



Breakthrough Solutions

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Where do new ideas that lead to lasting solutions come from? This article describes five different approaches to identifying new ideas and solutions:

1. Studying the work, which often produces new ideas and solutions
2. Classic brainstorming and the 6-3-5 method, which can produce a large quantity of ideas quickly
3. Humor, random association and other techniques that improve the originality and quality of ideas
4. Tools such as the *Six Thinking Hats* and *Heuristic Discovery*, which systematically change one's perspective to open-up new possibilities for solving problems
5. Imagineering perfection, which helps you surface possibilities to leap past incremental improvements

New Ideas from Studying the Work

Sometimes a thorough examination of the facts is all that it takes to point to a solution. For example, Chris, the purchasing agent for a large financial firm, noticed that the company had purchased enough headsets (at \$120 each) for each employee to have three. Headphones were available from supplies and did not hit the department budget. His idea was that this caused wasteful treatment and a good solution would be to charge the budgets for the headphones.

But studying the facts and data revealed something very interesting. A run chart showed there were spikes in headphone requests coinciding with large office moves. And a Pareto chart of reasons people gave for needing a new headphone was "office move". When Chris examined the move process, he found that the Facilities department was responsible for moving the technology and employees were responsible for moving personal effects. Facilities did not have "headsets" on their technology list and so considered them to be personal belongings, while most employees considered them to be technology. An effective and lasting solution, one that would not have been identified without effective study of the current situation, was immediately obvious: add headsets to facilities' list of technology to move. Problem solved.

Watching the work will sometimes lead to a breakthrough insight. A group of engineers had designed an automatic material distribution system, but it could not keep the inventory straight. In fact, they had to do a complete physical count of the inventory on the line every morning and reset the counts.

The engineers studied the code thoroughly and could not see how it could fail to maintain accurate records of what parts were at what workstations.

A kitter filled the tote with a part and recorded both the tote numbers and part number and quantity and workstation the parts were to move to. Scanners on the conveyor belts directed the tote to the designated workstation. When empty, the totes would then return via the empty tote belt, passing a scanner which would report the list of emptied totes to the data base every three minutes.

But when they went to watch how the work was done, the designers saw that the empty totes went into the stack and the most recent arrivals were filled and sent back to service first. So when the empty tote scanner reported which totes were empty every three minutes, some of those tote numbers had already been reassigned new parts and a new destination. They saw right away the cause of the problem – they had made the inaccurate assumption that when the empty tote scanner reported what totes were empty that those totes would still be empty. All the analysis at their desks failed to identify the problem; they had to go and watch the work! The process was changed and the problem solved.



Brainstorming a Quantity of New Ideas

When studying the current situation and causes does not lead directly to identifying lasting solutions, you need to elicit a number of different ideas from your team. Before you launch into your brainstorming or 6-3-5 meeting, make sure you have convened a diverse group of people with some knowledge or interest in the problem at hand. Keep in mind that it is always easier for people to “think outside the box” when they come from outside the box. The classic rules for brainstorming are:

- No criticism of ideas—no idea is too crazy
- Go for quantity of ideas and worry about quality later
- Brainstorm individually first and then read the ideas out round robin style —it is okay to pass
- Build on positive aspects of other ideas to create new ideas
- Capture the ideas on flip charts or on large Post-Its that everyone can see and read

The 6-3-5 method employs similar rules but uses a structured approach to generate lots of ideas very quickly. This method works best with six people but can be adapted to larger groups. Each participant receives a worksheet with the problem written on the top, and space for the date and form number. The worksheet has three columns and six rows. Everyone is asked to write three ideas across the top row and then pass the paper to the right. Everyone reads the ideas already there and adds three more ideas and passes the worksheet again to the right. Continue, allowing about five minutes per round until the six rows are filled. (Alternatively, you can put 18 Post-It notes to each worksheet —this facilitates the next step of sorting and evaluating the ideas.)

Stimulating Creativity

But often the initial ideas lack real innovation. Habits of mind, sometimes called “psychological inertia” —the sum of our intellectual, emotional, and experiential biases make it difficult to achieve breakthrough innovations. Stimulate the funny bone. Research has shown that play and humor stimulate creative ideas. Creativity involves making connections that had not been made before and humor is also based on unexpected connections. You can stimulate the creative parts of the brain and increase the likelihood of success in creative problem solving or Imagineering by bringing amusing toys to the meetings, playing an episode of Monty Python while the team gathers for coffee before the meeting, and using unexpected materials or colorful supplies. To get the creative juices flowing, less seriousness please! You can refine and organize the ideas once you have created them.

Try brainstorming with a twist. The initial ideas produced in a brainstorming session are usually “off the shelf” ideas —ideas people have had for a while or ideas that have been floating around the organization. But after these have been exhausted, the group reaches a dry spell. Don’t stop here! Introduce another round with a twist such as:

- Ask people to think of wild variations or combinations of ideas on the initial list
- Ask them to generate ideas about how the opposite of one of the posted ideas might work
- Select a random word or phrase (actions and events tend to trigger the most connections) and ask people to think of connections between the work and the problem or possible solution
- Select the item from the bottom right corner of a random page in a catalogue and ask people to think of ways it might possibly be used; or ask the group to look for ways to changing the timing, the physical state, or the roles and responsibilities of some aspect of the problem to produce a solution

Reiterate, the goal is creativity —no idea is too silly at this stage. When the group grows silent again, try another twist. The freshest ideas generally surface after the first or second or sometimes third silence.

Systematically Changing Perspective

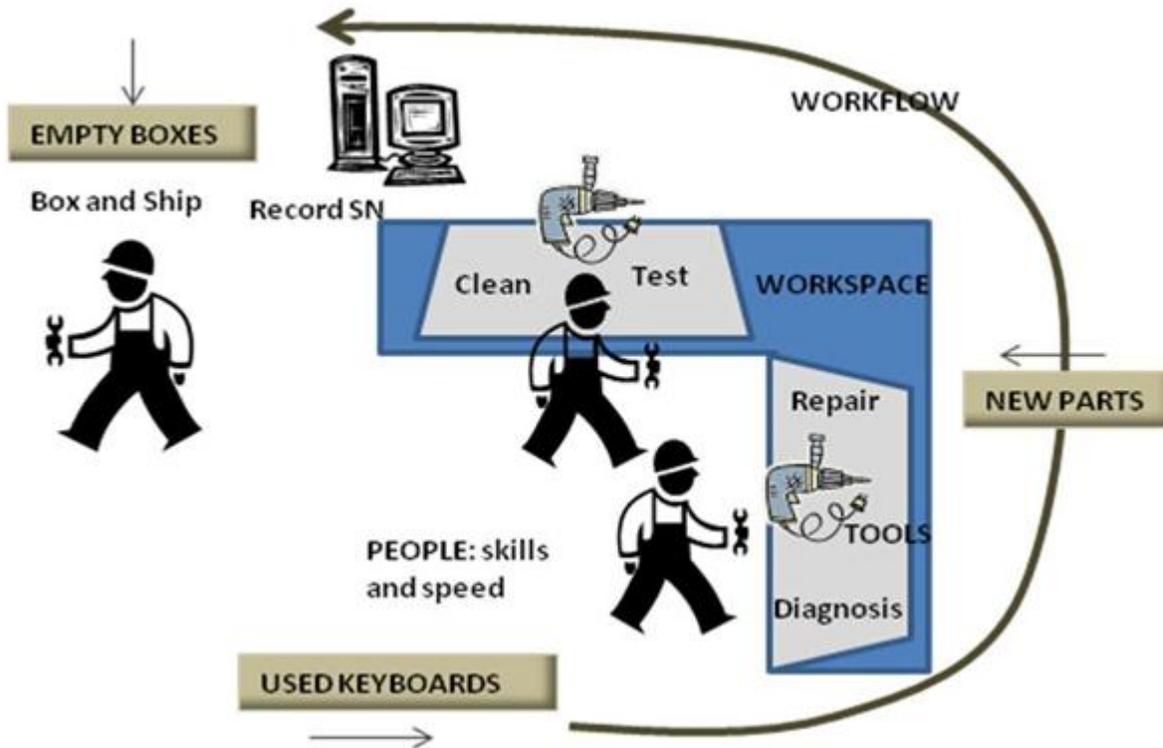
Sometimes it is useful to systematically change perspectives to generate breakthrough improvement ideas. Two methods that help you change perspective are the Heuristic Redefinition Process (HRP) and Edward De Bono’s Six Thinking Hats.



To apply the Heuristic Redefinition Process:

First, state the problem in terms of an opportunity or goal. For example, a keyboard refurbishing operation needed to increase throughput, so they would ask: “How to we double our daily throughput of refurbished keyboards?”

Second, create a picture or map of the problem as part of the system, labeling each of the significant components. For example:



Third, describe the impact of each component as it impacts the goal. Use a question format. For example:

- What tools might we use to increase throughput?
- How can we make sure that people’s skills are sufficient to double the throughput?
- How can we make sure that people’s speed is sufficient to double the throughput?
- How can we ensure the workspace layout enhances throughput?
- How can we ensure the work processes for diagnostics, repair, testing, and boxing are designed to facilitate twice the throughput?
- How can we ensure the sequence of steps is optimal?
- How do we make sure that the old keyboards arrive in the right quantities and frequency?
- How do we ensure the replacement parts are always available and handy?
- How do we make sure the boxes are available?
- How do we ensure the completed keyboards are moved out quickly?

Fourth, Prioritize these and generate ideas for solutions to the component problems that are most likely to impact the main goal.

De Bono’s Six Thinking Hats is another way of solving a problem through systematically changing perspective and focus. The idea is that by trying on each of the six different “hats”, the problem is examined thoroughly from different perspectives and increasing insight and ideas for solutions.



- The “White Hat” is all about facts and data. Put on the white hat and bring forth all the factual information you have about the problem. Be as specific as possible and exclude opinions and judgments at this time.
- Next put on the “Red Hat” to surface all the emotions that might come into play regarding the problem and possible solutions. People must be free to identify any and all emotions they feel may be a factor – positive emotions such as satisfaction, joy, enthusiasm, as well as any and all negative emotions. Capture all the insights about emotions that may come into play.
- Put on the “Green Hat” and generate ideas. These ideas should be free of judgment. This is not the time to analyze the feasibility of the ideas. Generate as many divergent ideas as the group possibly can. Put these ideas into the common pool.
- Put on the “Yellow Hat” and begin identifying all the positive aspects of the ideas in the common idea pool. Note and discuss all the positive aspects and possible effects of the ideas in the common idea pool.
- Next it is time for the “Black Hat” to note all the constraints, risks, and shortcomings of the ideas. This is the feasibility discussion to discuss the pros and cons, to surface and evaluate risks. This is where you critically evaluate every idea in the common idea pool and narrow it down to the idea or ideas to focus on.
- The “Blue Hat” is worn throughout by the facilitator, controlling the flow of the discussions and making sure that everyone is “wearing the right hat” at the right time. The facilitator makes sure all the ideas are carefully considered from each perspective and also brings forth the process and the prioritization methods to bring the list down to a successful conclusion.

Imagineering

Imagine what the situation would look like if everything were perfect. Imagine the input you need arrives on time and exactly the way you need and want it—no delays, no expediting, no rework. Imagine every step of the work process goes exactly as it should with no waste, no rework. And most importantly, imagine that your work produces exactly what the customer needs, on time, exactly as they require it. What would this look like? What exactly does the customer need for perfection? Capture these images on paper. Evaluate the gaps and brainstorm how to close the gaps between current reality and your imagineered vision. If studying the work does not identify the perfect solution, brainstorming, creative thinking, systematically changing perspective and/or imagineering will generate a lot of new possibilities. Once you have a large number of ideas and possibilities, you narrow them down and choose the best ideas to implement. That will be the topic of a future newsletter.

If studying the work does not identify the perfect solution, brainstorming, creative thinking, and/or systematically changing perspective will generate a lot of new possibilities. Once you have a large number of ideas and possibilities, how do you narrow them down to choose something you can implement? That will be the topic of our next newsletter.

If you are interested in discussing these ideas further, or if you have any questions, please give us a call. We welcome your comments, questions, suggestions, or additional observations. Write to mj.king@conwaymgmt.com.