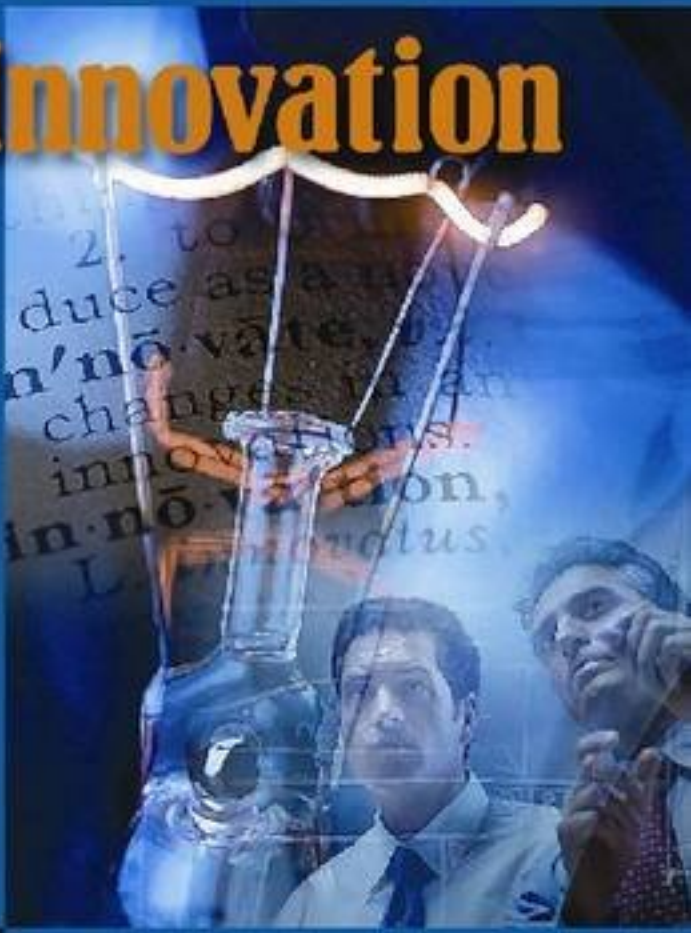
The Manager's Pocket Guide® to

Innovation



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The Manager's Pocket Guide to Innovation

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HRD Press ❖ Amherst, MA

HRD Press, Inc.
22 Amherst Road
Amherst, Massachusetts 01002
1-800-822-2801 (U.S. and Canada)
(413) 253-3488
(413) 253-3490 (fax)
http://www.hrdpress.com

Production services by Jean Miller
Cover design by Eileen Klockars
Editorial services by

ISBN

Dedication

This book is dedicated to
Dr. Rev. Robert DeWerff,
excellent scholar, compassionate
administrator, and
wonderful human being.

The Manager's Pocket Guide to Innovation

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Introduction

The journey of innovation is necessary for survival. This statement is true for individuals and for organizations. In order for us to be competitive as individuals, as organizations, and indeed, as a nation, we need to constantly add more value for our clients, customers and constituencies. We do this by innovation.

The innovation journey is fraught with obstacles. Naysayers line the route with catcalls like "we tried that before" and "that would never work here." Organizational potholes and boulders are strewn across the road. False starts and market shifts lead down the wrong paths. Weariness from steep learning curves slows the process down. The mountaintop is often enshrouded in the clouds of unending details, stops and starts. Distractions of the trees that are part of the day-to-day job shift our focus over and over again.

Besides the necessity of the journey, some practices of innovation keep us going. Keeping close to the customer is central in this journey. Creating an open culture is important for ongoing innovation efforts. Holding a mindset of openness and inquiry is helpful for developing and building on ideas. Creative collaboration is essential for moving teams forward toward market introduction.

Each chapter of this book examines one of the important arenas of innovation:

Chapter 1: "Background" examines the definition and importance of innovation.

Chapter 2: "Innovative Mind" discusses varies mindsets which facilitate innovative thinking.

Chapter 3: "Building a Culture for Innovation" shows how to create an organizational environment that moves innovation forward.

Chapter 4: "Customer Focus" looks at the customer as the center of innovation efforts.

Chapter 5: "Process of Innovation" examines processes through which ideas become marketable products and services.

Chapter 6: "Creative Collaboration" lays out ideas which will aid groups in making innovation happen.

Chapter 7: "Future of Innovation" predicts new arenas in innovation.

Besides the texts, examples, and concepts of innovation, each chapter has these four additional sections:

- "Try This": Gives you homework you can try to create innovation.

- "Resource": Gives you the names of additional books or videos that explore the chapter's central concept.
- "Key Points": Summarizes five to ten key points from the chapter.
- "How Do You Rate": Provides a series of questions to ask yourself in order to evaluate your own or your organization's performance around the central concept of the chapter.

May you improve your own life and the lives of others with the ideas in this book!

Chapter 1:
Why Innovate

In 1949, Earl Bakken and his brother-in-law began to repair high tech medical equipment in a garage in northeast Minneapolis. At first, they had one hospital as a client; then they added several hospitals. Pretty soon, their work led to clients asking them to improve and modify existing products and design new ones. They designed these medical products to improve and prolong the quality of life for patients. They tinkered and innovated. Their business expanded to a second garage, then an apartment and soon Medtronic, today a Fortune 500 company, was born.

The Innovation Imperative

Why innovate? Because we have to. End of story.

Yes, it is a short answer, yet a true answer. Because we have to.

Okay. You bought this book, and expect a longer answer. So here's why. Because of what any newspaper says on a given day. Two wars in the Middle East still soak up tax dollars and lives. Global warming is rapidly changing the environment. Schools are failing. Childhood obesity is rampant. More manufacturing employees are being laid off as their jobs are outsourced. Nuclear waste piles up.

Asian carp are swimming up the Mississippi River, devouring everything in their path. The Sahara desert is expanding, lowland gorillas are disappearing, and mortgage holders are defaulting. Enough.

Is innovation the only answer to our problems? No, but innovation holds the keys to many possible solutions to the biggest challenges facing our world. Is it an easy answer? No, it also takes focus, perseverance and powerful thinking. But is it worth the effort? Of course it is. You cannot afford not to innovate.

"Innovate or fall behind; the competitive imperative for virtually all businesses today is that simple." (Dorothy Leonard, Harvard Business School)

"CEOs know that ideas and innovations are the most precious currency in the new economy and increasingly the old economy as well." (Hargadon and Sutton)

Do you want 287 more quotes? They are easily attainable. If you want more, Google (yes, I know that Google is not a formal verb) innovation or reasons for innovation. Or go to Wikiquote and ask for innovation quotes. But more quotes would make for a fairly boring and useless book. So, you will be spared.

Here are some more hidden reasons for you and your organization to tackle innovation.

- Innovation drives individual wealth in any economy, and provides ways to create new economic growth.
- An organization's human resources are its best real competitive advantage. Processes, technologies, capital, and products can all be duplicated.
- Employees who are allowed to innovate and be creative are happier and have higher morale. They use more of their inherent intelligence and feel as if they are genuine contributors. As the author/ researcher Csikszentmihalyi wrote, "Creativity is so fascinating that when we are involved in it, we feel that we are living more fully than during the rest of life."
- Do you want happier people? Spark their innovative imagination and allow them to be curious. Research on positive psychology, or happiness, suggests that curiosity increases happiness. Curiosity about the world, about products and processes, or about human motivation drives innovation.
- Asked to do more with less? Who isn't? Solution? You need to be innovative with what you have. Reduce cycle time. Eliminate steps in a process. Reduce energy consumption by

10%. Innovative processes will help you with that.

- The European Union decreed that 2007 was the year of innovation. Do you want to fall further behind?
- There are four kids in an attic in Bangalore, India who want your job and are working until late hours to take it away. They are probably working while you are watching *Grey's Anatomy* on television.

Besides being hard work, innovation is fun. The process enlivens and rejuvenates. It breathes new life into individuals and organizations.

World Challenges That Need Solutions

So I have presented many problems—why not solutions? Well, if I had some, I would be wealthy and retired rather than a college professor writing books. But let's look at some of these problems through innovative lenses.

Sources of Innovation

1. Unexpected Occurrences
2. Incongruities
3. Process Needs
4. Industry and Market Changes
5. Changes in Perception
6. New Knowledge

Peter Drucker, *Harvard Business School Journal*, 1985, "The Discipline of Innovation"

Global Warming. Combating global warming is going to spawn a wide range of new industries. In fact, I bet there will be a Marshall Plan developed against global warming. Grants, funds and market initiatives will flood the western world. There will be children's books, energy saving gadgets, better clothes lines (dryers consume way too much energy), warmer sweaters, more efficient modes of transportation, seminars, clubs, self-warming food, and many other products, services and initiatives.

Obesity. Type II diabetes is on the rise and threatening to bankrupt our entire health care system in years to come. New foods, new lifestyles, new diets, new exercise programs, new pills, new classes, new seminars, and new clubs will flood the landscape. Being Americans, we will look for easy solutions,

silver bullets to solve this problem quickly, efficiently, with no sacrifices on our part. Innovation is necessary.

Addictions. Our addictions are killing us: alcohol, drugs, video games, Ben and Jerry's. Most treatment programs are terribly expensive and very inefficient. Many of them are ineffective as evidenced by recidivism rates. Are there new processes, systems, or high-leverage points that will help bring this problem under control?

Shifts in Resources. Oil is running low, and there are fewer large discoveries. Currently, copper is in short supply in the United States, driving thieves to rip copper tubing out of abandoned houses and homes being built. Drinkable water has become a scarce commodity in many parts of the world, as has clean air. As some resources shrink, innovative thinking is necessary in order to find substitutes.

Environmental Pollution. The World Health Organization has decreed that 16 of the most 20 polluted cities in the world are in China. Eastern Europe, after the fall of the Soviet Union, was declared an environmental cesspool. Closer to home, all the manufacturing plants across the Rio Grande in Mexico are creating an environmental nightmare with higher rates of cancer and other

diseases. What innovations—air and water purification systems, or pollution abatement systems and processes—will save us from this?

Trash to Cash

Mike Biddles' plant in Richmond, California is overflowing with ground up old computers. Thousands of obsolete machines are piled up in towering stacks waiting to be recycled.

The mission: keep those PCs (and the lead, mercury, cadmium, and other toxic substances they contain) out of local landfills. It's a job that used to be considered undoable because the recycling technology just wasn't there. So Biddle, a chemical engineer who co-founded MBA Polymers Inc. eight years ago, invented it. Specifically, he figured out how to repurpose the plastics into durable good computers, appliances, even automobiles. Now this company has won a reputation as the most versatile plastics repurposer around.

"They're unique in their ability to take a very broad mix of recyclable materials, a mishmash of things, and turn it into a high value product," says Tony Kingsbury, an industry-affairs manager at Dow Chemical Company.

Inc. Magazine, p. 84

Advances in Technology. Each advance in technology—iPod, Internet, cell phones—opens up markets for a variety of other peripheral innovations. For instance, the ring tone industry, non-existent a decade ago, is now a billion-dollar business. The Internet has spawned a plethora of online businesses. Any new hardware creates a market for new software applications.

Demographic Shifts. The millennial generation thinks, acts and consumes differently from Generation X or the Baby Boomers. What new products or services do they want and need? Due to improved health care in developing countries, this newest generation is coming into the world with higher material expectations. The industrialization of India and China has created large new middle classes with higher standards of living. Meanwhile, as the Baby Boomer generation ages without dying, it will need new kinds of health care services.

Failing Educational System. Should learning be such a difficult, inefficient, and laborious process? Why do so many children fall through the cracks? Yet learning works in certain places. What processes and systems can work for children of many learning styles, backgrounds and abilities? What products, services and processes can speed the learning process while enriching it and making it more fun?

Your Life. Why shouldn't your life be more innovative? You could be healthier, wealthier, and wiser if you put some of these innovation principles to work for you. We all need to find new ways to improve living conditions and our own lives.

We must innovate! We must incorporate innovation into our organizational practices. We must maintain an innovative edge to stay competitive as individuals, as organizations, as a country. We must innovate to solve the myriad of societal problems that we face.

Try This! Low-Tech Innovations

Name three major innovations in the past 20 years. I suspect that you are like 90% of the people I ask this question to. You thought of the internet, cell phones, Blackberries, GPS positioning, iPod, and other high tech innovations. Let me suggest three low-tech innovations:

- *Starbucks*. Starbucks has created a third space, neither home nor work. It is not about the coffee. It is a sanctuary, a refuse away from the world. Meanwhile, other companies still ask: "Do they consume it at home or at work?"
- *Harry Potter*. If you or I went to a major publisher and said that we had a 742 page book for 12-year-old boys, the publisher

(continued)

Low-Tech Innovations (concluded)

would laugh us out of the building. But J.K. Rowlands carved out new market space in a struggling industry. Millions of boys and girls quit swimming, quit playing video games, and quit playing baseball to dive fully into this seven-book series. These kids, whom experts say cannot focus, clearly focused on these books.

- *Bagged lettuce.* When I was growing up, there was only leaf lettuce or head lettuce. But now. . .chop, chop, chop. Throw in some croutons and a packet of Caesar dressing, and for three dollars (same as a small mocha), you can have a ready-made salad. And millions are sold.
- You fill in this bullet point: What low-tech innovation has impacted you favorably?

Here's my point: by maintaining the mental model that innovations are high tech, you are letting yourself off the hook. After all, few of us will invent a Blackberry or an iPod. But we can still be innovators.

What is Innovation?

"Innovation is the practical application of creative ideas."

That is a good one-line definition for innovation. No one short definition captures all of innovation. Below are some more partial definitions of innovation.

- An innovator is a detective searching for a solution to a real problem, a perceived problem or an invisible problem.
- An innovation has the potential to make the world a better place.
- "To be effective, an innovation has to be simple, and it has to be focused. It should only do one thing; otherwise it confuses people." (Peter Drucker, "The Discipline of Innovation")
- "Today, innovation concerns much more than new product development. It is about reinventing business processes and building entirely new markets that meet untapped customer needs. Most important, as the Internet and globalization widen the pool of new ideas, it's about selecting and executing the right ideas and bringing them to market in record time." (Business Week, April 24, 2006)

- An innovation can be a product (iPod, double mocha skim latte), a service (text messaging, email addiction treatment), or process (new process for putting a product on the market in six months rather than two years).
- An innovation can be created by an individual, an organizational team or a team comprised of people from different organizations.
- An innovation can be a slight improvement on an existing product (cars with cup holders), service (coffee shop with a fireplace), or a breakthrough product or service that changes the nature of an industry (Cirque de Soleil, wireless).
- An innovation may take decades to commercialize (hydrogen cells) or days (viral marketing of a candidate over the internet).
- An innovation may save lives (new kind of heart stent) or take lives (more precise hand-held grenade launcher).
- An innovation can distract (instant messaging) or focus (eastern forms of meditation).

- "Radical Innovation" defined: An innovation that is life changing or society changing.
  - Does it have the power to dramatically reset customer expectations and behaviors?
  - Does it have the power to change the basis for competitive advantage?
  - Does it have the power to change industry dynamics? (Skarzynski and Gibson)
- "An idea doesn't become an innovation until it is widely adopted and incorporated into people's daily lives." (Art Fry, inventor of Post-it Notes, Fast Company, April 2000)

Innovation is all of these and so much more. Ask yourself: What innovations does your home or your industry need? How can you garner the resources to create it?

Myths of Innovation

1. **Myth:** Innovation is the domain of solitary creative genius.
   Reality: Innovation is the domain of all of us. If we wait for some lone genius to come up with an "aha" moment, we might go out of business.
2. **Myth:** Innovation is always high-tech and wireless.
   Reality: Innovation knows no bounds.
3. **Myth:** Innovation is chaotic and unpredictable.
   Reality: Innovation can be unpredictable, but there are processes and systems that can be put into place to encourage it.
4. **Myth:** Innovation requires millions of dollars of investment.
   Reality: Innovations can be expensive, but can also be done on a shoestring.
5. **Myth:** Innovation is about producing wild-eyed ideas.
   Reality: Innovation is about execution.

A Brief History of Innovation

Let's innovate. Innovation is wonderful; it produces wealth and creates jobs and pushes the economy to new heights.

Innovation: A Janus Proposition

Not so fast. Innovation brings medical advances, saves lives, generates jobs, and more. But the process of innovation is not totally positive. That is why I call it a Janus proposition; Janus was the Greek two-headed god who could look both ways. Innovation is also two-headed; it is neutral; how we use it adds or takes away value. Innovations can be created in order to cause pain; the unintended consequences of innovations can cause huge problems. I cannot tell the whole history of innovation, but I can tell some snippets from history.

A school child in the United States learns about the history of innovation by 8th grade. Gutenberg, in a drunken stupor, put together the elements of the wine press and paper, and invented the first printing press. Besides being a painter, Leonardo da Vinci invented many gadgets including a helicopter, other instruments of war, and was generally way ahead of his time. Fulton designed a steam ship, Elias Howe a sewing machine, and Jonas Salk penicillin. Henry Ford innovated automobile production with the assembly line. The Wright brothers, smart bicycle mechanics, invented an airplane at Kitty Hawk in 1908. (Of course, because of lack of space, books fail to mention that the Wright brothers were unsuccessful getting off the ground 47 times before

they succeeded.) The Curies invented radiation and both died of cancer. Surely you can expand this list.

The Combine

If only we could cut our wheat and thresh it at the same time. That was the imperative behind the development of the combine, which ranks as one of the most labor-saving inventions in agricultural history. The first successful combine, named after its combined functions of reaping and threshing, appeared in the 1830s, patented by a man named Hiram Moore. It was not until the 20th century, though, that the machine became practical enough to warrant widespread use. Moore's combine and others like it could harvest 25 acres a day by the mid-19th century, but they required teams of 16 or more horses and multiple farmhands to run. When gasoline-powered tractors arrived after the turn of the century, things became much easier and smaller, and nimbler combines began to proliferate. In the 1940s, self-propelled combines enabled just one man to harvest an entire crop, bringing about the modern age of agriculture.

Darker Sides of Innovation

Then, there is the history of bad innovations that are supposed to create positive results. Most textbooks do not include the following innovations:

- The Romans cut the Achilles tendon of conquered soldiers. These soldiers would never be able to fight Rome again.
- The Nazis created innovative ways of killing thousands of people at the same time by burning them.
- Catholic priests in the Middle Ages innovated and made themselves wealthy by selling indulgences. Such money making would make contemporary fundraisers green with envy.
- The Spanish conquistador Cortez landed near Veracruz, Mexico and after a short time of finding no riches but many mosquitoes, his men started grumbling and wanted to go home. To stop this line of thought, Cortez burned their five ships. "There is no going home, boys…." That innovation increased the level of commitment among his men.
- Napalm helped to burn the forests in Vietnam so the Viet Cong could not hide from American forces. It also burned people in the forests.
- The atom bomb saved a half a million American lives by bringing Japan to its knees.

- Many medical breakthroughs occur through testing of monkeys and other animals. Many monkeys died.
- And of course there are efficient lobotomies, which remove dangerous brains.

Thus the dark side lurks in the history of innovations.

Try This!

Trace important innovations in your organization. What innovations have been put into place, and how have they developed over time?

Innovations are not always about cardiac pacemakers or monkeys or napalm. Many of those innovations were on purpose; inventors set out to create a product for a specific task and were successful. Let us look at other ways that innovations happened.

"Name the greatest of all inventors. Accident." (Mark Twain)

Innovation by Accident

Many innovations emerge out of accidents. Ken Chowder documents the history of innovations through accidents. Yet, Chowder makes this most important distinction: Accident plus *reflection* and *observation* creates innovation, not just accident alone. For instance, Eli Whitney watched a cat pull bird feathers through a birdcage. (Poor Tweety bird!) Many people have observed this phenomenon and thought nothing of it. Eli Whitney saw an idea of how to comb cotton mechanically. Much labor was saved at the expense of one little bird.

Many innovations have come from accidents. Some of them are well known. A 3M scientist spilled some chemical on her new shoes, and it did not come off. Aha! Scotchgard was invented. Also at 3M, Art Fry developed a glue that did not stick very well; he thought about it and created Post-it Notes. 1928, Alexander Fleming left a window open next to a petri dish with a colony of bacteria. He looked through a microscope, but instead of seeing just another ruined experiment, he observed mold destroying the bacteria, and developed penicillin.

Then there was that French guy who got tired of pulling burrs out of his hunting dog. In his irritation, he developed Velcro.

The Pacemaker

How many inventors does it take to keep a heart beating? In 1932 an American scientist named Albert S. Hyman hypothesized that a man-made pacemaker could replace the electrical impulses from the brain that stimulated nerves in the heart. His invention resembled a miniature sewing machine that attached to the heart through wires inserted in the chest. By the late 1950s, Sweden's Rune Elmqvist and Ake Senning had invented a battery-powered pace-maker that could be implanted in the chest, and Britain's Wilson Greatbatch had come up with a casing to shield the heart from battery chemicals.

Since then technology has continued to improve, making the little machines as light as nine grams and able to run for months on lithium or nuclear-powered batteries. The result: more than half a million people have been fitted with pacemakers worldwide.

Other accidental innovations are not as well known:

- Percy Lebaron Spencer had 120 patents, mostly in the defense industry. One day, he walked by a magnetron, a machine used in radar. The candy bar in his pocket melted. He grabbed a handful of popcorn kernels

and put them in front of the magnetron—they popped! He invented the microwave oven.

- Pharmacist John Walker was mixing chemicals to produce a drug. Some of the mixture stuck to the mixing stick. He tried to scrape it off and it burst into flames. He called them "sulphuretted peroxide strikables." Granted, the name of his invention needed a bit of refining: matches.
- 11-year-old Frank Epperson left a mixture of soda powder and water that froze to a mixing stick. 20 years later he decided to add some flavors and lo and behold, we had the "Eppsicles." Again, the name needed some refinement—popsicles. He got royalties for 60 million of them. His innovation, of course, became more than a food: it became a way of keeping hot and tired kids from getting too ornery.
- And let us all give thanks to Tim Berniers-Lee, who was trying to figure out a way to organize his copious notes in order to keep track of his random associations. Today, we have the Internet. He was just being a self-centered researcher, yet his idea became the basis for something billions of people worldwide now rely on.

The key question we should ask ourselves based on looking at all of these examples is: *How we can refine our power of observation in order to see innovations instead of accidents, mistakes, or random occurrences?*

Innovation by Getting Into Another Box

Creativity theorists encourage people to "get out of the box." The theory is that while you are inside a self-imposed box, you will not invent anything new. So get out of that box. Yet an opposing theory, posed by Andrew Hargadon in *How Breakthroughs Happen*, suggests that getting out of the box is not as important as hopping into a different box. Hargadon goes on to suggest that innovations and new technologies come from a confluence of people, ideas, and objects from different boxes. "This book puts forth a counterintuitive proposition: that these entrepreneurs and inventors are no smarter, no more courageous, tenacious, or rebellious than the rest of us—they are simply better connected," Hargadon writes.

It's about networks. Breakthrough innovations cause new networks to happen. Whole groups of people, ideas and objects form new relationships overnight. These networks, the webs of significance we ourselves have spun, shape who we are and

what we think. Hargadon calls these "networks of possible wanderings."

Let us look at some examples. "The Internet grew out of an initial combination of computers, networking technologies, and communication protocols, to which optical fiber, network servers, local networks, mail servers, modems, personal computers, desktop applications—such as e-mail, and Web browsers—have been added." (Hargadon, p. 9) Items from many boxes combined to create the Internet.

Another advanced technology—for its time—was the telegraph, the Victorian Internet. The first telegraph (1774) was a set of 26 conductors. New ideas about electricity and insulating wire were added. In 1837, Samuel Morse had dots and dashes. Then, an operator was added. Finally, Edison sent the messages further and faster. Clearly, without these innovations many years earlier, the Internet as we know it today would never have been conceivable.

The Mall

Merchants have clustered together ever since they started laying out arrowheads on animal skins, so defining what constitutes the first modern shopping center has been a matter of fierce debate. We'll define it as retailers gathering in a unified site operated as a single unit—with lots of free parking. And we'll go with J.C. Nichols, who in 1922 built the Spanish-style Country Club Plaza in Kansas City, Mo. (still thriving). Shopping centers truly exploded in the 1950s and 1960s as downtown stores opened branches, then picked up and moved there altogether. The malling of America began in Edina, Minnesota in 1956, and the nation's largest, the 4.2 million-square-foot Mall of America, stands just two miles away in nearby Bloomington. Now, we have "festival marketplaces" like Faneuil Hall in Boston; "vertical malls" like Water Tower Place in Chicago; "power centers," anchored by a Home Depot or Toys "R" Us, and factory outlet malls like Sawgrass Mills in Florida. All, of course, have plenty of parking.

As Hargadon concludes, "invention finds its distinctive feature in the constructive assimilation of pre-existing elements into new syntheses, new patterns, or new configurations of behavior." The

steamship was, according to most textbooks, invented by Robert Fulton in 1807. The original idea was proposed in 1543. Commercial efforts began in 1707. "The components of both the steam engine and the ship's design drew from a continuous and incremental line of technological predecessors, each improving on the last. (Hargedon, p. 32)

How about the Reebok Pump athletic shoe? One designer had created inflatable splints. Two others had worked on medical IV bags. Several others had worked on diagnostic instruments. The result: inflatable air bladder with mini pumps, tubes and valves.

Two of the most famous combinations of boxes emerge from Thomas Edison and Henry Ford. Edison's system of electric lighting combined elements of the telegraph, the arc light, and the existing gas lighting industry. Edison's mimeograph pen borrowed the mechanics of high-speed telegraph repeaters. (Hargedon, p. 24)

Henry Ford sent two of his top engineers to the stockyards in Chicago. They found that the stockyards processed pigs in an assembly line fashion. The carcasses slid down the line and pieces were cut off and processed in sequence. Henry Ford allegedly stated: "What is good enough for pigs is good enough for cars." Soon afterwards, assembly lines were born. (Hargedon, p. 43)

Innovation by Those Outside the Field

In many instances, people outside of a particular field produce innovations. For instance,

- The ballpoint pen was invented by a sculptor.
- The parking meter was invented by a journalist.
- The Wright brothers were bike mechanics, not aeronautical engineers.
- Kodachrome film was developed by a musician. (source unknown)

Sometimes those inside a field or domain are so glued to existing systems and processes in place that they fail to see new possibilities. Futurist Joel Barker calls this "being stuck in one's paradigm." A paradigm is the rules of a given systems—the way things work within that particular domain. People living in a defined paradigm accept rules as they are. People outside the paradigm see the world differently, and are not bound by those same rules. Looking at the world differently, they can be more open to possibilities in new innovations.

Resource: *Innovation at the Verge*

Innovation at the Verge is a video written and produced by Joel Barker. This video shows how many innovations emanate from the confluence of two ideas. For instance, gift bags emerged at the confluence of gift wrap and brown paper bags. This video pushes viewers to examine the verges around them. It gives viewers tools to use to build the innovation capacity in their organizations.

The First Step in Innovation

What is the first step in the process of innovation? This question is worth 80% of your grade.

- Brainstorming? Wrong.
- Asking the customer? Wrong.
- Having a brilliant idea? Close, but wrong.
- Setting up a manufacturing site in China? Wrong.

Okay, the right answers include all of the following: forget, unlearn, destroy, dismantle, and undo creatively. Huh? Yes, you heard me. To innovate, you must get rid of the old.

An old story goes like this. An intelligent, rich man visited a wise eastern guru. "I want to be your student," he told the guru. "People have said that

you are very wise." The man went on to tell the guru about all of his accomplishments. The guru looked at him thoughtfully. He offered the man tea. He began to pour the tea. And he kept pouring the tea, even as it overflowed the cup. And he kept pouring, even as the rich man tried to intercede. "You can't pour tea into a full tea cup." "Yes, I know," replied the guru. "But teaching you would be the same thing."

You cannot add more to an already full vessel. In order to make something new, you have to get rid of old forms. In order to create a new business process, you have to be ready to abandon the old process. That is why, as Jim Collins, author of *Good to Great*, states that good is the enemy of great. If something is working well, why change it? Leave good enough alone. But you have to be willing to destroy, throw away, abandon, leave behind, or blow up the old before you go on to something new.

Try this: Stop doing!

To be innovative means letting go of the past and making space for the future. How can you do that?

- What should be on your "stop doing" list? What are you doing regularly that is not adding value for anyone?

(continued)

Try this: Stop doing! (concluded)

- What processes—evening routines, weekend mornings, making dinner—are you stuck to? Which are you willing to give up in order to innovate?
- What are you willing to get rid of in your life?
- What are you willing to unlearn or forget? Often, to learn something new, one needs to unlearn something. Before one embraces the world as round, one needs to let go of the belief that the world is flat. This author needs to unlearn some cooking in order to improve my skills in that category.
- What can you destroy first in order to create something new?

If you did not like the last story, here is another one to intrigue you. Let me quote the organization theory writer Karl Weick:

> In 1949, 13 firefighters lost their lives at Mann Gulch, and in 1994, 14 more firefighters lost their lives under similar conditions at South Canyon. In both cases, these 23 men and four women were overrun by exploding fires when their retreat was

> slowed because they failed to drop the heavy tools they were carrying. By keeping their tools, they lost valuable distance they could have covered more quickly if they had been lighter (Putnam, 1994, 1995). All 27 perished within sight of safe areas. (Weick, 1996)

They had been trained to keep their tools with them. They could not let go of these tools. Sadly, they died. The first step of innovation is "letting go." What are you afraid of letting go of? And by hanging on to that, what opportunities are you not taking?

The Japanese were able to be innovative in terms of quality processes and procedures after World War II. After having all of their major cities bombed, they were starting from scratch, from nothing. They embraced total quality management under W. Edwards Deming. It took decades for the United States to do the same. Why? Because we already had manufacturing in place, intact, that worked well enough to remain competitive in world markets.

This "letting go" is a difficult step. The trapeze artist must let go of one trapeze before being able to grab the next one. For an instant, she or he has nothing to hold on to. For an entrepreneur, that instant may go on for months or years. And sometimes, we need to be wedged away from what is safe because of our attachments.

"Destroy, Dismantle, Unlearn, Forget!" Perhaps this isn't the mantra you were expecting. But it's a requirement for innovative thinking.

Key Points

- The first step in the innovative process is letting go of the old or the willingness to do so.
- Innovation can be defined as the practical application of creative ideas.
- Innovators have been with us since some caveman chiseled out a wheel. Innovation has occurred as a result of two fields emerging, accidents, dreams and intuitive flashes.
- Innovations can be good (new medicines) or bad (gas chambers).
- Innovation can be fun—it involves detectives searching for solutions to pressing problems.
- Most innovators have passion for their work.

Innovate Your Life

Do you innovate in your life?

- ❑ I attempt to regularly establish new friendships.
- ❑ I try new types of entertainment and food.
- ❑ I read magazines outside of my field.
- ❑ I am curious about how things work.
- ❑ I find new places in my community to visit.
- ❑ I like to scan new books at my local bookstore or library.
- ❑ I seek out interesting people to talk to.
- ❑ I am regularly trying to improve products and processes.
- ❑ I like to create interesting presents for friends and family.
- ❑ I know of ways to make the world better.

How many of these can you check off?

Chapter 2:
The Innovative Mind

> *"Our business needs a massive transfusion of talent, and talent, I believe, is most likely to be found among non-conformists, dissenters, and rebels."*
>
> David Ogilvy

Here's a paradoxical question: Are innovators born or are they made?

Innovation is not an event, it is a mindset. So, what is the exact mindset of an innovator? Since innovators' mindsets are very diverse, there is no one answer. Two dashes of Gates, add a cup of Einstein, throw in a tablespoon of Ford, and simmer in Edison's lab for a couple years, and—Voila! You have a bona fide, guaranteed innovator.

So what is the answer to my question: Are innovators born or are they made? An astrologer might say that a person with their sun in Cancer and moon in Aries might have a better chance at being an innovator than one with, say, a sun in Virgo and moon in Scorpio. A psychologist might say that a person with a Myers Briggs of ENFP might be naturally a better innovator than an ISFJ. A psychologist might also look at birth order, or how dysfunctional the family of origin is, or at what age the child was toilet trained. A sociologist might look at the culture

and ascertain whether it supports innovation or not. But there is no sure recipe.

Innovative Traits

Regardless of whether innovators are born or made, many of them have traits that push their innovation abilities:

Curiosity. Innovators and creators are curious about their world. They look below the surface of life. They do not ignore gaps in their own knowledge, but explore these gaps and attempt to fill them. Why is the sky blue and why is the river green? Why can't we administer drugs more safely? Does the earth have to heat up so fast?

Let me tell you about one innovator, Roger, who lives in the Seattle area. He has dozens of inventions. He has a radiant heating device that is based upon lobsters' eyes. He was walking along the wharves of Seattle once and started looking at the eyes of lobsters. How *do* they work, he pondered. He tore through encyclopedias trying to figure those eyes out. He replicated some of the principles in developing his heating devices.

Risk taking. Innovators are appropriate risk-takers. I say "appropriate risk-takers" because, contrary to myths, innovators often roll the dice and occasionally win. Some do. Walt Disney went bankrupt six

times before he made it. He was willing to risk bankruptcy again and again. The same for George Macy of Macy's Department Stores. In an incredible risk-taking episode, Fred Smith of FedEx reportedly gambled with his last $1,000 in Las Vegas in order to make payroll for his fledgling company. Most innovators are not reckless; they are thoughtful and rational. They are willing to put years of hard work into inventions that may or may not work out.

But at the root, there is a belief in themselves. Innovators are willing to gamble on their own ideas and schemes. Innovators often see the upside of their work long before they see the downside. Sometimes they see the upside unrealistically, but they see the upside. Many of them are serial innovators who have failed and survived. So, failing is not such a downside after all.

> "From cradle to grave the pressure is on: BE NORMAL. . . The trouble with this is that corporate normalcy derives from and is dedicated to past realities and past successes. There is no room for… original thinking." (Tom Peters, management guru)

Assumption challenging. We walk through life unaware of many of the assumptions that are embedded in our reality: automobiles have four wheels, pens use ink, colleges need classrooms, etc.

Innovators routinely question assumptions that others take for granted. Once upon a time, radios "needed" large cathode ray tubes. Now they do not. One needed to attend a university in person, on campus during weekdays, in order to obtain a degree. Not so any more. A car could not run on electricity. Now all of those assumptions have been challenged successfully. Who said people won't pay $4.00 for a cup of coffee? They will. Who said people wouldn't pay to work volunteer jobs in other countries? They will.

- For successful innovators, questioning assumptions is part of life. There can be large upsides to the process of assumption-testing. It can be annoying to others who are asked questions like: Why can't broccoli have paprika?
- It can save money. (Why can't that process only take five steps rather than 12?)
- It can revolutionize industries. (Why can't music be downloaded, saved, and played digitally?)
- It can make a joyful and sane workplace. (Patagonia asked: Does work have to be oppressive and drudgery?)
- It can make millionaires. (Why do bookstores need shelves and retail space?)

- It can save lives. (Why does river blindness have to be a way of life in Africa?)

Change agent. Innovators are, by nature, change agents. Innovations change lives, change workplaces, change power relationships, and change perspectives on the universe. Therefore, innovators embrace change and, by their work, push others to do the same. Art Fry of 3M made it possible for me to evolve from paper clips to post it notes. That change does not radically change my life, but it does make doing work easier. Howard Schultz of Starbucks created a place for me to write books, away from the distractions of home and work. He changed the way I do work.

Change agents are not afraid of going up against the status quo. Martin Luther King wanted to change the status quo. So did Nelson Mandela. So did the creator of the Segway. But change agents are not always popular; in fact, often they are not. They rock the boat, and some people in the boat just do not like to be rocked. As change agents, these innovators are not afraid to explore new territory. Often, they have to drag others, kicking and screaming, with them.

Doing the Undoable

Henry Ford asked his designers to come up with an eight-cylinder engine. "That's impossible," they answered. "It can't be done. An engine that powerful is only a fantasy."

"That's fine," Ford answered. "Now go and do it anyway."

Tolerance for ambiguity. Innovators can live in the unanswered question better than most of us. They tolerate the ambiguity of the unknown. Answers might not be readily available, and that is fine with them. They find tension of "not knowing" to be neither dangerous nor unsettling. As a result, they can live at the fringe of processes, procedures, and ways of life and see possibilities that others cannot see. This is the hallmark of an innovative mind.

Innovators often understand that every change looks like a failure at some point. They don't judge scary moments in between –such as bankruptcy— as failures, but rather as possibilities. Tolerance for ambiguity is a great attribute to have in times of change. We do not know what lies around the corner. In this way, innovators are out ahead of most of us. During their process of invention and innovation, they have learned patience about not being able to predict the outcome of their efforts.

> "You have to be open to the unexpected, so that, if you come upon a discovery, you'll recognize it and act upon it." Stephanie Kwolek, Chemist, *Fast Company*, April 2000.

Passion and joy. Some evidence suggests that innovators and creative types are suffering and unhappy. A few, like Virginia Woolf and Ernest Hemingway, end up committing suicide. Others, like Edgar Allen Poe, drink themselves to death.

Actually, most innovators are joyful about of life. This emerges out of their passion for their work. Many authors and artists talk about the joy of practicing their craft, the long hours absorbed in their callings. Employees that work for innovative companies like Patagonia, IDEO, and Ben and Jerry's often talk about the joy in their work. For most innovators, the excitement of creating something new blossoms into joy.

Persistence. Many successful innovators are serial failures. They go out of business, create inventions that do not work, and sell to the wrong markets. They squander money, use up friendships, stay up until the wee hours, are overfunded or underfunded, or plagued by bureaucracy. And yet, they persevere. They keep walking uphill, through the snowstorm, against the wind, without boots. Art

Fry was initially turned down by the 3M marketing department for his Post-it Notes idea. Scientists have been working on hydrogen cell energy for two years without profit.

Fill in the blank. Yes, you, dear reader. What traits do you think are necessary for innovators? There are many others that are helpful: being organized, being well-connected, having suitable resources and support, and understanding thoroughly an industry.

Thinking Skills for Innovators

Building thinking skills allows for more capacity for innovation. These skills are broad, and each deserves several books themselves. Would-be innovators should focus on developing some of these.

Creative thinking. This one is obvious. One has to think outside of the box. One has to engage in lateral thinking. That is, as one's mind wanders down railroad tracks, it needs to be derailed and set off in different directions. The mind needs to take a different perspective. Many "creativity" exercises are designed to take us off our current tracks and down some unique ones. A cook tries a different combination of spices. A parent puts together a surprising series of challenges for a birthday party. The author

of the Aragon series of teen books takes his readers into an exciting new world. Disneyworld and Disneyland transport us to a creative fantasy with unexpected twists and turns.

Try this!

Build your own creative capacity:

- Quickly write down all of the uses of a plain brick.
- Ask 25 questions about the tree outside of your window.
- Read magazines outside of your field.
- Drive a different route to work today.
- Keep a journal of creative and innovative things that you see.

Creative thinking is a complex topic. According to the Creative Problem Solving Institute, creativity encompasses six key characteristics:

- Fluency: the ability to generate many ideas quickly
- Flexibility: the ability to respond in a variety of ways to a variety of situations
- Originality: the ability to develop new and unique ideas

- Elaboration: the ability to build upon an existing idea
- Sensitivity: the ability to formulate the right problem
- Freedom: the ability to release oneself from internal biases

If you develop all of these abilities, you will be a very powerful person. Of course, many of these characteristics are ideals—good luck, for instance, freeing yourself from internal biases. That is a lifelong spiritual goal for some.

Creative people develop one of more of the abilities I outlined. For instance, I know a man who listed 120 uses of a brick in 10 minutes. Now that's fluency. Barnes and Noble's Bookstore has taken the old "we just sell books" and elaborated on it: music, gifts, high-end chocolate, coffee, comfortable chairs, French Club meeting place, author's reading, child-friendly reading area, and so on. This is clearly not your grandfather's bookstore.

Systems Thinking

"The world we have made as a result of the level of thinking we have done thus far creates problems that we cannot solve at the same level (of consciousness) at which we have created them. . .. We shall require a substantially new manner of thinking if humankind is to survive." Albert Einstein

As Peter Senge describes in *The Fifth Discipline,* systems thinking is wide-angle vision rather than telephoto vision. It looks at the big picture and all of the interconnections rather than a narrow sliver of reality. Systems thinking is a way of looking at the world where relationships, patterns and interrelationships become primary. Several principles of system thinking are important for innovators.

Law of Unintended Consequences. Quick fix solutions for problem symptoms often lead into other problems. The best way out of a hangover is another beer, but that will lead back into the original problem. The unintentional consequences of overindulgence in greasy fast food can be gall bladder failure. An unintentional consequence of texting has been traffic accidents. The spraying of DDT for pest control almost annihilated the majestic bald eagle in the United States.

What are the unintended consequences of your innovation? Will it create problems elsewhere? Will it have deleterious effects on other parts of your product line and cannibalize other sales? We cannot always predict the unintentional consequences of innovations, yet we can look ahead and try to map them out. This discipline could help us foresee future impediments.

Lag Variables. One systems truth says that "cause and effect are not related in time or space." Cause and effect are punctuated by time and space lags. Advertise now and maybe get sales results in six months. Investment into research and development might not pay off for years. A nuclear accident like Chernobyl killed reindeer thousands of miles away and created birth defects in children years later. My craving for sweets will create dental problems for me many years up the road. Policies made in Washington today will have implications for people in rural Afghanistan for years to come.

Innovators need to experiment with time. They must have patience, because their innovations may not be readily accepted. Many artists and inventors were unknown during their own times; only time and history bore out what they were trying to accomplish. Innovators in art and science, but also business, are often way ahead of their time. The world often needs time to catch up.

Innovators can learn from previous innovators about the spread or acceptance of an idea or new product. Often, that data is available. But more important, the innovator needs the mindset that the world does not always work in a linear cause-and-effect fashion. Instead, the effect to a cause might come years later or in an unexpected place. Thus, innovators must embrace mystery: we may never know how things will turn out.

Event/Pattern/Structure. Many go through life with an "event" orientation. Here an isolated event, there an isolated event. Innovators must look past the superficiality of events to the pattern beneath events and to the structure creating patterns. Isolated events in my life were a broken finger, a pulled muscle, and a black eye during consecutive soccer games. I looked at them as just events. Yet, the pattern was that these injuries happened every Sunday, as I played goalie. What was the underlying structure creating this pattern? I was a 47-year-old playing in a 22-year-old league; injury was a high likelihood.

Similarly, I had a boss whose wife would call in sick for him on Monday mornings. The pattern was that this event would occur mostly on Mondays. The structure? He would drink too much on weekends and would not have recovered by Monday.

Innovation opportunities can be found when looking at patterns and structures. Decades ago, General Motors noticed a pattern that farmers were tearing the backseats out of their cars in order to carry big things. An innovator thought: let's build a pick-up. Some plastic manufacturers noticed a pattern that toddlers spill their milk. How about a cup with a top? The sippy cup was born.

Problems or Problem-Symptoms. Products and services on the market often solve symptoms rather than problems. Headaches, for example, are

often symptoms of neck or shoulder stress. Aspirin helps the short-term pain, but what will treat the real problem that causes headaches? Many research dollars on health care over the past 50 years have been funneled into curing cancer. But some innovators are looking hard at social psychology principles in order to influence lifestyle changes that will *prevent* cancer.

Innovators look at major problems and see symptoms being treated. Addressing the real problems can reap large profits and help numerous people. It requires the brain of a detective and an inquiring mind. The first step, again, is a change of mindset. What is the problem and what is the problem-symptom?

Seeing the Connections. Systems-thinking is about seeing connections and interrelationships. Can there be a connection between coffee shops and bookstores? Is there a connection between driving an SUV and icebergs melting? How about a Romanian orphanage and a childless family in Chicago? I can guarantee there are connections between some of my great grandfather's attitudes toward woman and my own, unfortunately.

According to Thomas Friedman, the world is flat. The flattened world makes for more possible connections and interrelationships. As Friedman writes, the components for your Dell Computer originate in 13 different countries. Seeing connec-

tions before others can yield large results and profits, and many multinational companies see just that.

Emotional Intelligence

Psychologist Daniel Goleman's research suggests that that 85% of a person's success in life is due to their emotional intelligence. Innovators are not immune from this research. Innovators need to work through other people to make their innovations marketable or usable. They also need to understand themselves better: their own moods, their own work cycles, and their own trigger points. Emotional intelligence encompasses many traits. Let's examine several important ones.

Self-Understanding. The platform upon which much of emotional intelligence rests is self-awareness, or self-understanding. Here's one question that I ask all of my clients: "How are you showing up in the world?" Sounds like an easy question, right? Not really. Many people do not know how they are showing up in the world. People come across as depressed, angry, sullen, aloof, and agitated, but often do not know it. I have had a colleague who was constantly angry, and others just did not want to be around him. I know another who is constantly sullen and unhappy, and people try to avoid her. These moods can be off-putting to others.

To innovators who have to sell their ideas to others, how they show up may well be the margin between success and failure. At the very least, an innovator needs to show up as self-confident, rather than tentative, doubting or just plain aloof.

The road to self-awareness can be tough, but is usually very rewarding. Obtaining feedback from trusted others is one method. "How did I show up in that meeting? Was I too aggressive?" Participating in twelve-step groups and therapy groups is another way to raise one's self-awareness. Watching one's moods and triggers, taking deep breaths, and taking moments of reflection can also reveal patterns of emotional states.

Many inventors and innovators are known for low emotional intelligence. Stories abound about innovative company presidents having temper tantrums and berating employees. Books about inventors create a myth that innovators folks are antisocial eccentrics who expect others to walk around on eggshells around them. Some brilliant innovators who make or save millions may get away with this type of behavior, but most of us mortals cannot. The world will walk away from difficult people.

Trigger Points. Most humans acquired pain in childhood, and those pools of pain remain with us, sometimes throughout our lives. Other people's words and actions can trigger them. For instance, receiving a parking ticket might trigger "how can I

waste money like that? I am bad." I have a pool of pain around "no matter what I do, it is not enough." So, when I make an elaborate meal and a child says "can I have a bagel, dad?", that pool of pain is activated. A friend of mine, who never had children, could never sit behind small children at church without evoking her "no children" pool of sadness.

Trigger points can send us into sadness, depression, anger, or shame, or conversely, into joy, comfort or happiness. (When I hear the Grateful Dead, I fondly reminisce about trucking around in Montana as a teen.) An innovator needs to be self-aware enough to know when he or she is falling into a non-productive stage, and be able to reverse it. . If certain people trigger thoughts or emotions that reduce productivity by taking one into a depression or sadness, then those situations must be avoided. It behooves innovators to know their trigger points.

Assumed Constraint. A circus elephant is put on a ten-foot chain on a stake for the first year of its life. After that, the chain is exchanged for twine. The elephant will still not go more than ten feet from the stake. The elephant is limited by an assumed constraint, believing that the chain is still holding it in place.

People are not much different—we assume constraints that may not be entirely accurate, such as:

- I cannot garner enough resources to get this product on the market.
- Management will never support launching this new product.
- I am not smart enough to write a book.
- I am not experienced enough to make a contribution in that industry.
- There is not enough time to innovate effectively.

These constraints have been shattered by a variety of people and organizations. Innovators are the ones shattering these constraints.

Resilience. One of the key traits of an emotionally intelligent person is resilience. The human condition is one of failure and adversity. It is not about getting knocked down; it is about how fast you are able to get back up. What do these numbers mean: 6, 7, 22, 47, 128, 903, 1,330? Give up?

- 6 = number of times Walt Disney went bankrupt before he made it.
- 7 = number of times George Macy went out of business before he was successful.
- 22 = number of publishers who rejected Dr. Seuss's first book.

- 47 = number of times the Wright brothers did not get off the ground.
- 128 = number of short stories Ernest Hemingway wrote before one was published.
- 903 = number of light bulbs designed by Edison's team that did not work.
- 1,330 = number of times that Babe Ruth struck out in his career.

Inventors and innovators have to be resilient, because first efforts rarely succeed, nor do second efforts. So, do you fold up after a failure, or do you get up and move on? In some ways, this might be the most important emotional intelligence trait for an innovator.

Like all of the emotional intelligence skills, resilience IS a thinking skill. While some people separate thinking and emotions into separate realms, they are intertwined and often one and the same. Our thoughts determine our level of resilience. What we tell ourselves about adversities and failures determine our future actions. If we fail a math test and tell ourselves that we are bad in math, that experience will probably set our destiny in the world of numbers.

Self-Motivation. Individuals who are unmotivated are not are not likely to be innovators. Because innovation requires change and shaking up the apple cart, people with a status quo orientation are not typically innovators. Innovators tend to be self-starting and self-motivated. They also must embrace delayed gratification. The fruits of their labors do not come readily; usually a time lag occurs. Many, if not most, innovations require patience and many renditions (e.g., Edison and light bulbs). Remember that Earl Bakken worked out of his garage for seven years before seeing some of the fruits of his labors.

Beyond delayed gratification, innovators need to be optimists. Optimists see setbacks as little bumps; pessimists see obstacles as permanent or long term. Innovators are optimists in that they need to believe in their own talents and in their abilities to have an impact on the world. They wake up with the self-motivation that they can succeed in a world that will allow for successful innovation.

Relationship Management. The myth of the Lone Ranger innovator does not work in our complex world. Yes, a crotchety, annoying inventor or innovator might be able to be successful, but only if she or he has someone to run interference and navigate relationships for him or her. After an idea is hatched, product designers, accountants, manufacturing engineers, marketers, and salespeople have to push

it into the marketplace. These people need to be sold, nurtured, brought along, communicated with, and kept in the loop. The innovator needs to consciously build relationships with these individuals. They are as much of success factors as the "great idea." Some innovators, like Picasso, could work almost in a vacuum. But many musicians and other artists employ handlers who take care of relationship management for them. Most innovators need to work within the bounds of organizations, with all of their constraints, departments and personalities. Innovators need to play nice in the sandbox in order to be effective.

Critical Thinking

Critical thinking is having a critical eye for information and knowledge, and knowing how to use those precious commodities, not about being critical of others. "What do we know and what do we not know?" is a central question for critical thinkers. *What* are the gaps in our knowledge? Critical thinking entrepreneurs are always looking for gaps—gaps in product offerings, gaps in service needs, and gaps in information available. "There might be a market there" is not good enough for putting years and millions of dollars into a product. A corollary of this principle is differentiating between observation and inference. How are our minds filling in the gaps of what we do not directly

observe? For instance, there was not an observation that millions of people would frequent coffee shops with high-quality coffee. But the founder of Starbucks thought that there might be one. And he was right.

Although one might consider critical thinking to be something we do as freshmen in college, I find it sadly lacking at all ages. Individuals fall into a variety of thinking traps, many which are conditioned at childhood. The first step in improving one's critical thinking is to recognize our flaws, our gaps, our dysfunctional thinking. Then, we can consciously observe when our thinking goes awry and we fall into non-optimal patterns of thinking. We can only correct ourselves when we are self-conscious. This process requires feedback from others.

Most importantly, innovators need to engage constantly in evaluative thinking. Innovators need to take a critical look at their innovations on a continuing basis. The innovator who developed the concept of combining a bowling alley and a movie theatre was not critically assessing the function of sound in each. The founders of a nationwide donut chain were not critically assessing the forces against obesity. Does this work? Is this really marketable? Can manufacturing really build these rapidly? If not, innovators will waste much valuable time.

Resource: *A Whole New Mind*

Read Daniel Pink's *A Whole New Mind*. This author suggests that left-brained jobs will be taken over by computers and countries with lower labor costs. Pink argues that the youth of the western world should be educated for the work of tomorrow in six different ways:

Design. Today it is economically crucial and personally rewarding to create something that is also beautiful, whimsical, or emotionally engaging.

Story. The essence of persuasion, communication, and self-understanding has become the ability to also fashion a compelling narrative.

Symphony. What's in greatest demand today isn't analysis but synthesis—seeing the big picture and crossing boundaries, being able to combine disparate pieces into an arresting new whole.

Empathy. What will distinguish those who thrive will be their ability to understand what makes their fellow woman or man tick, to forge relationships, and to care for others.

Play. In work and play, there is need for play. The current younger generation is been brought up on computer simulations and learns well in that mode.

(continued)

A Whole New Mind (concluded)

Meaning. We can pursue more significant desires: purpose, transcendence, and spiritual fulfillment.

Key Points

- An innovative mindset builds on these thinking skills: creative thinking, systems thinking, emotional intelligence, and critical thinking.
- There are many ways to build these thinking skills; they can be developed at most stages of life.
- An innovative mindset contains curiosity, risk taking, passion, persistence, assumption challenging, being a change agent, and having a tolerance for ambiguity.

Chapter 3:
The Innovative Culture

> *"Corporations spend a lot of money encouraging people to be creative, while tacitly ensuring just the opposite."*
>
> Arno Penzias,
> New Partner Enterprises

Imagine an organization where employees take risks without fear of reprisals, and where employees can daydream or engage in creative brainstorming for hours. Imagine a room where all kinds of materials are readily available for tinkering. Imagine an organizational culture where innovation is a high priority. Imagine a playful, low-stress environment where people love to work.

For innovation to thrive, it has to become part of the DNA of an organization. Sadly, many companies relegate innovation to a few people over in product development. A truly innovative culture requires much more. In this chapter, we will look at how to build a truly innovative culture.

Attributes of an Innovative Culture

No two innovative cultures are alike. There is not a direct formula that will take you to an innovative culture. Some attributes, however, make a culture

more likely to support innovation. These attributes fall into two categories: psychological environment and physical environment. We will start with the psychological environment.

Failing Forward

In an innovative culture, failing and learning from failure are encouraged. Risk taking is encouraged. Experimentation is encouraged. Following clues into new territories is encouraged. As we have seen, the lives of entrepreneurs and innovators, over the ages, are littered with failures. From painters tearing up their works to bankrupt businesses to inventions that no one wants, the road to innovation is not all iPod-like success. Many clues lead to dead ends.

An innovative environment encourages and embraces mistakes. In the early days of Apple Computer, Steve Jobs allegedly told his managers, "You are going to have to try new things because we are growing so fast. I do not care if those things fail. Just change them if they do fail." In many cases, such as the fast growth of Apple in the early 1980s, the old ways of doing things don't work. New things need to be attempted in order for the organization to move forward. Many initiatives fail. If those who try new processes or procedures are punished for failing, the culture will be markedly risk avoidant.

The other part of this "failing forward" equation is the forward part. What did we learn from that experiment? Thomas Edison did not give up after 900 failed light bulbs. He allegedly said: "I now know 900 ways not to make a light bulb." He learned from those mistakes. One large computer company had a black book that documented errors that the company committed in similar previous projects. They regularly read the errors aloud and laughed at themselves. In this way, they had a smaller chance of committing the same errors over again.

Idea Killers

"We tried that 23 years ago and it did not work."

"I built that system myself- 18 years ago."

"Our competition hasn't introduced that product—why should we?"

"That product will never fit our margin guidelines."

"Leave the innovations to Product Development people."

"We are going to table it for now, but keep thinking."

"Does it really fit with our core mission?"

"That wouldn't fit in our accounting system."

Yes, and. . .

"Yes, but…" is a common-yet-poisonous phrase:

- Yes, it is a good idea, but we have no budget for something like that.
- Yes, it is a good idea but it would never work here.
- Yes, it is a good idea but management would never buy into it.

An innovation culture changes *yes, but* to *yes, and*. It is a subtle change that renders large results. *Yes, but* ends a conversation and kills a subject. *Yes, and* encourages finding ways to make something happen. It invites others to build upon an idea. Training employees to say *yes, and* may seem foolish, but it is one step that can yield large results in creating an innovative culture. Otherwise, employees revert back to critical assessments. We are trained more in those critical responses than in build-up responses.

Barriers to Innovation

"We tried that 23 years ago and it did not work."

"I built that system myself- 18 years ago."

"Our competition hasn't introduced that product—why should we?"

"That product will never fit our margin guidelines."

"Leave the innovations to Product Development people."

"We are going to table it for now, but keep thinking."

"Does it really fit with our core mission?"

"That wouldn't fit in our accounting system."

A Challenge-Based Culture

An innovative culture requires that employees challenge assumptions and question the status quo. A fear-based culture does not allow those practices. In some organizations, it may be political death to continually ask questions like:

- Why does that process take 14 steps?
- Why are we using aluminum in that product?

- Why is the sales force structured that way?
- Why do we have to fill out that form?

In innovative cultures, these questions lead to cost savings, efficiencies, and innovations. Innovators challenge the industry orthodoxies. They eat sacred cows. They test assumptions ruthlessly. They ask "Why?"

Examine the insurance industry, for example. If you wanted to buy insurance years ago, you had to have a rep come to your house, take down two hours of data and then get back to you in a month or so with a quote. Now, you can go online and fill out the information, submit it, and have an estimate in about ten minutes. What is more, you can have comparative quotes from other insurance companies also.

What is important in a culture that encourages challenging the status quo? First, it must be a trust-based culture. Employees must trust that they will not be punished for challenging a way of doing things, or an existing policy, or even the ideas of their superiors. They must trust that management will see such challenges in the light of an innovative spirit that welcomes the clash of ideas.

Second, it must be a high-dialogue culture. Employees must be trained how to discuss and dialogue ideas fully, building on each other, and constructing the truth creatively. Ideas are built on and worked with rather than attacked and destroyed.

Instead of a right/wrong culture, it is a culture with many owners of partial truths. Discussions are used for bridging and adding, not staged as battles with winners and losers.

Third, it must be a flat culture where hierarchies, or perceived hierarchies, are not entrenched, where the ideas of management and employees combine and combust freely. Great ideas rarely flow from employees who "know their place in the world." Committees and task forces are composed of people from many levels of the organization, not just the top. Ideas are welcomed from all cracks and corners of the organization.

Subtle cues can hurt innovation in organizations. "Bill," a top manager of a Midwestern organization, often frowned in meetings with his employees. They took his frowning to mean that he was displeased. That signal cut short productive conversations. Upon questioning, Bill said that he was not frowning; he was just closing his mouth to hide his decaying teeth. Funny story, but in what ways do managers subtly put down ideas in your organization?

Physical Environment

Physical structures can help or hinder a spirit of innovation. The comic strip *Dilbert* and the 1999 movie *Office Space* poke fun at the uncreative landscape of cubicle hell. In this world, employees are

trapped in stuffy cubicles, told what to do and how to do it, and are given no opportunity to express their innovative spirit. In fact, the environment all but kills their spirits. Most people can tell stories about stifling environments where one needs five signatures to go to the bathroom.

What about innovative spaces? What do they look like? Playful and original physical spaces help innovation for many organizations. At Design Logic, a medical device product development firm in Minneapolis, employees create their own cubicle space. Design Logic's offices are located in an old warehouse: the employees create the space while the company creates products. The company thus has an organic feel. Ideo, another product design firm, encourages employees to do the same. They create their workspace to match their working style.

Some organizations have created innovation rooms. The Innovation Office at the Singapore Department of Defense redesigned a room for ideation at the department's headquarters. The room has movable furniture, walls lined with flipcharts, and closets filled with everything from toys to materials (pipe cleaners, play dough, Legos, popsicle sticks) for prototype creation. The Department of Defense has an annual innovation contest with cash prizes. Any group can use this room in their innovation pursuits.

Other organizations build fun into their daily routines. Some have Nerf basketballs or golf putting areas, others sponsor exercise and yoga classes, and still others have their own on-site fitness centers. Physical movement during the day helps mental functioning as well as creative and innovative thinking.

Much innovation happens at "watering holes," spaces where people gather informally during the day. A good example of this was the employee cafeteria at Ecolab's (a specialty chemical company) research facility in Mendota Heights, Minnesota. In the 1980s, this was a standard, perfunctory, drafty place with plastic chairs and a linoleum floor, not a plush comfortable ambiance. No designer coffee. Yet, at about 9:30 am most mornings, the chemists and scientists would start congregating here with their coffee. They talked about their projects, experiments that worked and did not work, new ideas for products, and cutting edge equipment. Sometimes, the "break" went on for 45 minutes. One or two executives complained about these elongated coffee breaks. As a witness to these conversations (I was a Marketing Manager at Ecolab), I found them as fascinating and innovative as any I have observed. They were exciting interchanges; ideas sparked, were built upon, were redirected, were sliced and diced, and were sent on flights of fancy.

Resource: *Innovation to the Core*
by Peter Skarzynski and Rowan Gibson

This book is probably the best book written on how to build an innovative culture. The authors examine organizational cultures where innovation has taken hold in force. They show how organizations can leverage their workforces to produce, care for, and build more ideas into marketable products and services. The book systematizes the process of innovation.

Organizational Structures

In the 1980s, the term "skunkworks" began to be popularized. Organizations realized that some bureaucratic structures were too thick and regimented to allow for radical innovation. Embedded budget and reporting structures inhibited creating something new. So, they sent their product design teams offsite to warehouses or basements, allowed them autonomy and its own budget, and told it to create. One documented example comes from Tracy Kidder's *The Soul of A Machine*: A group of young employees from a computer company were sent to a warehouse to develop a new computer and do it well. General Motors' Saturn division was given a similar mandate: they were given acreage in Tennessee and told to build a totally new car, outside of the stodgy confines of the GM bureaucracy.

Another approach is to embed many innovative structures within an existing organization. 3M, a Minnesota manufacturer and distributor of adhesives and other products, embeds many innovation enhancers. Innovation clubs, round tables, circles, and awards are funded at 3M. When entering corporate headquarters, one can meander through 3M's innovation museum. Scientists who produce winning products like Post-it Notes and Scotchgard are given opportunities for cutting-edge research. The company allows many researchers to allocate up to 15% of their time to work on projects of their choosing. Top management mandates that 20% of revenues need to come from products developed in the previous five years. There are many other structures at 3M which encourage innovation.

How do you eat an elephant? According to the children's joke, one bite at a time. You change a culture the same way: one person, one initiative, one committee, one action at a time. Changing culture is a difficult process, but worth it. The rewards, monetary and nonmonetary, can be enormous. Besides, it might be the best survival tactic there is.

Creativity Killers

Dr. Theresa Amabile of Harvard wrote that the three main determinants of creativity are expertise, creative thinking skills, and motivation. She suggests that of these three, motivation is the easiest to influence by managers. She writes of six distinct ways to influence motivation:

- Challenge: matching right person to right job with just enough challenge
- Freedom: freedom to pick the means to achieve a work goal
- Resources: Enough time and money to accomplish task—but not too much
- Work-group features: diversity with a common language
- Supervisory encouragement: innovators need cheerleaders, too
- Organizational support: information sharing, political help.

(Dr. Teresa Amabile, Harvard Business Review, September/October, 1998)

Open Source Innovation

Are all of the best and brightest research and development people employed at your organization? Could there be excellent people elsewhere?

Organizations across the country have been asking those questions in recent years and have begun to look outside their hallowed walls for solutions. Proctor and Gamble, the innovative consumer goods company in Cincinnati, stated recently that 50% of their new products will come from external sources.

Consider this story from *Wikinomics,* by Dan Tapscott. In the 1990s, a gold mining company in Canada had fallen on bad times. Its CEO took a sabbatical and spent part of it at MIT where he heard about Linux, the open source software operating system. He wondered whether open sourcing might work in mining, traditionally a very secretive industry. He decided to try. He had all of the company's research data put on the Internet and offered prizes for people who could find gold. Over 1000 people took part in the contest: miners, graduate students, mathematicians, and former soldiers. Some found gold, the company became very successful, and over $500,000 in prize money was awarded. Open sourcing clearly worked for them.

Open sourcing makes sense in our times. Once upon a time, information was closely held; it was a source of a power base. Back into the Middle Ages, monks were the teachers because they were the only literate ones—they held a monopoly on written information. In our time, however, information is a free commodity, freely distributed on the web.

Obscure information sources, once buried in libraries, are now fairly easily accessed. People across the globe can access the same information and create together. The internet started this process; online communities like Facebook and MySpace, as well as co-creation software, continue to give this process wings. Here is another way of looking at it: manufacturing of complex products, like computers and cars, is distributed across many countries and many companies. Why shouldn't co-creation also be distributed?

Wikipedia, the online, open source encyclopedia, is the model for this type of co-creation. Thousands of contributors have added articles for this website, which has eclipsed *Encyclopedia Britannica* as an information source for young and old people. Because of the democracy of sourcing, errors do occur, but they are changed when detected. Because of some attempts at sabotage, Wikipedia has added editing controls. But the result is irrefutable; open sourcing can create excellent innovations.

A McKinsey report on open sourcing tells another story about highly technical open sourcing:

> A global team of more than 2000 scientists, for example, participated in the design of the Atlas particle detector, a complex scientific instrument that will be used to detect and measure subatomic particles in

> high-energy physics. The effort was disaggregated into many different components and distributed across 165 working groups, which used Internet-based tools to help coordinate the work. (p. 3-4)

That is a complex project. The McKinsey report also tells stories of drug development, auto design, and software creation—all situations where open sourcing has created what arguably no one organization could create. Open sourcing may well be the most effective innovation tool in the years ahead.

Leadership and the Innovative Culture

In 1912, Sir Earnest Shackelton, along with 27 men and their ship became stuck in an icepack while trying to reach Antarctica. They remained on the icepack for over 450 days. The innovation and optimism of Shackelton kept his men from starving, going mad, or undisciplined behavior. Their dire straits necessitated using every resource available in novel ways. Though many arctic explorations of the time ended in death and disaster, none of Shackleton's men died despite extreme odds.

Leadership has a high impact on an organization's innovation initiatives. These activities aid innovation.

Communication

Employees are constantly on the lookout for clues from leadership on direction. The more that leaders communicate the priority of innovation, the more innovation will become embedded into that culture. Communication comes through press releases, internal newsletters, speeches, and informal comments. Occasional lip service doesn't cut it—it relegates innovation to "flavor of the month" status.

Reward Systems

Employees typically do what they are paid to do. If reward systems favor the status quo, then employees will not rock the boat with new innovations. If compensation systems reward challenging the status quo, creating new systems and products, then those behaviors will be encouraged. Likewise, if individual contributions are compensated, then employees will focus on individual metrics. If, on the other hand, team efforts (from which most innovation occurs) are rewarded, an organization will see more team efforts.

Vision

Leadership facilitates the creation and execution of shared vision. Is innovation a vital part of that vision? If not, an organization will not honor it as such.

Attention

Does the top leadership of an organization notice its innovation efforts? Does the CEO check in on the Research and Development efforts or wander into process redesign meetings? Or are innovation efforts treated as an after-thought? In order for innovation to become embedded in the DNA of an organization, the leadership has to push it as a necessity, as a part of day-to-day activities, and as a vital part of the organization's ongoing success, nothing less.

Examples of Innovative Leadership

Recently, Governors Tim Pawlenty of Minnesota and Jim Doyle of Wisconsin spent a day together trying to figure out how Wisconsin and Minnesota could combine forces to create cost efficiencies. This action was unprecedented in the history of the siloed states of America. Each of these governors saw their budget woes as deep enough to require unique and innovative actions. So, let's cooperate. Congratulations to them.

Other leadership in innovation is legendary. Jeff Immelt shifted General Electric's focus from Six Sigma and cost efficiencies to "innovation" and "becoming green." Patagonia's founder Yves Chouinard encourages employees to create prototypes and try them out themselves. The leadership

of Intel has decided to build plants for the next generation of computer chips even though the world is in the grips of a major recession.

Other CEOs channel money into skunkworks or other pockets to aid fledgling initiatives. For instance, at a Midwestern specialty chemical company, a couple of managers saw a market possibility for a new swimming pool cleaning service. They moved a few people into the enterprise quietly and funneled money into it from several different sources as they tested the services and tried out several business models. They successfully kept the project under the radar from senior leadership while they nurtured it into success. After they had tweaked the model to make it profitable, they introduced the concept to the management of the company and to the marketplace.

Leadership Theorists and Innovation

Many leadership scholars point to directions that leadership should take in order to promote an innovative culture. One of the classic books on leadership, *The Leadership Challenge,* by James Kouzes and Barry Posner, posits five leadership competencies. One is "challenge the process," which is often one of the first steps in innovation. According to these authors, leaders must look at the status quo with new eyes. They must initiate the destruction of the "ways things are" in favor of the way things could be.

Harvard professor and author Ron Heifetz suggests that a leader's job is to make followers uncomfortable rather than comfortable. The leader must challenge, push, and prod employees to do things that they would not otherwise do, and actively discourage complacency as a way of being. Such a belief system can lead to innovation much more than a nice leader who does not demand as much from his/her followers.

The Concept of Scaffolding

Scaffolding is a term that has been popularized in the field of education. In order for students to understand a third floor concept, educators have to provide scaffolding for them. In order for a student to grasp calculus, for example, they need a foundation in algebra. In order for a student to understand British Literature, they must have studied the English language.

Scaffolding is a series of mechanisms that ensure the success of students. First, a teacher has to understand what students know or do not know. For instance, if a student is sure that the world is flat, any teaching that the world is round is not going to stick. Second, a teacher has to deconstruct or successfully challenge the notion that the world is flat. Only then can a student be open to the concept that the world is round.

Scaffolding also includes providing support and modeling—ensuring the success of a student's or student group success. For instance, if a college is going to accept underprepared students in order to ensure an ethnic or other balance, the college needs to supply tutoring, remedial classes, and mentoring for those students. Some colleges provide reading courses because some students do not know how to read adequately when entering college. Others provide peer tutoring centers and writing centers. These mechanisms are built in to ensure student success.

Scaffolding in Building Innovation Capacity

A CEO realizes the importance of innovation. He will order his top managers to be more innovative. They will agree and scratch their heads. They might order their product development people to invent five new products, hire a guru to give a one-day workshop on being more innovative, or plan innovation roundtables. Many of these initiatives are bound to fail because they have no context, support or scaffolding.

The concept of scaffolding can be applied to building capacity for innovation. An organization must build scaffolding for its employees in order that they embark successfully on innovation initiatives. It must provide the support, training, and

right culture in order to become a truly innovative organization. Below are some of the activities that can help a culture build scaffolding for innovation.

Culture. Ongoing innovation requires a high disciplined culture rather than a highly undisciplined culture. Non-rule abiding mavericks may get more press than highly disciplined people, but the latter develop more products and innovations. One must not confuse bureaucracies with highly disciplined cultures. Bureaucracies have multiple layers, process forms, review boards, and controls *that do not add value*. Highly-disciplined cultures have minimal layers, and only process forms, review boards, and controls *that add value* to processes. They have processes and systems that aid rather than discourage innovation.

For instance, in a bureaucratic culture, a review board will find ways innovations *cannot* work in the current organization. In a highly disciplined culture, a review board will recognize a promising idea, and look for ways an idea *might* work, or change a system so it *can* work. A bureaucratic culture will have antiquated controls in place that no one is willing to change. A disciplined culture will constantly evaluate its controls. A bureaucratic organization with a rigid 15% margin cut-off for all new products, as opposed to a 15% guideline, will miss out on some very innovative opportunities.

Ultimately, an innovative culture is one that teaches many ways to say "yes" to an interesting proposition, rather than "no" or "yes, but" or "interesting, let's ponder this." That kind of thinking has to be part of a deliberate, concrete, conscious, top-down philosophy.

Motivation. Innovation is not that different from creativity. Managers in organizations have a variety of ways to increase motivation around innovation. Many believe that extrinsic motivation is the most helpful form of motivation—$500 for a winning idea, for instance. Research in the field suggests, on the other hand, that intrinsic motivators are more powerful. The large innovative industrial and consumer brands company 3M and Google, the internet service provider, for instance, employ many forms of intrinsic motivation to spur innovation. They employ research roundtables, awards, innovation circles, an innovation museum, time off for innovation research and other techniques. Both Google and 3M allow employees to use part of their workday on innovative projects.

Training in Processes. Training in processes helps organizations innovate in two ways. First, as many levels of people in an organization learn how to use process tools like flow charts and Gantt charts (a project management tool used to sequence steps in a process), they become educated on how to

improve existing processes. Task forces can change a nine-step process into a five-step one, reducing cycle time, cutting costs, and helping customer relationships. These process tools are not rocket-science complex, but logical, simple procedures that can be employed at any level in an organization. Secondly, process tools can help build seamless systems for developing and evaluating new products and services. They can help expedite rather than hinder product development. Product development is really a series of discrete steps: ideation, concept development, bench testing, market analysis, and so forth. Each of these steps can be done efficiently with process tools. In this way, the organization does not have to reinvent the wheel every time they develop another product or service.

Try This!

Building an innovative culture can begin with a simple step. Hold a brown bag discussion group about innovation. Have participants read the same book. Or distribute an innovation article for participants to read and think about. Talk about how to build innovation into your organization. There's no telling where these ideas will go.

Building Emotional Intelligence. As discussed in an earlier chapter, emotional intelligence is essential for effective collaboration. Innovation requires massive communication and collaboration between departments. This collaboration needs high emotional intelligence from all involved. Time lines are compressed, departments rub against each other, and tempers can flare when organizations try new things. Managers and employees need to have a high level of self awareness and self control to weather the fierce winds of outside and inside forces. They need to know their own limits and boundaries. They need to show empathy to people from other parts of their system that are also under pressure. Emotional intelligence is a scaffold that needs to be built.

Lac Su and Nick Tasler, in a TalentSmart whitepaper entitled "EQ and Innovation" suggest that engineers especially need to build their own emotional intelligence. Engineers must be able to connect not only with other engineers, but also with professionals outside their department, while recognizing the preferences of customers they've never met. It's a tall task, especially when you consider that many engineers—the people most charged with innovation—tend to have more technical skills than people skills.

Training and coaching can improve EQ in most people. Some organizations use training which can have some effectiveness. If coaching is added to EQ,

the net impact is much greater. [I suggest saying a bit more about training and coaching—it comes and goes too quickly.]

Systems Thinking. H. L. Mencken states, "For every complex problem there is always a simple solution. And it is wrong."

Systems thinking is a valuable piece of scaffolding. Often people do not understand the unintended consequences of their own actions on other people and other departments. Training in systems thinking helps participants see the interconnectedness of different parts of a system. This creates an appreciation for others in the product development web. Without the systems piece, partners can turn into accidental enemies, playing out roles that are antithetical to the good of the whole.

Systems thinkers look for patterns and structures beneath patterns, rather than just events. Systems thinkers look at bigger pictures to ascertain how they fit into that picture. Inventors look at more than their prized inventions—they see accounting systems, billing systems, and manufacturing challenges. In doing so, they avoid falling into mistakes and organizational pits that can be avoided.

Like emotional intelligence, systems thinking can be taught. People can learn systems thinking and use its fundamentals as a new language as they move forward in product development cycles. Fewer conflicts and turf wars will ensue.

Action Learning Teams. Often, people learn best together. Teams approach, attack, and ponder challenging tasks together. Peter Senge calls this team learning. Action learning is a refinement of Senge's concept that focuses on complex challenges. Action learning involves peer coaching and team learning; teams learn together by experimenting and making mistakes. They do this methodically and learn faster as they work together over a longer period of time. Action learning teams can overcome innovation challenges together faster than individuals.

In the context of innovation, action learning groups can provide support systems for those involved in innovation. The path to innovation is fraught with obstacles and loneliness; peers help this. In addition, diversity contributes to successful innovation. Having differing viewpoints in a support group will aid in thinking "outside the box." This kind of scaffolding provides support for those trying to safely think differently.

Training in Innovation. Another form of scaffolding is training in innovation. Company-wide training in brainstorming techniques, "blue ocean" techniques, and assumption-questioning techniques help to create a culture of innovation. Innovation is a process, and like other processes (billing, customer satisfaction, shipping) it can be taught and learned. Whirlpool, for example, has a company-

wide training program in innovation techniques that has been very successful (Skarzynski and Gibson, 2008, p. 8). These programs open up eyes to possibilities and options for changing the status quo. It would be money well spent to train a few employees on how to facilitate ideation sessions. They could be employed in a variety of departments in order to spark innovative thinking.

Moving forward on successful innovation efforts requires scaffolding. Yes, it takes time. Yet, as in many key initiatives, it makes sense to go slow now in order to go faster later. Without scaffolding, creative innovators may end up hanging off window ledges, alone in their efforts. Like lone voices crying in the wilderness, their voices will not be heard and valuable initiatives will die on the vine. Or, worse yet, they'll go to work for your competitors!

On Becoming an Innovative Culture

Becoming a truly innovative culture is a long and arduous process. No silver bullet exists, and the process is fraught with obstacles. Some actions can help:

- *Leadership Priority.* Leaders must make innovation a priority for the organization. They talk about it, send out articles, hold ideation sessions, and provide resources for it.

- *Innovative Attitude.* Leaders can create a culture where risking is honored and mistakes are learned from, not punished. This type of attitude must pervade management actions and communication.
- *Action Learning Groups and Round Tables.* Innovation takes high levels of collaboration. Leadership can mandate creation of such groups. These groups can be coached or trained to excel.
- *Scaffolding.* Leadership can provide scaffolding for innovation to succeed. This training doesn't literally create innovation, but it provides the conditions where innovation can happen.
- *Resources.* Leadership can provide resources on innovation. These do not have to be expensive: books, articles, training, or ideation sessions can have big impacts.

Cultural Pulse

Evaluate your organization by rating each question from 1 (Hardly ever) to 5 (Almost always). Calculate the average of your answers and rate your score:

1–2.5: Rigid and Life-Threatening
2.5–4: Getting There…
4–5: Innovation City!

- People in my organization learn from their failures.
- Management gives us space to be creative.
- People at all levels of the organization are brought into improvement schemes
- Diversity of thought is encouraged at my organization.
- There are places at my organization for informal gatherings.
- My organization keeps a repository of ideas and products that have not been brought to the marketplace.
- My organization brings suppliers, customers and other outsiders into new product/service discussions.
- Designated people in my organization are always on the lookout for new trends in the industry.

Chapter 4:
Customer Focus

"We thought that we were selling the transportation of goods; in fact, we were selling peace of mind."

Fred Smith, CEO
Federal Express,
Fast Company, April 2000

Visit a game of the St. Paul Saints, a minor league baseball team located in Minnesota. Do you watch intently for two and a half hours as no-name players get hits or strike out? Probably not. You watch the mascot, a piglet being chased around the infield. You finally get a haircut in the stands. You treat yourself to a massage. You dine at one of the high quality booths set up by local restaurants. Furthermore, you enjoy the setting of the sun on a cool summer evening; you are not indoors like the major league team across town. The St. Paul Saints know that they are in the entertainment business, not the baseball business.

In the late 1990s, Whit Alexander and Richard Tait invented a board game. Their choices for marketing it were few. They could buy a booth at the February New York City toy and game show along with hundreds of other toy inventors and hope that they were "discovered." They could try to sell the game to Parker Brothers or Mattel. Or they

could try themselves to get the game into game and department stores themselves, which would be a long, frustrating, and laborious process. Instead, they became innovative. They presented the game to the president of Starbucks and suggested that the game's target market was the same as Starbucks' target market. Starbucks had never sold games, but their founder saw potential. *Cranium* was sold exclusively through Starbucks and the game's owners gave each Starbucks employee a free copy of the game. The rest is history. *Cranium* and its spin-offs have been the best selling games since *Pictionary*.

Understanding the Consumer

These two stories tell us much about marketing, getting close to the consumer, and the role of the consumer in innovation. The three central questions are: Who are your customers? What do they want? How can you reach them? It takes innovation to understand the consumer ,and it often takes consumers to help you innovate.

The Basics

Marketing involves creating, selling, and distributing goods and services that the consumer wants and needs. Innovators need to understand consumer beliefs, attitudes, wants, and habits if they

are to be successful. Consumers want products and services that "get a job done." Quality gurus like W. Edwards Deming and management gurus like Peter Drucker write extensively about understanding the consumer. Innovation requires deep understanding of the consumer's needs and then providing for those needs.

Marketers try many ways to meet all consumers' needs and wants. Salsa has become popular in the last two decades in the United States, and dozens of suppliers have jumped to feed everybody's salsa needs. Visit the salsa offerings of a big box grocery store, and dozens of offerings will pop out at you: mild, medium, hot, hotter, mango, pineapple, and chili. Salsa comes in tall thin jars, round jars, short squat jars. The world probably does not need another salsa, except maybe dark chocolate flavored. (Now *there's* an innovative idea!)

If you are going to develop a new product or service, you need to either totally delight the consumer, create a whole new category, or find a whole new group of customers. Doing any of these successfully necessitates innovative thinking. Questions which need to be addressed include, but are not limited to:

- Who is your customer? Who will be your customer be in 10 years?
- How can you recombine customer benefits in a unique way?

- Where is innovation possible along the value chain?
- How can you maintain a favorable cost structure through your own production methods?
- How can you leverage your core competencies in new and different ways?
- What jobs do your consumers need done that you can help with?
- How can you reinvent the customer experience in ways that will delight them?
- Who is your competition ignoring?

Asking these questions can mobilize members of your organization to think innovatively and differently about your product/service offerings. These open-ended questions are invitations to discussion, debate, and think creatively and originally. Innovation starts with the consumer.

Market segmentation and target marketing are recognized methods of getting close to the consumer. Market segmentation involves delineating one or more groups of consumers: teen girls, affluent senior citizens, small town middle class, or chic urban upper class. Marketers then target their tailored offerings to one or more of these segments. For instance, Nordstrom's department store focuses on

affluent consumers, while Aldi's Food Stores aim at more budget-conscious grocery shoppers.

Innovative organizations often find market segments that are underserved. For instance, distance learning provided education options to people who had no nearby college to attend. Early air conditioner units in China were loud, relatively ineffective but very inexpensive. Yet for those who never had air conditioning, they were a blessing. Tata Automotive is introducing a car to the Indian market for $2,000, aimed mostly at consumers who have never had a car.

Another underserved segment might be affluent people who want more "bells and whistles" on normal products and will pay for them. High-end restaurants with valet service, Blackberries with GPS systems, first-class airplane tickets, and minivans with built-in DVD players are all examples of segmentation.

Innovative marketing can also involve finding an underserved market segment—a group of potential consumers that other companies have left behind—and creating offerings for them. This process often requires identifying unarticulated needs. I didn't need an IPod because I didn't know it was possible. I would have never told a researcher that I wanted cup holders on my baby's stroller, but I like it. Innovative marketers are always on the lookout for these unique, unnamed opportunities.

Beyond this hunt to fulfill customer needs, innovative marketers look for ways to partner with customers to create more powerful offerings. Innovators need to harness the energy of their consumer "champions." Harley Davidson, the motorcycle manufacturer and distributor, has done an excellent job of this, creating user groups, Harley accessories and events for Harley enthusiasts. Heck, Harley lovers tattoo themselves with the logo and proudly wear gear covered with it. Have you ever seen a husky man with a Walgreens or Nordstrom's tattoo?

Innovative marketers make consumers into prosumers, people who help create a customer experience while consuming it. Prosumers at churches attend the church but also sing in the choir, teach church school, and sit on the vestry. Facebook users are prosumers and consumers at the same time. That's the goal of innovative marketers.

Getting Closer to the Consumer

If your goal is to develop and market products that consumers want, then you must find ways to get close to the customer. You need to get into the customer's head, find out how they think and make consumption decisions.

Ethnographic Observation and Research

A product design company was approached by a food company that wanted to create new food-in-a-box type products for large families. Teams of employees from both organizations visited the homes of large families and watched mothers work in the kitchen. They watched as meals were prepared, as the moms interacted with their children, and as food was organized in the pantry and refrigerator. The team asked copious questions as the moms worked away. The team acted like anthropologists in a Papua New Guinea village: observing, asking, reflecting, and taking field notes. Their goal: understanding the deepest beliefs, attitudes and desires of a mom trying to nutritionally and economically feed her family. With this data, the team conducted ideation sessions and developed new food product concepts for the client company.

Try This!

Observe consumers closely for an hour. Watch teens walking around a mall. Watch mothers in the cereal aisle of a grocery store. Observe people at a sporting event. Okay, closely watch people drinking at a bar. What are their habits? What are their needs and wants? Be an anthropologist and try to understand them deeply.

The trick is figuring out what consumers want, need, and will buy. The method above is sometimes referred to as ethnographic research. This research design involves observing consumers *when and where* they are using this type of product or service. Researchers attempt, through observation and listening, to understand the deepest needs and desires of their consumers. Only when observing consumers in a natural setting can we find these inner mental and emotional churnings. In the example above, parental self-esteem emerged as the most important factor in the cooking process. Am I providing my family nutritious, healthy food? If I am, I am a good parent.

A friend told me this story about Apple's attempts to get close to the consumer:

> When we bought our first Mac in '93 or '94, we got a call from Apple asking if they could come to our house and interview us. Rachel was gone, but I visited with them—they paid us $75 right on the spot! They took pictures of me at the computer (with Sophie, the dog, on my lap) asked questions about the color of the machines, what if it was a TV, what if I could play music, what if it were smaller, etc. This was years before iMac, iPod, iBook and every other i-thing. I had no idea where the Apple folks were going with it until I started seeing

computers that looked different. Clearly they wouldn't have achieved any of those breakthroughs without investing in such field research.

When Marketing Research Does Not Work

Marketing research may not always work. If you had surveyed customers in the 1980s as to whether they would buy a pet rock, the results would have been a resounding "no." Who would have wanted to spend $5 on a rock? But millions of people did so that Christmas. Also in the late 1970s, if you had asked consumers if they wanted to listen to a two-hour radio variety show centered on a boring, fictional town in northern Minnesota where all the men are strong, the women good looking, and the children above average, and nothing ever really happens, what would the response have been? Probably a strong no, particularly on Saturday evening. Yet, *Prairie Home Companion* has arguably been the most successful radio program in recent times.

Consumers do not always know what they need and want. Innovators can tap into unarticulated needs by going against marketing research and conventional wisdom.

Observation is a powerful tool for understanding the consumer. The minivan with movable back seats was allegedly conceptualized when a car

designer watched a couple struggle to put a sofa in the back of a minivan. Drivers holding hot cups of coffee between their legs led to the invention of cup holders in autos. Bored, disruptive children led to engaging activities at hospital waiting rooms. The key question: where do you see an unfulfilled need?

Innovators use many other marketing research techniques that resemble ethnographic research. Some noted marketing researchers set up video cameras in stores and capture hundreds of hours of consumer behavior. Paco Underhill, author of *Why People Buy,* uses this technique and has arrived at some useful conclusions. He noticed that when aisles are too narrow and women had their "butt brushed" by other shoppers, they usually left the store immediately. He also noted that people entering a store were in a "transition zone" where dazed consumers do not notice signs and other messages. These insights help companies improve in-store design.

Trend Hunting

Innovative marketers often hunt for trends that may become marketing opportunities. There are many trend hunting methods, formal and informal:

- Read magazines, particularly outside of your field. Professionals from various disciplines look at the world differently. First, one can see trends as they are emerging. Second, one

can look at the world from different perspectives.

- Observe consumers in trendy places like Soho, Florence, London, Singapore.
- Watch blogs. Some blogs have large followings. What are these authors writing about, and what kind of responses do they get?
- Look at different news sources. Read the Drudge report online, or follow the BBC, or Al Jazeera. These publications will give you other perspectives, and you may be able to pick up new trends.
- Travel with your salespeople and visit their customers. Talk to your international counterparts. What are they talking about? What is on their minds? What is the competition up to?
- Keep a wide angle lens. Often, innovations are on the periphery. A new competitor might come from another industry. A novel kind of distribution system might be borrowed from another industry.

Resource: *Made to Stick*

Mike and Chip Heath, in their seminal *Made to Stick*, suggest that it is not enough develop a product or service for a target market. Organizations must communicate and sell the idea to the market. Heath and Heath set forth six principles for making ideas stick with consumers:

Principle 1: Simplicity
The product or service has to be understandable. Consumers will not spend lots of time trying to figure out a new concept.

Principle 2: Unexpectedness
Organizations must peak interest and curiosity of their target market. They must present some kind of "wow" factor.

Principle 3: Concreteness
Ideas must be presented in tangible, sense-oriented language. Brains stick on concrete images, not fuzzy, abstract concepts.

Principle 4: Credibility
How do we make people believe our ideas and pitches? We must have facts or authorities behind our claims. In this era of fast information flow, consumers will know whether they can believe us or not.

(continued)

Made to Stick (continued)

Principle 5: Emotions
How do we make people care about our ideas? We have to make them feel something. What can you say about your innovation that will make people feel deeply?

Principle 6: Stories
Jesus, Abraham Lincoln, and many other great leaders used stories, not lectures, to convey their ideas. Why? Because stories touch the heart and the heart provokes action.

The Customer Process

A Maine farmer had to stop his work in the hay-field to go to the house and wash clothes for his sick wife. He had never washed clothes before, and was surprised at what a backbreaking job it was. Finally tiring of the whole thing, he set his mind to work—and developed the mechanical washing machine.

Besides watching consumers in action, marketers can also map out their consumer processes and examine them step-by-step. For instance, Club Med, the all-inclusive resort chain, created worksheets for each of their consumer

processes. These training sheets have three major sections:

- The steps customers pass through,
- What can go wrong at each step, and
- The systems that can be put in place to prevent those problems.

For instance, a Club Med guest might wish to go wind surfing. The steps they go through would include: finding the location, borrowing a board, surfing happily and safely, and returning the board. What can circumvent a great experience? Sunburn? Have sunscreen available. Not finding the location? Put up copious signs. Not know how to surf? Offer training sessions. Club Med is a high end resort; it can command a high price because of its quality service. This system of anticipating problems and crafting systems to circumvent potential problems creates a superior customer experience.

Service providers have to be aware of "moments of truth," those moments when a customer or potential customer comes into contact with the service provider. So, for a hospital these points might be:

- when scheduling an appointment
- when registering
- while waiting for a loved one to have surgery

- while filling out endless, repetitive forms
- while waiting with small children to see a physician

If you compare a hospital experience today to a similar experience thirty years ago, you'd notice most United States hospitals have worked to minimize the pain in these moments of truth. Computer monitors inform you on the progress of your loved one in surgery. The waiting room has toys, activities, internet connection, and free snacks. Most forms are computerized and are more easily managed. And, furthermore, no fewer than five professionals confirm that it is indeed your *right* knee that needs surgery and they place magic marker "x"s on that knee.

Another way to look at the consumer experience is the different stages of use of the product: purchase, transport to use area, setup, extras, maintenance, and disposal of product. How could an organization be innovative in each of these dimensions? My mother recently wanted to buy a new television. We shopped at Best Buy because they would take her aging television (it really belonged in a museum) for *free.* Free delivery? I will take it! Whatever will make my life easier! Printer cartridges at a discount? Count me in.

Recently, on a college trip, I discovered that one college's policy is that if you buy a laptop through them, they will maintain it through their help desk.

That was a huge benefit! So, it is not just about innovation in the product or service design; all the other steps of the consumption process are also important. More importantly, innovation can literally knock the competition out of the water.

Value Chain Innovation

Where on the value chain can you innovate in order to create superior customer value? That question should haunt marketers. The value chain is the series of events between conception of the product/service and when it finally lands in the customer hands (or the customer disposes of it). WalMart and its largest supplier, Proctor and Gamble, saved money by moving from legal contracts to hand-shakes. WalMart created a cross docking procedure that eliminated costs in their distribution system, thereby adding value. Most United States retailers have added value in their supply chains by sourcing from China and the Far East. As one company president said, "I can make it in China and ship it here for a third of the cost that I can make it here."

Many ways exist to innovate in the value chain. A company might source raw materials that are cheaper, better, or easier to procure. A company might innovate in internal processes, cutting costs and limiting the time it takes to get the product to the end user. A company can add attributes to the product or service that will delight the customer,

such as a maintenance package that puts the customer at ease. The innovative company constantly looks for places along the value chain to innovate.

Pathways to the Consumer

1. Study the consumer. Be an anthropologist or a detective: observe, ask questions, take notes, examine the context. Listen carefully to their unarticulated needs. What is missing from their lives? What are their needs?
2. Look for trends. Find and scrutinize edgy websites. Visit trendy spots like Paris, Barcelona, Soho, or Shanghai. Read magazines outside of your field. Read science and futurism magazines. Listen to people who are on the cutting edge (see podcast from the Ted Conference, for instance).
3. Think about cup holders and Onstar. Industries are flooded with competitors satisfying basic needs. Customers are looking for extras—what cup holders and Onstar-like services do your customers need. [This is first instance of Onstar—it should be explained.]
4. Talk to your suppliers. They know what your competitors are doing. Probe them. Your competitors might know things about your customers that you do not.

5. Watch your competitors' market moves. Burger King allegedly watches where MacDonald's puts a new restaurant and then locates a store down the block.
6. Watch for attitudinal shifts in your customers. Different generations have different attitudes toward life, work, technologies and recreation. Follow those trends or you might lose your customer base.
7. Listen to customer feedback, particularly negative feedback. Customers who take time to complain care enough to help you become better.
8. Hire customers to be in your ideation sessions. They can give insight that even your best people cannot give.

Closeness to Consumers

Evaluate your organization by rating each question from 1 (Hardly ever) to 5 (Almost always). Calculate the average of your answers and rate your score:

1–2.5: Pathetic and Distant
2.5–4: Getting Closer
4–5: Cozy and Tight

- We regularly ask for customer feedback and use that feedback.
- We bring our customers into our innovation process.
- Our market researchers continually study our customers.
- All of our personnel have been trained in customer service techniques.
- Our customers can communicate with us in a variety of ways.
- Our management regularly listens to customer panels.
- Our salespeople are constantly on the lookout for consumer trends.

How do you rate?

Chapter 5:
The Process of Innovation

There is no single innovation process that every organization follows. On one extreme, some organizations await a creative marketing or engineering guru to discover the "big idea" that will push the organization ahead to new revenue heights. On the other end, one product development company in Minneapolis has a rigid-but-effective 28- step process for developing high-tech medical products. Both approaches can work. This chapter will illuminate several processes that organizations use successfully.

New Product Development

At the heart of the innovation process is new product development. Most organizations have a delineated process for developing new products or services: opportunity identification, concept generation, product evaluation, product development, and product launch. Let us examine each of these:

Opportunity Identification

Where do new business ideas come from?

- Sales people. They have a good handle on what customers want.
- Customers. They usually know what they need and what would make their lives easier.
- Emerging markets. A middle class with purchasing power has emerged in India and China.
- Crises. 9/11 created an expanded market for security-based products and services.
- Periphery Markets. New inventions span connected products. For instance, cell phones create a huge market for ringtones, leather cases and software applications.
- Scientists. Right now, stem cell scientists are developing medical products to save lives.
- Technological Breakthroughs. Stents, cell phones, GPS systems, pacemakers--need I say more?
- Empathetic Design. Ethnographic research identifies customer needs as they live their lives.
- Ideation Sessions. Facilitated ideation sessions with diverse participants can bring out useful ideas.

- Demographic Changes. The Millennial generation wants different services and products than the Baby Boomers did. How can you woo this new group of consumers?

Simplest to Hardest

The late Charles Kettering, GM's head of research, nearly broke his arm trying to crank start his car one morning. A few days later a friend was killed while crank-starting his car. Kettering sat down and listed 10 major obstacles to overcome before cars could be started automatically. He arranged them from simplest to hardest, started to solve the problems one at a time. The result was his first invention: the Delco self-starter.

An innovative company is constantly engaged in seeking opportunities to evoke new ideas that will lead to revenue streams. Some ideas might not be right for today, but might be right five years from now. Some ideas might not be right in their current form but when tweaked, polished, or altered, might be winners.

Concept Generation

Ideas are raw; they must be formed, molded, and articulated. Concepts have to be stated in terms of

customer needs. A concept for a new food product might be "a nutritious, easy-to-make breakfast drink aimed at the teen market." A concept for a new kind of healthcare delivery might become "a fast, no appointment needed, inexpensive health care clinic aimed at people with common, minor illnesses and ailments."

Whereas ideas may come from many sources, usually it is a team of Production, R and D, and Marketing people who hammer out the concept statement, which needs to be articulate and understandable to many different internal stakeholders. The concept statement is specific enough to give direction to the product developer, and general enough to allow for wiggle room.

Project Evaluation

At this point, the entire project is evaluated for organizational mission fit, financial viability, marketability, resources available, and technological feasibility. Sometimes this is called a concept screen. The concept is screened through these filters:

- Will this project be profitable?
- What is the projected ROI?
- Is mass production feasible?
- Can we obtain the necessary raw materials?

- Does this project fit with the organizational mission? Strategic priorities?
- Does the target market want this product? How much will they pay for it?

There are several possible results of the evaluation process. The concept might be sent back to committee for further refinement or tabled because of competing priorities. It might be killed because the return on investment is too small, or it could be sent on to product development.

Product Development

A cross-functional product development team should include people from Production, Marketing, Research and Development, Packaging Engineering (if needed), and Accounting. The team develops timelines and work plans. The team sketches out a marketing plan. Raw material sources are sourced.

Most importantly, product-development teams develop prototypes. Several gallons of a new cleaning compound might be mixed in a vat and then tested at customer locations. A CAD/CAM rendition of a new car might be presented to prospective customers. Models might be created out of clay or cardboard. These prototypes are usually malleable enough to be altered as needed.

At any point along the way, or at every step, a GO/NO GO decision needs to be made. If any crite

ria or screens fall short, the project might be killed. If the project is still a GO at this point, the project might go into a test market. The product or service is introduced into several markets and the results are monitors. One problem of test marketing is that the company tips it hand to the competitor. On the other hand, a competitor might try to sabotage the test market by buying up the experimental product, or flooding the market with their own coupons.

Launch

The product or service, if it has gotten this far, is now introduced to the marketplace. The launch stage is usually very hurried as there are a multitude of last-minute details. Can you imagine the logistics of getting a new product into warehouses all over the country or the world? Promotions, advertising, packaging, internal and external messages need to be coordinated. Salespeople need to be trained and motivated. Manufacturing needs to churn out the product without a hitch. Or if the manufacturing is done in the Far East, the product needs to be built and shipped. Sometimes companies do phased rollouts instead, introducing the new product to different regions sequentially rather than simultaneously.

Fast Prototyping

Companies are always looking for ways to streamline the product development process. For instance, in the past, it often took five years for an automaker to take an idea into a new car on the showroom floor. Market needs may have changed in that time. A faster competitor might beat you to the market while you are doing your market analysis. In fact, you may not have a few years to wait for the income stream from this new product. Some companies, therefore, are turning to fast prototyping as a solution to this innovation dilemma.

A few years back, I worked with a group of Asian military personnel facing an interesting problem. The time it took to test the hydraulics of their Chinook helicopters was 3.5 hours, far too long for war time conditions. Our innovation group was told to reduce that turnaround time significantly. First, we observed the actual situation—the hydraulics being tested. Next, we sent several teams out to study the dynamics of hydraulics and other hydraulic systems. One group searched the Internet for solutions, another went out to the local port and saw how the hydraulic systems of large loading cranes were tested. A third group visited an elevator manufacturer to learn how they tested hydraulic systems. The groups came back and synthesized their data, and we created a new concept for testing the helicopters' systems. It took our final prototype

30 minutes to test the hydraulics of the Chinook. Mission accomplished through fast prototyping.

Fast prototyping involves some of the same steps as new product development. Yet these are done faster, often with an outside ideation company. These steps are included in the fast prototyping process:

- *Observation*. Observe the consumers in their real situations, as they are consuming or using products. Take copious field notes, listen well, and when possible, ask questions.
- *Data Dump and Analysis*. In the best situation, several teams or several individuals have captured data from a variety of locations. These individuals and teams converge to display, sift through, analyze, reconfigure, and attempt to deeply understand the data.
- *Ideation Session*. The team ideates for possible solutions. At this stage, flipchart paper is flying as many ideas are generated. A trained facilitator uses divergent thinking techniques with the team to produce as many ideas as possible.
- *Fast Prototyping*. At this stage, the team uses convergent thinking techniques to develop possible prototypes. Groups can use paper, cardboard, paper clips, pipe cleaners, play dough, clay, Legos, and other modeling

material to create prototypes. The point is not to get it exactly right, but to create working models to discuss and refine later.

- *Evaluation and Tweaking*. Most organizations have evaluation criteria for new products and services. After a prototype is built, it can be presented to a larger group (s) of stakeholders for tweaking and evaluation.

These steps apply to products and processes. Many permutations exist for each of these steps. For instance, when I worked with infantry soldiers in an Asian country, we were charged with preventing lost night-vision goggles. In the process, we watched videos of soldiers placing the goggles on their helmets. This was a cumbersome five-minute process using plastic ties. Our client did not tell us about this issue; it took observing the process. We created an efficient clipping system (5-10 seconds) for this unarticulated need. The process worked, but necessary deviations from the process also worked.

Other Innovation Processes

The beauty of innovation is that many innovation and creativity techniques will work to elicit and organize ideas. Many of the techniques and processes listed below are organized forms of brainstorming. They enable groups to look at problems and opportunities in new ways.

Challenging

In the higher education industry thirty years ago, the industry norms were:

- Students came to campus.
- Most students were in their late teens and early twenties.
- Professors were content experts.
- Classes were conducted during weekdays.
- Professors lectured content that only a few people were privy to, and students took notes.
- Students were almost all white and American-born.

Look at what has happened in recent decades. Online education programs allow 68 year-old students from East Podunk to earn undergraduate or graduate degrees. Students can access the same content as professors on the Internet. The professor transforms from the "expert" to the connector of information and knowledge guide. Education happens anywhere and anytime between students from different generations and continents. Industry assumptions have been successfully challenged.

Innovation begins by challenging or questioning the status quo, using a statement such as: the world can be better with a _____. We can challenge or question the world, a product line, or an existing

group of products as they are. A manager might have a group of employees challenge all of the industry norms, asking: What are those things that all members of this industry take for granted? What beliefs are true no matter what? What are the stable drivers of the industry, or the foundations that make the industry tick? In these challenges might be the next big industry innovations.

Resource: Tom Kelley's
The Art of Innovation

This book explains how the product design company **Ideo** performs fast prototyping.

Challenging can happen also at a smaller level. A group may list all of their assumptions about a product or a business problem, then systematically challenge those assumptions. Or they can reverse those assumptions, posing questions such as: What if the opposite were true? These challenges pry open assumptions to shine a light on other possibilities that might lead to significant innovations.

Flowcharts

Flowcharting is not new, but has been popularized by the quality movements. Flowcharting lists sequential steps of a process, and divides them into

decisions or actions. A team then can scrutinize each of the steps and question the necessity of each by asking: What steps do our employees go through to get a piece of work done? Do we need this step? Can the task be performed in another more efficient way? If a manager asks a group to try to innovate an existing process as a whole, individuals may be overwhelmed by its complexity. By breaking the process down into its component parts, each step becomes more manageable, understandable, and ultimately improved.

(Flowchart here)

Customer-focused Flowchart

Traditional flowcharting focuses on the process from the viewpoint of the organization. One can reverse this to list the steps that a customer goes through to use its product or service. For instance, to enjoy a dinner out at a restaurant, I must identify the restaurant, find it, park, be seated, identify an excellent menu item, order, be served (in a timely fashion), eat, be given a bill, pay the bill, and leave. At each step in this process, what can go wrong? In a customer-focused flowchart process, a restaurant owner considers, at each step, how to make this experience a delightful one. How about a valet service for parking, or a waiting area with a fish tank and coloring books and crayons to delight my children? How about free hors d'oeuvres if I have to wait more than 15 minutes?

The three steps of customer-focused flowcharting are fairly clear:

- What steps do our customers or clients go through when using our product or service?
- At each step, what can go wrong?
- At each of these steps, what can we do to ensure customer delight?

Improvement may require minor tweaks or major innovations. You will never know until you brainstorm for solutions.

A variation of this approach is to use a template of the customer process in order to look for innovations. The template typically contains these steps:

- Selection
- Order process
- Delivery
- Learning How to Use
- Use
- Reorder
- Maintenance
- Disposal

Now, how can a company delight its customers at each of these steps? How can it make each of these steps seamless, easy, effortless, uncomplicated, uplifting, delightful, amazing, and exciting? Successful companies do this meticulously.

A friend experienced this type of customer-centric service at Disneyworld several years ago:

> After spending a few days in one of the Disney resorts in Orlando, I received a phone message: I had left a pair of cheap, Mexican shorts behind. Did I want them to send the shorts? Of course, this was not just a lost and found call, but a marketing connection—they reminded me that I visited Disney World, asked me how I enjoyed my trip, and let me know that they wanted me to return.

Try This!

Have a team at your organization create a customer-centric flowchart. Choose a process that a customer proceeds through. Walk through these steps on a big piece of paper:

- What steps do our customers or clients go through when using our product or service?
- At each step, what can go wrong?
- At each of these steps, what can we do to ensure customer delight?

Post this chart on a bulletin board for all to see. Perhaps it will encourage others to do the same.

Creative Problem Solving Institute Process

The Creative Problem Solving Institute formulated a process almost a half century ago, and has tinkered with it ever since. The basic steps are:

- Objective finding: What is the real objective of this problem-solving search?
- Fact finding: What do we know and what don't we know about this situation? What else would be nice to know?

- Problem/challenge finding: Given the objective and what we know, what is the real challenge here?
- Idea finding: In what ways might we do this? This is the divergent, brainstorming part of the process.
- Solution finding: In this convergent step, what are the best ideas of the bunch?
- Acceptance finding: How can we get acceptance through management, customer, salespeople, and other stakeholders?

These steps can be worked through quickly or for hours at a retreat. Notice that like all good innovation processes, the steps include both convergent and divergent thinking.

Created Equally?

Are all innovations created equally? No not really. Let's look at several kinds.

Industry changers. The car, laptop computer, iPod, Amazon—these innovations put everyone back to square one.

Radical innovation. These innovations become industry leaders, like Barnes and Noble, or hybrid cars.

(continued)

Created Equally? (concluded)

Major process innovations. Walmart, Netflix. Netflix had to retool its business model after Blockbuster improved their original model, and now all they are doing is delivering movies online. These companies have figured out how to do it faster, better, more efficiently and have become industry leaders.

Incremental improvements. Often brought upon by Six Sigma or Lean Manufacturing, these quality and productivity measures cut millions of dollars of costs.

Attribute Listing

Another innovation process is attribute listing. Simply put, just list the parts of a product and brainstorm how you might improve on each part. For instance, if I want to redesign a high chair, the component parts include legs, back, height, eating surface, latching mechanism, and seat. We would examine and look at options for each part. The options for the legs might include: steel, aluminum, wood, on rollers, collapsible, painted with decorations, adjustable, three or four, or with cup holders. Then, you could do the same with all of the component parts. To create a better high chair, the options for the component parts can be mixed and matched, and new concepts developed.

Blue Ocean Innovation

According to the authors of the best seller *Blue Ocean Strategies*, companies can either compete in red oceans where competitors are tearing out each others' flesh, creating blood pools in the ocean, or in blue oceans where there is no competition. The key to finding the blue ocean is asking, and answering four questions:

- Which factors that the industry takes for granted should be eliminated?
- Which factors should be reduced well below the industry standard?
- Which factors should be raised well above the industry standard?
- Which factors should be created that the industry has never offered?

The developers of *Blue Ocean Innovation* suggest that successful organizations use these questions continually in order to find blue ocean space for new products. In the Twin Cities, where I live, we have an extremely competitive grocery store industry, with many players trying to gain an edge. If I were trying to create a new kind of grocery store, these questions could render some options. Reduce the number of offerings? Aldi does. Eliminate bags? Aldi does. Create new offerings? Throw in an optical shop, deli, photo shop, and coffee shop,

like Target. How about a Post Office? Byerly's Food Stores has one. Reduce customer service? Cub Foods does to cut costs. Each of these players in the Twin Cities grocery industry carves out their market niches by using these questions.

Resource: Joel Barker's *Tactics of Innovation*

Author and futurist Joel Barker developed a checklist of attributes that an innovation needed for acceptance. His video, *Tactics of Innovation*, gives excellent examples for each of the tactics and can prevent individuals and organizations from making mistakes when introducing innovations into the marketplace.

Tactic 1: *Upside, yes* (Is there a perceived advantage to the user?)

Tactic 2: *Downside, no* (Are the consequences minimal if it fails?)

Tactic 3: *Seemingly simple* (Is it easy for the user to understand?)

Tactic 4: *Small steps* (Is the change implemented using small increments?)

Tactic 5: *Clear message* (Is the language clear to the user?)

(continued)

Tactics of Innovation (continued)

Tactic 6:	*Compatible fit* (Will it feel familiar to what the user currently experiences?)
Tactic 7:	*Credible messenger* (Is the presenter believable and credible to the user?)
Tactic 8:	*Reliable performance* (Does it work, without breaking down?)
Tactic 9:	*Easy in* (How easy is it for the user to try it?)
Tactic 10:	*Easy out* (How easy is it for the user to get out?)

The Process, Summarized

Many roads lead to innovation. The beginning is clear: destroy, unlearn, dismantle. Unless you are willing to let go of the existing processes, products, or ways of doing things, you cannot move ahead into new territory. The next step is idea generation. This step can take the shape of listening to customers, listening to suppliers, ideation sessions, scientists tinkering, adverse conditions creating a need, or an accident. In each of these cases, there must be acute observers, people listening, observing, connecting, and taking good notes.

After an idea is generated, the innovation process becomes more focused. How can we make this work? How can we make this profitable? How can we get people to buy this product? Can our operations make this product or service? Can we undercut the competition, or destroy them with our bells and whistles? How can we ensure success, or is it low risk enough that we can slap it out there and see if it works?

At this point, teams of people from different functional areas of an organization come together to move the idea forward and introduce the innovation into the marketplace. This step generally requires executing a myriad of details.

Key Points

- Most companies have a pretty clear process for introducing new products into the marketplace with these steps: idea identification, concept generation, project evaluation, product development, and launch.
- Most organizations do not employ an organized process to develop and bring to fruition new ideas. Yet there are many quick ways to do fast prototyping and ideation.
- Management needs a way to develop and capture new ideas so that the organization always has a pipeline of ideas.

- The process of innovation contains both divergent (developing many new ideas) and convergent (deciding which are worthwhile) aspects.

How effective are your innovation practices?

Evaluate your organization by rating each question from 1 (Hardly ever) to 5 (Almost always). Calculate the average of your answers and rate your score:

1–2.5: Innovation…WHAT?
2.5–4: Getting there…
4–5: We have a well-oiled machine

- Everyone in my organization understands the new product development cycle and executes it well.
- Everyone in my organization is encouraged to develop ideas through methodical ideation sessions.
- My organization has an organized system for developing and capturing new ideas.
- My organization has processes in place to reduce the time it takes to bringing new products and services into the marketplace.
- Most employees here feel free to question assumptions about how we do business.
- Innovation is the job of all employees through in place processes rather than just a couple of scientists or product developers.

How do you rate?

Chapter 6:
Creative Collaboration

> *"So, why collaborate now? Because we no longer have much of a choice. The trends are painfully apparent. On one hand, problems, opportunities, and the environments in which they appear are becoming more complex. On the other hand, to survive this explosion of complexity, people cultivate specialties… Why collaborate now? Not only because we don't really have a choice—but because it's the best choice we've got."*
>
> Michael Schrage, pp. 4–5

Despite the insidious myths about the lone innovator and inventor, most innovations move forward because of teams of people. Cross-functional teams push inventions out the corporate door into the marketplace. Groups of researchers combine their findings into viable designs. Customers and product developers team up to create better, more useful products. Even Michelangelo had 13 artists working for him on the ceiling of the Sistine Chapel. Though an interesting idea may emerge in a *eureka* moment from an innovator, groups typically introduce it into the marketplace.

Systems Approach

Like it or not, we are all part of larger systems. As such, if we are to innovate effectively, we need to work with larger systems creatively. Our innovations need to be accepted in order for us to succeed in the larger world.

Relationship with Suppliers

Creativity and innovation cause ripples in supply chains. But can suppliers provide the right raw material? For instance, I hire adjunct instructors to teach business courses. If I create an innovative, out-of-the-box curricula that will dazzle and excite students, I need to make sure that others can teach it. There have been times when I have produced new types of course content, only to have my adjunct professors throw it out and gone back to the old way of teaching it.

Relationships with Customers

It is an art to harness the ideas of one's customers. They can be great innovation partners. Like all people, customers are eager to be listened to. It can be done through traditional marketing research mechanisms like focus groups, surveys, interviews, and observation. It can be done through creative ethnography as discussed earlier. It can also be done through bringing customers into your meet

ings at your headquarters and making them part of your teams. In doing so, you could be turning your consumers into real prosumers, producers and consumers at the same time.

Relationships with Competitors

Welcome to the brave new world: an open marketplace of ideas, innovations, and inventions. The solid line between competitors is not as solid as it used to be. The vicious competitor of the past might be the current collaborator or vital member of your supply chain now. Perhaps you do not have the resources for an innovative new research project right now, or the scope of this project is much too large for one organization. Then, creative collaboration might make sense. As I write, the financial institutions of the United States are faltering and teetering toward bankruptcy. Now is a great time for them to collaborate for solutions.

Open Source Partners

Who really has the keys to brilliance, creative breakthroughs, or the hearts and minds of customers? Ultimately, an organization does not really know where its next innovation is coming from. Through open sourcing, partners may emerge from nooks and crannies that were never envisioned by a group of 50-year-old execs in a board room. That is why organizations must stay open to possibilities

in partnership and creative to new opportunities as they emerge. "We have never done that before" is no longer a valid reason in these turbulent times. Certainly, no one organization has all of the employee intellectual capital for new innovations. External human resources can be utilized for their wealth.

As the artificial barriers of competitor, supplier, customer, insider, and outsider erode, new forms of communication encourage collaboration between these agents. Collaborative software enables partners in Bangalore, Brittany, Belfast, and Biloxi to work together fluidly. New forms of social networking—Facebook, Twitter, MySpace—makes instant and continual communication the norm. Other mechanisms—conference calling, video conferencing, and Skype—create opportunities for virtual communication. All of these mechanisms make creative collaboration more accessible.

Principles of Creative Collaboration

Innovations often emerge from creative collaboration. People work together creatively to produce something new and different. But what are some principles of creative collaboration?

White Space

White space is where ideas collect, combine and grow into useful innovations. Available white space ensures that there is a place for new ideas or variations on ideas. White space might be blogs, computerized discussion boards, flip charts, white boards, or idea-capturing software. First-shift nurses use logs to communicate to second-shift nurses. On blogs or discussion boards, participants can build on each others' ideas asynchronously, long after an ideation meeting. During traditional ideation sessions, flip chart paper flies as ideas and action plans are captured.

Resource: Michael Schrage's
No More Teams

This book gives as indepth look at the dynamics of creative collaboration.

White communication space matters because it is a neutral space for captured ideas. The ideas are no longer Richard's or Jill's; they belong to the white space. Therefore, ego is more easily pushed aside, and real communication can happen.

Creative Abrasion

Innovation creates excitement and exuberance. Innovation happens at the confluence of ideas. When participants are shooting off ideas, some ideas will inevitably run into other ones. Accordingly, innovation isn't always pretty. Sparks and fur will fly. Ideas will bounce wildly and boomerang back. During these times, people will step on each others' toes. Well-meaning abrasion may occur. Management should encourage creative abrasion. Polite, well-mannered people, sitting at a table with hands folded and mouths shut rarely invent anything. Active, vociferous, wild-minded people do, and they can come across as abrasive.

Diversity

Diversity breeds innovation. Sameness produces same thought patterns and same ideas. Diversity comes in many forms: gender, age, functional silos, religion, racial, thinking styles, and information-processing patterns. Diverse points of view allow for different angles of vision and differing patterns of perspective.

Meeting Places

Creative collaboration necessitates places where people come together. This might be as informal as a water cooler or coffee table, or may be as formal

as an innovation room like I see in more and more places. Though research has not been done, I believe that cubicles produce more creative collaboration than offices. There are no doors to close, so people will much more readily walk into another's cube than another's office. Informal discussions, under these circumstances, are encouraged by this setup.

Action Learning Groups

One powerful way to spur innovation is through action learning groups. These groups, meeting monthly or more often, learn and grow together while they work on innovative practices. They train together in innovative techniques and they help one another use them effectively. Each meeting may focus on one or more innovation projects, using and keeping track of best practices. Members of the group hold each other accountable for meeting goals and deadlines in their innovation endeavors.

Action learning teams not only create new ideas, they keep old ideas alive and find new uses for them. They make sure that ideas have a shot of becoming real products by keeping them moving through a new product pipeline. Action learning groups also give an ear to others with ideas and projects in mind.

Groups that want to encourage innovation should train, and keep these action learning teams together. Tactics of innovation need to be taught so they can be used frequently and become part of the organizational culture. Training in group cohesion and innovative tactics is often necessary. Many employees are lone wolves, accustomed to working alone on projects, and therefore do not need guidance on how to work efficiently and effectively with others.

Communities of Practice

Communities of practice are broader than action learning groups. In fact, action learning groups can be a part of communities of practice. Communities of practice exist inside and outside of organizations. Communities of practice engage in the process of collective learning; they are like a tribe learning to survive. Communities of practice are groups with a common interest or domain. They share resources: tools, stories, shared practices and ways of addressing reoccurring problems. They are involved in individual and collective learning and growing.

The concept of communities of practice is not new. The Transcendentals–Emerson, Thoreau, Alcott—met formally and informally in Boston in the 1800s and talked philosophy. The Impressionist painters in Paris met in cafes and talked technique. Episcopal ministers in St. Paul, Minnesota meet weekly to talk about the Bible readings for the

week. Groups of therapists meet and talk about their most difficult cases and help each other.

A community of practice can help an organization be more innovative. Innovation circles, groups, contests, projects, seminars, and displays are visible within the ranks of the organization. People talk about their initiatives and projects; the topic of innovation is on the top of the mind in these organizations. Groups can share best and worst practices concerning innovation. Innovations can move forward faster given this kind of collaboration.

Examples of Creative Collaboration

Creative collaboration is the best path toward innovation. We are all smarter, more creative, and more resourceful than any of one of us. We must evolve from our individualistic culture into more of a collective culture where we can work together more creatively and more effectively. Here are some examples of creative collaboration:

Ideo. The "deep dive" process of the design company Ideo is a good example of creative collaboration. Their diverse group of product designers works with problems or opportunities through a series of steps similar to the ones spelled out in the "Fast Prototyping" section of this book. Their playful office space is filled with materials and mechanisms which might be used on the next great inven

tion. In the ABC *Nightline* video "*The Deep Dive,"* their designers are shown diverging and converging on a variety of ideas for the redesign of the shopping cart. The participants are having fun and new ideas for a shopping cart are being developed and explored.

General Electric. General Electric is famous for its leadership development center in Crotonville, New York. Management has these "workouts" where managers spar together and take each other on over policies and procedures. [With boxing gloves? If so, let's say it—it's a good image.] Creative abrasion is encouraged as no holds are barred. Many of these sessions turn into creative think tanks.

Edison's Menlo Park. One of the first great invention think tanks in American history was Thomas Edison's at Menlo Park. At any given time, he had five to fifteen engineers working there, side by side. At close proximity, they could interact and build on each other's ideas. This think tank was responsible for over 400 patents, including the telegraph and telephone.

Original Disney Studios. Walt Disney and his brother amassed hundreds of creative minds in the early days of the Disney Company. Many of these creatives worked side by side on cinematographic innovations. At the height of the early days at the

studio, 750 people created *Snow White and the Seven Dwarves*, at that time the most innovative movie ever made. Some referred to that project as "a dream with a deadline."

Key Points

- Collaboration is extremely important to the innovation process. Lone innovators are very rare.
- Collaboration can be learned; employees can be taught principles of innovation and grow in their capacity to work with others.
- Action learning groups can accomplish much work together as they fine tune their ability to collaborate together.
- Diversity, white space, creative abrasion, and watering holes are all essential for effective creative collaboration.

Creative Collaboration Assessment

Evaluate your organization by rating each question from 1 (Hardly ever) to 5 (Almost always). Calculate the average of your answers and rate your score:

1–2.5: We rarely speak the same language
2.5–4: We can move towards agreements
4–5: We read each others' minds

- I enjoy attending our task force meetings.
- I get a rush from all we accomplish in a short amount of time.
- We appreciate differences in individuals even when those differences annoy us.
- Informal brainstorming and meetings are encouraged.
- Everyone understands the processes that it takes to get work done.
- People feel free and willing to build on one another's ideas.
- We hire people with many different perspectives in our organization.

How do you rate?

Chapter 7:
Innovation: The Future

Predicting the future of innovation is like predicting the future itself—it is difficult and fraught with all sorts of discontinuities. Discontinuities such as 9/11, Katrina, the faltering of the banking system, or the bankruptcy of Iceland tend to throw events in different directions. Some trends, however, seem to be in place.

Smaller. Nanotechnology advances will produce many innovations smaller in size than predecessors. Entire newspapers will be printed on sheets of plastic only to be replaced with the next days' varieties. A small portable chip will carry all of our medical information.

Biomedical breakthroughs. The medical products industry will develop more devices and medications geared to prolonging and improving life.

Green. Environmental degradation plus resource scarcity will necessitate that occupants of the planet be more efficient in using resources. Necessity and tax breaks will bring about a flowering of green products and processes.

Prosuming co-creation. Increased communication technology will foster a blurring of the lines between supplier, company, and customer. Consumers and suppliers will take on co-creation roles in supply-chain innovations.

Communication. Faster and faster communication and social networking tools will become available as the Millennial generation, dragging the other generations with it, will insist on 24/7 connectivity. The backlash from this—people becoming less savvy about face-to-face communication—will spawn another soft skills industry bent on helping with old-fashioned communication.

Retro. In a backlash against an individualistic, fast-paced, virtual communication-based society, innovations in living styles and situations will create community-based living projects. Participants will share resources from cars to bikes to lawn mowers to physical space. Residents in these living situations will learn to live together and make a smaller carbon footprint on the planet.

Getting Started

So, where does innovation start? Some people think that to be innovative, one has to start big. Often it is best to start small and get some successes under

the belt before growing the initiatives. Here are beginner steps toward innovation:

Ideation sessions. Ideation sessions can be very useful. They collect many ideas from many sources. These sessions can collect, organize, and work with many ideas, thoughts, facts, and findings. Ideation sessions require both divergent and convergent parts. They require encouragement of wild ideas and squelching of nay-saying. Organizations can use ideation sessions for many challenges/ problems:

- Selecting partners for new ventures
- Finding high potential verges
- Blue ocean innovations
- Easier, cheaper, better, more convenient products/services
- Recombining organizational resources for new offerings

Quick prototyping. The process of quick prototyping is outlined earlier in this book. Groups can do this process all at once or in smaller increments. The important thing is to get a prototype out there for others to react to.

Innovation room. If the resources are available (mostly space and materials), many organizations find that having a dedicated innovation room can be useful. First, it is a message to the organization that **innovation is important**. The room should be equipped with white space materials: flip chart paper, white boards, computers. It should also have prototype materials: pipe cleaners, straws, clay, play dough, knickknacks, Legos, magic markers, and other little toys. There should be movable furniture in order to encourage flexibility in activities.

Anthropologist teams. Innovation often requires getting out of the office. Teams can observe your customers consuming your product/service, or your competitor's product/service. Watch customers from a target market that you wish to serve. What do they need/want? What job do they need done? Have a diverse group observe and take notes. Then discuss those notes in an ideation session.

Creativity techniques. Creativity techniques can loosen up the thinking of a group. Michael Michalko's book *Thinkertoys* has captured many of these. Here are a few.

- List as many uses of a brick or paperclip in five or ten minutes.
- List all the attributes of an item, say a baby stroller, and see how many permutations of

each you can think of, and then collect and combine them.

- Ask 25 questions about a tree, or orchid.

Blue Ocean techniques. Use the questions of the blue ocean strategies (listed earlier in this book) to build on to one of your offerings.

Book or video groups. Start a book group in your organization. Use one of the books or videos referred to in this book to start the discussion. Always bring the discussion back to how these techniques can be of use to your organization.

Work process. Have a group focus on one of your work processes. At every step, have participants ask "why do we need this step?"

Study behavioral science. New behavioral science findings on behavioral patterns—smoking, obesity, exercise, reading, computer usage—can give you clues on trends, and potential product/service offerings.

A Scenario

Global warming is in the news constantly. While the causes are hotly debated, the results are becoming painfully clear, and the people of planet earth need to start remedying this situation. With this problem

and others, innovative thinking can lead to some solutions. For instance:

- New renewable energy sources such as wind, waves, or biomass, can be developed to be less expensive and more efficient.
- Conservation methods can be improved and promoted more aggressively. Social psychology approaches as outlined in *Nudge* can make saving energy easier and more attractive to consumers.
- Carbon taxing on individuals in the form of taxes and tax incentives can save energy.
- New electronic gadgets can make energy usage more transparent. For instance, if a device told me how much a ten-minute hot shower cost versus a 3 minute shower, I can make an educated choice accordingly.
- Communities of practice can promote less usage and promote community spirit around reducing our carbon footprints.
- The Manhattan project in the 1940s and the NASA moon initiative in the 1960s provided a goal and a sense of urgency that innovators could rally around. Reducing global warming could be another one of these initiatives, with a sense of urgency.

We have proved over history that innovation can big solve problems, from the defeats of Germany and Japan, to the moon launch; from the transcontinental railroad to the Panama Canal. We can do it again, with innovation.

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