

Do you solve managerial problems in a straightforward, linear manner,

or do you break the mold?

By Stephen A. Butler

“You cannot dig a hole in a different place by digging the same hole deeper,” said Edward de Bono, a researcher in decision making. Getting results often requires changing direction rather than simply trying harder. This is lateral thinking, and it’s all about approaching problems differently. Although Einstein was a lateral thinker, you don’t have to be Einstein to use this method.

Decision makers often take the traditional route to solve a problem instead of using lateral thinking. After all, there are tried-and-true methods for approaching certain classes of problems. For instance, the decision to continue or to stop the production of a product requires certain

information and a specific combination of that information. Some managers who use the traditional route focus on the amount of time and money the company has invested in the product line or the percentage of completion. Others emphasize the product’s marketability or the probability of a successful introduction to the market. Each group of managers is engaged in what appears to be a logical decision process, but this traditional approach has them trying the same things over and over instead of challenging the assumptions of their approach. Of course, experience is a useful aspect of the process, but so is lateral, or creative, thinking.

Lateral thinking isn't an obscure skill; rather, it's a latent power that everyone has. It's the ability to envision various ways in which an outcome could come about. Developing this skill requires a change in mental attitude as well as training. In 1967, de Bono coined the term "lateral thinking" to describe this unconventional type of thinking. You typically look to your experiences or the experiences of others to build on previous ways of solving problems. Although you can regard this as a logical way of problem solving, some problems aren't linked to this same logical process, so you need an unconventional way of viewing and solving problems to move forward. That's where lateral thinking comes in.

Paul Sloane, an expert in lateral thinking puzzles, provides a perfect example of lateral thinking. In the early 19th Century, most people believed that the only way to travel faster was to breed faster horses, effectively pulling more carriages. No amount of effort in this logical, conventional direction could have ever achieved the breakthroughs experienced when steam engines and then internal combustion engines came on the scene. Not building on a past, proven way enabled a solution to the problem of travel speed. That change called for lateral thinking. History is filled with lateral thinkers from Copernicus to Einstein to Bill Gates.

Not all lateral thinkers, however, are scientists, mathematicians, or inventors. We also see examples in business. Consider Michael Cullin. This U.S. supermarket retailer thought laterally about how people shopped for food. For years, people would give a list to a clerk who would gather the items, but Cullin determined that you should do your own assembling. Thanks to lateral thinking, the supermarket was "invented," and, in almost all retail endeavors, self-service became the norm.

Whenever conventional approaches to solving a problem appear incomplete or inadequate, you should attempt to find new approaches based on fresh ideas and assumptions. Lateral thinking has four key factors, according to de Bono. First, you should test or question your assumptions about how the world works. An example of testing this assumption could be demonstrated in the following scenario: A woman hands a man behind a counter a book and \$4 and then is satisfied to leave without the book. The man behind the counter doesn't try to stop her. What happened? If you assume too much or make a wrong set of assumptions, the wrong solution will jump out at you, such as assuming she was buying the book. Having made the wrong assumption, the decision maker, who was trying to solve this puzzle, is also

assuming away a superior solution: that she's at the library and returning an overdue book. You may not feel the need to do anything more since the solution is obvious, but, in fact, you may have assumed away a superior solution.

A second key factor is to ask the right questions. On the surface this may seem trivial, but it's the order of the questions that's critical. Beginning with broad questions establishes the framework and is the place where you reject many irrelevant or restrictive assumptions. More precise questions are then necessary to discard irrelevant information, test various hypotheses, and determine possible solutions. You collect and sift information as you go.

The third key factor—creativity—is the essence of lateral thinking. If the problem could be solved with conventional approaches, you wouldn't need lateral thinking. What you need is to be imaginative. If you've been in a brainstorming session before, you've participated in an attempt to think laterally.

The final key factor is returning to a well-reasoned, logical approach because the wild ideas must stand up to analysis, reasoning, and logic. Lateral thinking requires experience, reasoning, analysis, and logic—not as a starting point, but as a way of refining creative ideas. It isn't off-the-wall thinking. Think of it as starting from a different point but using many of the same tools to find a solution. Creative thinking and logical thinking are complementary tools rather than mutually exclusive alternatives.

A Lateral Thinking Puzzle

Lateral thinking puzzles often consist of strange-sounding situations, but they actually have perfectly good explanations. Books on lateral thinking present puzzles for you to solve in a certain time frame by asking questions. There are a number of ways to approach a situation or decision in a lateral thinking way. One way to develop your lateral thinking ability is to work with another person or group. Often one person in the group knows the solution to the puzzle, and the other participants ask yes-or-no questions. There's usually a series of clues that you can tap. The real key is to test your assumptions by asking broad questions to understand what's really happening in the situation. If a line of questioning leads to a dead end, your abilities to be logical and imaginative should help direct you to a new possible solution to the puzzle. For instance, consider this situation: Why did a stockbroker continue to send forecasts of stock price movements that he knew would be wrong?

Possible answers and responses include: (1) The broker had a position opposite the position that this negative information would influence people to take, or (2) the stockbroker was forced to forecast fraudulent numbers or bribed to forecast these numbers. In each case there's an assumption that the poor-predicting stockbroker knew the forecast was wrong. The broker may be trying to generate commissions.

The suggested answer to this lateral thinking puzzle is that the stockbroker was trying to launch a business. He bought a mailing list that included the names of 4,000 wealthy people and sent half of them a prediction that IBM stock would rise the next week; the other half received a prediction that the stock would fall. A week later, the 2,000 people who had the correct forecast were again split into two groups: Half received the forecast that Southwest Airlines' price would rise, and the others received a forecast that it would fall. Again, those who received the correct forecast were divided, and so on. After doing this six times, the broker was left with 62 people who had all received a sequence of six correct forecasts.

Of course, they thought the stockbroker was an excellent predictor of market movements. The stockbroker then called each of them and asked them to move their entire portfolio to his new business. They agreed, and the broker had a large portfolio base.

Investment Traps

Lateral thinking can overcome investment traps, which occur when resources previously expended on a project, such as time and/or money, influence you to make decisions you wouldn't normally make. These expenditures are sunk costs. Take the classic example of the stealth airplane. A variety of people have been given the following task:

As the president of an airline company, you've invested \$10 million of the company's money in a research project. The purpose was to build a plane that wouldn't be detected by conventional radar—in other words, a radar-blank plane. When the project is 90% complete, another firm begins to market a plane that can't be detected by radar. Also, it's apparent that the competition's plane is much faster and more economical than the plane your company is building. Should you invest the last 10% of the research funds to finish your radar-blank plane?

As many as 85% of the population recommended

completing the project even though it's clearly an inferior airplane compared to the one already on the market. You can see this same behavior in other situations: a bridge to nowhere, highways that seem to end at a fence line, and dams that appear to serve no purpose. How do you work around this problem? It's key to identify managers who may not be skilled in lateral thinking. Cognitive psychologists use many different measures to do so. Four common measures to identify lateral thinkers are the Uses Test, Intolerance for Ambiguity, Embedded Figures Test, and the Need for Cognition. These are discussed later.

Lateral Thinking in Activity-Based Costing

The realm of cost accounting and the use of a single denominator overhead application rate provides another example of the lack of (imaginative) lateral thinking. For years, as overhead items were a relatively minor cost of a product, a single rate for overhead could be determined and used to allocate those costs. As allocation bases centered on direct labor, for instance, the denominator of the allocation base started to shrink in size, and the allocation rate for overhead became unrealistically large—at times, as much as 1,500% of the direct labor cost. Clearly, a manager could control costs more easily by focusing on the direct labor cost than on the more economically significant items in manufacturing overhead.

If you focus on changing the denominator to calculate the overhead cost rate, the attempt is too narrow, but, as it turns out, this isn't the problem. Different overhead items use vastly different amounts of scarce resources. The misallocation of these costs will lead to a poor estimate of the product's cost and, therefore, its price.

Activity-based costing (ABC) became very popular in the 1980s and continues so today. Robert Kaplan, a professor at Harvard Business School, laid out not only the idea of ABC and how it leads to over- or underpricing products, but he thought in broader terms about the allocation of overhead costs. In essence, he asked questions about his assumptions. There's no rule or logic that tells you to use only one cost pool for overhead cost; instead, you can expand it to any reasonable number that allows you to make better decisions. Kaplan made this simple but powerful statement concerning multiple cost pools, allocation bases, and ABC. Now the misallocation of costs is less likely and so is the over- or underpricing of the product being manufactured. By using this method, companies have reported millions of dollars in savings. For example, automobile manufacturer

Chrysler, using ABC, determined that some parts it made cost 30 times their estimate using the traditional approach. Chrysler now outsources those parts.

Lateral Decision Making in Business

Examples of lateral thinking include fast-moving product enhancements. Consider the cell phone. Some of you remember the late 1980s and early 1990s when the “cell phone” looked like a walkie-talkie from World War II. It then began to shrink in size but expand in available applications. This wasn’t the lateral thinking aspect of the process as much as its refinement. The lateral thinking would more likely be when someone asked, “Could you unhook the phone from its base?” The next lateral thinking step was to ask, “Could you make a phone that could leave the house?” Once these questions were asked and answered, the cell phone era began.

Consider as well the invention of the telephone. Supposedly, a businessman in London rejected the idea, saying, “We don’t need it. We have enough messengers.” One lateral thinking question is, “What can a telephone do that a messenger can’t?” Clearly it’s faster, but it couldn’t deliver items to their destination. The problem will drive the lateral thinking questions and solutions.

Tests to Determine Thinking Approaches or Skills

You can use a number of options to identify employees who may be susceptible to the sunk-cost “fallacy.” Educational psychologists and teachers, who are concerned with creative thinking, have studied this topic for years. A few tests may prove useful in identifying creative or lateral thinkers. As I mentioned earlier, the four most relevant are the Embedded Figures Test, the Need for Cognition, Tolerance for Ambiguity, and the Uses Test. Each appears to be associated with developing the skill of cognitive restructuring, which is necessary in lateral thinking.

Using any of these tests or a combination should indicate which employees have the intellectual flexibility skill to think in a nontraditional, lateral manner. This can lead to two approaches to improving decision making. First, tests could identify managers who have this skill, therefore facilitating assignments to particular tasks where the company most needs this skill. Second, the test can identify the less-flexible managers who can learn this skill. If training isn’t cost effective, it’s possible to use the approaches of the tests and develop decision aids for the managers.

Embedded Figures Test

This test measures disembedding, a restructuring skill. In a paper-and-pencil task, a complex figure includes an embedded simple figure that the person identifies as soon as possible. There are 24 figures in the Embedded Figures Test (EFT). Proponents of this test believe that it’s related to a person’s ability to deal with unstructured tasks, which is a sign of a person’s ability to think laterally.

Need for Cognition

The scale in this test should provide information about a person’s tendency to enjoy and engage in thinking by measuring the extent to which cognitive activity is desirable or interesting. On the surface, it may seem odd to search out difficult tasks, but simple examples of this are seen in the popularity of word scrambles or crossword puzzles. Examples of the 18 statements in this scale include: (1) I would prefer complex problems over simple problems, (2) I find satisfaction in strongly deliberating for hours, and (3) I only think as hard as I have to. The higher the score, the more need for cognition. People who score low on this scale tend to ignore, avoid, or distort new information and are close-minded, which is in direct contrast to lateral thinking.

Tolerance for Ambiguity

A person who tolerates ambiguity doesn’t feel threatened by ambiguous situations. In business, information is frequently vague, unclear, unstructured, and/or incomplete. A lateral thinker can deal effectively with this type of information. A person who dislikes ambiguity is likely to dislike engaging in divergent thinking or lateral thinking.

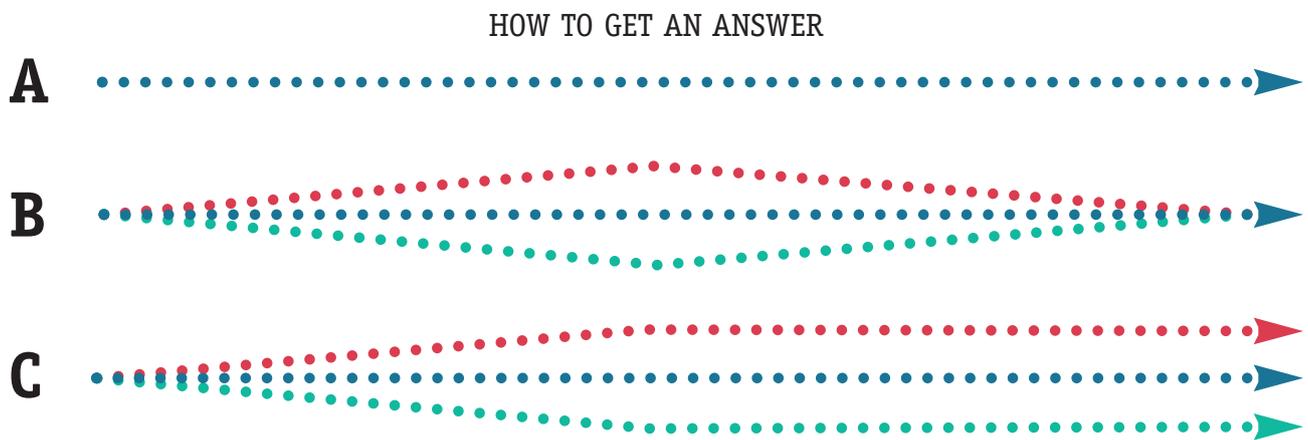
Uses Test

Perhaps the simplest and most straightforward of the four ways of operationalizing the skill of lateral thinking, the Uses Test measures a person’s ability to call up many ideas in a situation relatively free from restrictions. The quality of the response isn’t very important. Also, this flexibility gives the manager a general freedom from standard approaches and permits restructuring of the information set and the solution approach. This appears to be similar to de Bono’s third key to lateral thinking—creativity. The more uses for an object someone can envision, the more flexibility there appears to be.

Decision Aids

To improve decision making, it’s often necessary to craft an aid specifically for that situation. Decision aids help

Figure 1: *Ways in which we may think about problems*



the decision maker come to the optimal decision. An aid can come in lots of forms, such as a computer program or questions from an expert in the field. In the case of lateral thinking ability, it may be more advantageous to have a general decision aid, such as asking very general questions related to the problem. The tradeoff is that it isn't quite as effective, but it will work with any unusual scenario.

Figure 1 captures the flavor of lateral thinking. When decision makers take the traditional linear route to solving a problem, the approach may look like a straight line, as illustrated in Line A of the figure. A tried-and-true method for approaching this class of problem, the traditional route uses only one information set and one way of combining that information. In Line B, the situation is that many information sets or approaches will lead to the same answer, and in Line C, the different approaches lead to different answers, but it isn't specified which is correct. These last two are in the spirit of lateral thinking, and the decision aid should induce the decision maker to take this multipath approach.

The decision aid for lateral thinking should prompt decision makers to consider other outcomes or information leading to particular outcomes. A simple variation of the Uses Test that many of us have probably encountered at some point is asking people to list which factors in a situation could lead to a different answer or outcome. Doing this helps reduce decision-making biases, such as hindsight. In hindsight bias, an individual examines the probabilities of certain outcomes after the true outcome is known. Not surprisingly, people tend to put a higher probability on the known outcome as if it should have been obvious. When they don't know the outcome, they have no hindsight and exhibit no bias toward that outcome.

My colleague Dipankar Ghosh and I have asked people to simply list what information in a business case indicated that there might have been a different outcome. This is much like Line C in Figure 1 in that there are multiple outcomes available. We found that simply prompting decision makers to push outside of what they already knew significantly reduced hindsight bias. Interestingly, this approach helped the people who scored lower on the various tests we used to approximate lateral thinking skills, but that result shouldn't be expected. People are already engaged in the behavior the decision aid is trying to induce. A fair assumption would be that the aid also wouldn't hurt if the decision was extremely straightforward, such as Line A in Figure 1.

It may also work in the sunk-cost airplane scenario discussed earlier. Simply ask the decision maker what information is available that will predict a successful, saleable airplane, and then ask what information would tend to predict a waste of the remaining 10% of the research budget? Facing conflicting outcomes spurs decision makers to consider often neglected information.

Breaking the mold when it comes to the approach to making decisions may be easier and less disruptive than you think. If simple prompts can encourage managers to act as lateral thinkers, then the cost is very low. Over time, the managers may even acquire this skill after repeatedly using the decision aid approach. At that point, the aid may not help, but indications are that it will do no harm. **SF**

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