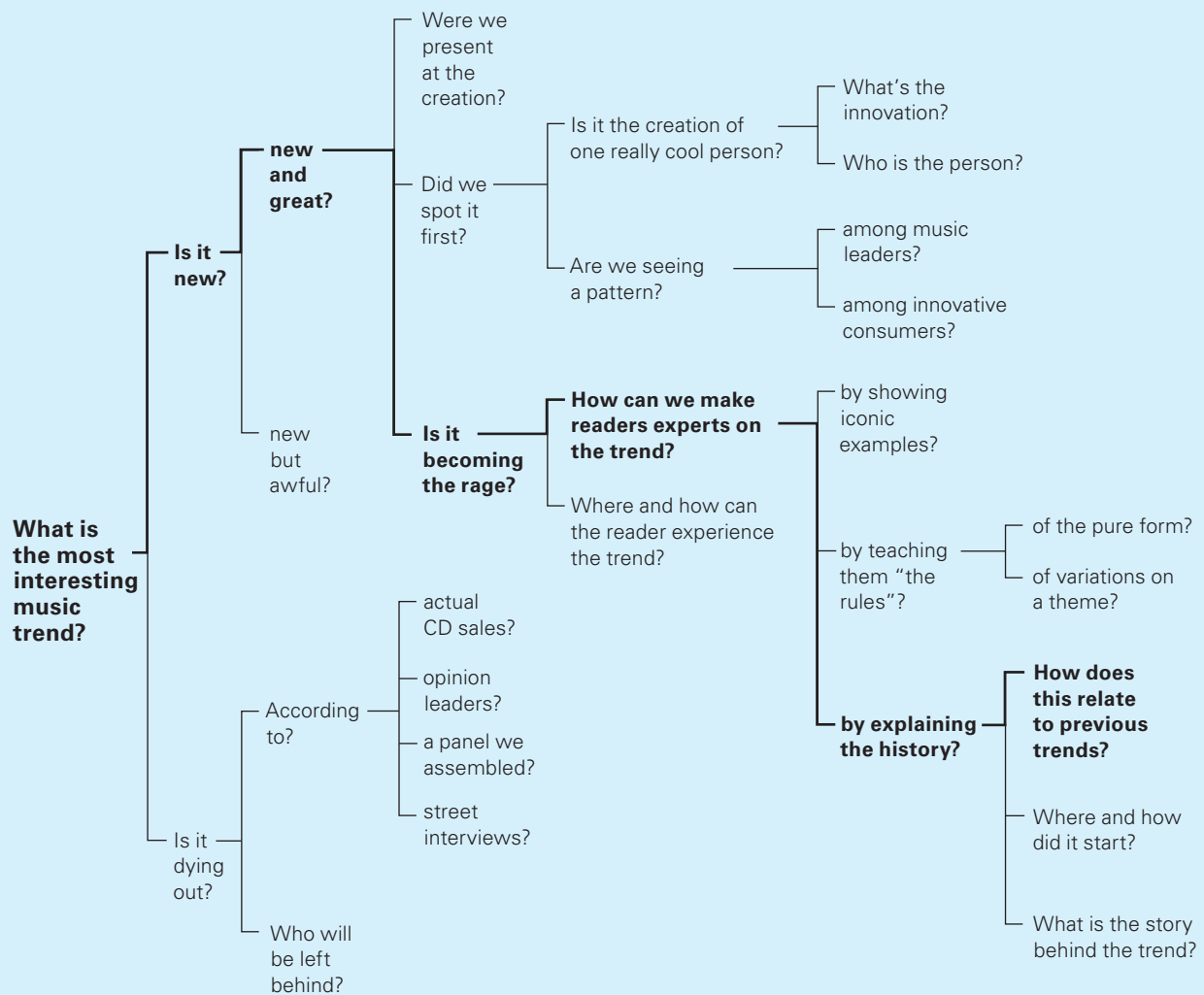
A Music Magazine's Logic Tree for Generating Fresh Article Ideas

One tool for systematically generating effective brainstorming questions is a logic tree. It begins with a high-level question that is broken down into increasingly specific queries. Often the questions five or six levels down are most fruitful.

Such is the case in this example of a music magazine trying to rethink the way it generates story ideas. The questions on the first few branches are quite general – probably the ones the editors would ask every day. But say we move down a branch (as we have here along one particular one in bold), we can see that the questions get more specific and perhaps more original.

For example, the question, "How can we make readers experts on the trend?" yields three intriguing possibilities that, in turn, lead to further questions that are still sufficiently abstract yet focused enough to work. Following the other branches leads to equally stimulating possibilities.

What is the most interesting music trend?

- **Is it new?**
  - **new and great?**
    - Were we present at the creation?
    - Did we spot it first?
      - Is it the creation of one really cool person?
        - What's the innovation?
        - Who is the person?
      - Are we seeing a pattern?
        - among music leaders?
        - among innovative consumers?
  - new but awful?
  - **Is it becoming the rage?**
    - **How can we make readers experts on the trend?**
      - by showing iconic examples?
      - by teaching them "the rules"?
        - of the pure form?
        - of variations on a theme?
      - **by explaining the history?**
        - **How does this relate to previous trends?**
        - Where and how did it start?
        - What is the story behind the trend?
    - Where and how can the reader experience the trend?
- Is it dying out?
  - According to?
    - actual CD sales?
    - opinion leaders?
    - a panel we assembled?
    - street interviews?
  - Who will be left behind?

to parlor tricks. We once had the top six executives of a $100 billion company working full tilt because each had bet $20 that his team could come up with the best idea. If a small trick could inspire those multimillionaires, imagine what you could do with your participants. Perhaps you could let the winning team pick the color of the logo on the final product or appear as extras in a television ad. Whatever the incentive, its purpose is clear: getting 100% of the participants to work at 100% of their capacity 100% of the session.

Structure the meeting to ensure social norms work for you, not against you. In almost all meetings of ten or more people, the social norm is to keep quiet or to speak only a minimum amount. A few pushy people break this rule, and the others let them fill the airtime. In contrast, observe what happens when a manager breaks a 20-person session into groups of four. First, in any group of four, the social norm is for everyone to participate, so no one can hide without seeming uncooperative. Second, if there are five subgroups instead of one combined group, five people rather than just one are offering their ideas at any given time. Finally, put all those pushy people who feel compelled to dominate the discussion in the same group. That will prevent them from silencing the 16 people in the other groups.

Don't push off the task of sorting the ideas to later. Do it right then and there.

Focus every discussion using your preselected questions. At the outset of the meeting, explicitly state the ground rules you've decided on – whether you want big ideas or incremental improvements, what the budget is, and so on. Don't worry about stifling creativity. It is precisely such boundaries – the outline of your new box – that will channel their creativity.

Then, once you've divided people up into their small groups, give each a single highly focused task. Have them spend 20 to 30 minutes discussing one question and report back to everyone the best ideas that came from just that question. Here's what typically happens: The first five minutes of each session sound like any other brainstorming meeting. But then the participants return to the better ideas and refine them. Thoughtful variants emerge. The interplay results in complex, multilayered notions that have a higher likelihood of growing into a true killer idea.

Do not rely solely on one brainstorming session. It is surprising how many managers limit the participation of others in their ideation effort to one workshop. That, again, ignores how people actually think and work together. Some individuals don't work well in a workshop format, no matter how well structured the session is. What's more, the legitimate answer to some questions is "I don't know, but we could find out if this workshop weren't ending at 5:00." And sometimes the ideas keep improving over time. For all these reasons, brainstorming should be a multifaceted process, not a single event. You might, for instance, assign someone before the workshop to gather data; you might need to schedule a follow-up meeting or two; or you might just need to provide a way to gather additional information from individuals after the session.

Narrow the list of ideas to the ones you will seriously investigate right away. Nothing is more deflating to the participants of a brainstorming session than leaving at the end with no confidence that anything will happen as a result of their efforts. So don't push off the task of sorting the ideas to later. Do it right then and there. For most ideation sessions, the selection process does not have to be complex. If you wait until some later point to sort the ideas, the odds are overwhelming that nothing will come from the effort.

In sharp contrast to traditional brainstorming, our process typically generates a surfeit of constructive ideas. A 20-person workshop produces about 20 ideas an hour, on average. Thus, the eight hours of idea generation that normally occurs in a two-day workshop generates more than 150 ideas! True, usually about a quarter are awful, and only about half of the others will be worthy of serious consideration. However, that still leaves some 50 ideas to choose from. Many managers are reluctant to pick winners out of fear of disappointing those whose ideas are not selected. This is a mistake. Most people prefer the choice to be made in front of them so they can learn from your thought process and produce better ideas next time.

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When you introduce our think-inside-the-box approach in your organization, keep in mind one other basic law of human dynamics: People are nervous about change. It could take time and effort to coax all those quiet, thoughtful souls who have hated traditional brainstorming sessions dominated by blowhards to emerge from the shadows and open up. They may come mentally unprepared to participate the first time and may not have done their homework. After all, they never had to be on their toes before in quite this way. However, most, if not all, of them eventually will see and appreciate the change. Within the safe confines of new boxes, they will shower you with good, and great, ideas. Then it will be your job to turn those ideas into profitable reality. ⬡