

Excellent Execution in New Product Development: Improving Problem Solving

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“The rate at which new ideas were expressed by employees to managers increased 55% over this period....[Leaders] attributed many positive changes directly to this brief testing and training program, including more than \$600,000 in new revenues and about \$3.5 million in innovative expenditure reductions over an 8-month period.” [Epstein 2008]

New product development inevitably requires solving new problems, innovating, and being creative. Managers can improve their teams’ proficiency in creativity, problem solving and new idea generation by strengthening four measurable, trainable competencies.

Most brain scientists agree that the ability to shift rapidly between analytic thinking (analyzing problems down into their parts) and synthetic thinking (synthesizing different parts into a whole) is the key to innovation. And they agree that the ability can be improved. Managers may have thought that some people were good at analytic, left-brained thinking and others at synthetic, creative right-brained thinking. In fact, all complex thinking requires both regions of the brain to work together. And, managers can help their teams to develop and become better problem solvers by helping them to develop mastery in one or more of four core competencies.

1. Capture New Ideas

Artists, designers, writers and others who are considered creative people often jot down ideas in notebooks, sketchpads, 3x5 cards, or on their smartphones. They keep notepads by their beds to record their dreams. They preserve the ideas with the intent to make use of them.

2. Engage in Challenging Tasks

When people are confronted with a new or challenging task, their old approaches and

behaviors are not likely to be effective. Old approaches compete with each other, generating new approaches to solving the problem or challenge.

During a challenging task, people are likely to feel frustrated and confused. Learning to deal with the frustration increases a person’s competency in stress management.

3. Broaden Knowledge

Individuals with expertise in one domain can make amazing breakthroughs when encountering the mental models of another domain. Occasionally a creative idea is considered serendipitous. I would argue that you can increase the chances for supposedly serendipitous creativity by increasing one’s exposure to multiple domains.

4. Interact with Stimulating People and Places

Individuals acquire new approaches to problem solving when surrounded with unusual social or environmental stimuli. Exposure to the arts (museums, opera, theater) can help individuals to open up to creative ways to see their own work.

How can you as a leader or manager of a technology organization increase your team’s competency? I’ve listed the competencies and some ways that you can encourage your team in Table 1.

Competency	Why	How to help your team
Capture New Ideas		
Team members learn to capture the ideas naturally occurring every day.	Because new ways of doing things, new insights, are present everywhere.	Encourage team members to recognize and capture new ideas using their smartphones or pen and paper.
Engage in Challenging Tasks		
Individuals learn new approaches in order to solve a problem. In addition, they will learn stress management in order to deal with the frustration that comes with dealing with impossible tasks.	Situations that cause differing behaviors to compete provide an opportunity for new approaches.	Give team members difficult problems to solve and ambitious goals. At the same time, help them to manage stress. For example, provide stress management training.
Broaden Knowledge		
Individuals seek experiences and knowledge outside their current area of expertise.	One way to produce new ideas is to have people from one discipline interact with people from another. Each group learns from the mental models of the other.	Encourage people to broaden their knowledge. Send team members to conferences, including those outside their area of expertise. Bring in speakers in different domains.
Interact with Stimulating People and Places		
Individuals engage in stimulating activities such as going to a theater production.	Exposure to new ideas and different people and places helps people to develop skill at coming up with creative ideas.	Encourage your team to have a book club, discussion group, or other social activity. Provide resources and time for such activities.

Table 1. Competencies for better problem solving.

Ideas in Action

The IEEE Central Texas Section Chapter of the Technology and Engineering Management Society engages in both learning and doing. In one group, the Leadership Reading Group, participants identify articles or books on leadership that they would like to explore, and then lead the group discussion. This gives people the opportunity to both read about and practice leadership skills.

In another group, the Innovation and Creativity Group, participants learn about the competencies described here and apply them, for example, by attending a theater production of Shakespeare's *Much Ado about Nothing*. Again, this group engages in both learning and doing.

What are your thoughts? Do you have the skills to build resilience in your team? Please send your comments or questions to me, leslie@competitivefocus.com. I am happy to hear your thoughts.

Further Reading

Epstein, Robert, Steven M. Schmidt and Regina Warfel, "[Measuring and Training Creativity Competencies: Validation of a New Test](#)," *Creativity Research Journal*, 20(1), 7–12, 2008.

Milner, Brenda, Larry Squire and Eric Kandel, "[Cognitive Neuroscience and the Study of Memory](#)," *Neuron*, 1998.