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Published monthly by:
Thomas E. Ollerman, Ph.D.
INNOVA, Inc.

**1749 S. Westwood
Mesa, AZ 85210**

480-838-4854 • Fax 480-897-6180
<http://www.innovainc.com>
email: tom@innovainc.com
\$21.95 Annual Subscription

Creativity in the Workplace: Success Factors

By Ian Rose

My research has revealed a large number of success criteria for fostering creativity and innovation in the workforce. Key findings are as follows:

Make the choice to be creative.

It sounds simple, but unless the organization wants to be creative, sees itself as creative and truly values creativity, the likelihood that it will, in fact, be creative is next to nil. One way to do this is to create a need. Shake the organization up and give it something to accomplish that cannot be accomplished by the procedures and practices that are present from the past. Inertia may set in when there is no need for change.

Decide first if a creative approach is the right approach.

Creativity and innovation are not, by definition, "good" things. The more time and money that you have, the freer you are to try something original. But because an original approach is less tested and less polished, it is often less efficient in the short run. Therefore, if you are on a tight schedule and budget, a "tried and true" approach might be better. During the delivery of services or the manufacture of products, creativity is actually a bad thing. Consistent timeliness, quality, and cost control are the watchwords in this part of the business. Who wants to buy from someone who provides highly variable service, sometimes excellent and sometimes disastrous, depending on the "creativity" of the service delivery person?

Seek out inspired leadership.

A high degree of excitement must be found at the

Executive Trivia Question...

Why were over 3.5 million Volkswagens recalled in 1972?

senior levels. The people in important management positions must not only be enthusiastic themselves; they must generate this enthusiasm among their associates. They need to urge their people to work less and think more. There can be no place, especially among people charged with management responsibility, for half-hearted interest or half-hearted effort.

Study creative motivation.

In the last 50 years of scholarly and applied work on creativity, motivation has been found to be the key to creative performance. Creative motivation is a complex phenomenon. It arises from the individual and is channeled through the situation. Much of the current work on creative motivation has focused on intrinsic motivation theory; that is, the joy and interest found in the creative endeavor. Conversely, we also know that many extrinsic motivators can kill creativity. These include deadlines, coercion, control, surveillance, and some rewards. In the real world we need to couple the intrinsic motivation that exists in the person with the extrinsic motivation provided by authentic business situations.

Loosen the controls.

There should be as little interference as possible with the creative process. In other words, people should not be told: "You can be as creative as you like ... as long as you make sure it looks like this." Creativity is often contra-organizational and should not be expected to follow processes that produced the last innovation.

Creativity rarely survives a formal corporate review.

If there is a right way to be creative and innovative, then creative people will rarely follow it. The majority of creativity and innovation seems to come from pockets within an organization, and the best way to ensure those pockets remain productive is not to mess with them. Creativity is spontaneous, fragile and fleeting, and it does not usually stay around in highly structured, rule-bound settings.

Promote empowerment.

In many cases, people do not believe they have the power to make an innovative difference, when they really do. They have forgotten the old adage: "It's better to ask for forgiveness than for permission." The majority of people in organizations are just not willing to leave their comfort zone when it comes to doing something really different. Management needs to make sure people understand that they are empowered to think and act for themselves.

Endorse teamwork.

A creative organization is an embodiment of the phrase "the whole is greater than the sum of its parts." The total knowledge of the organization is greater than the sum of the individuals' knowledge. Such an organization is not one in which quiet meeting rooms are filled with people focused on an overhead projector for hours on end. Creative organizations are more likely to be buzzing with the activity of teams trying and refining new ideas. You need such energy and synergy to drive creative change.

Support networking.

A creative organization does not pretend that it knows every-

thing, but has built up a network so that when it does not know, it knows someone who does. As companies go through massive change, people start getting burned out, disconnected from their network, and out of touch with their field. When people do not share with others, they are forced to focus only on what they already know and end up becoming too inbred.

Encourage a positive outlook.

Emotions are likely to impact your entire perception of a situation. For example, if you are euphoric, all problems may seem solvable. But, if you are depressed or sad, any problem may be too much to tackle. How good you feel, and how you feel about yourself, as well as how capable you feel you are, can either enhance or detract from your creative motivation. Be optimistic; believe in the world according to Pollyanna. Optimism works; pessimism is a dangerous concept in business and in life. Pessimism sucks out the fun and drains away your energy. If you are going to take a creative approach to complex tasks you have to be optimistic.

Utilize personal motivation.

Work-life usually requires that people leave their avocations at home. Yet most people, if they exercise their creativity, seem to do so through their avocations, interests, and hobbies. People might be able to realize more creative leadership through personalizing work; allowing their "artistic" gifts to spill over into their jobs, thus bringing more of their personal knowledge and experience to bear on the complexities of work life. Ways must be found

to tap the intrinsic motivation of employees, the passions that people harbor that they do not normally bring to work or which get suppressed at work.

Use the right language.

Managers must show in words and in deeds that they believe in creativity and innovation. They must promote the belief that "there are no mistakes, only learning experiences." They must not penalize those who make honest mistakes, but require them to "process" the experience instead. They should let people know that it is all right to talk about failure, and remove the threat that failure leads to some form of punishment. If you only emphasize success learning you miss the value of lessons learned. You also continue to repeat these same mistakes over and over again. If you are not having failures, you are not encouraging enough experimentation.

Tackle the problem, not the person.

Of course, people's views will be challenged, but the challenge will be directed at the problem and never at the person. That can be difficult, since working in close proximity will always cause people to develop preconceptions of each other. Organizations must create a culture that says it is okay to question everyone about the way they think; no holds barred, no sacred cows! However, as long as these interactions are devoid of back-stabbing, insidious gossiping, and political positioning, there is a much greater chance that the seeds of creativity will sprout, leaf out, and bear fruit.

Encourage "intelligent" risk taking.

This is sometimes expressed as "playing to win" as opposed to

"playing not to lose." There are many organizations that profess to allow risk taking, but the majority of them, when the rubber hits the road, act in ways that push their people right back into conventional behavior. Organizations in downsizing modes have particular difficulty with this, since they have likely created environments where safety and risk aversion are key. It is difficult to take a chance and step out of your thinking box, when the next job to be cut might be your own!

Create a climate of trust.

People are distrustful of authority figures, and as long as organizations possess this type of figure, trust will be impossible to maintain and preserve absolutely. Even if managers are able to communicate well, there are always skeptics. It is hard to imagine anyone, no matter how "perfect," being able to withstand the kind of scrutiny given to people in authority today. They might do all the right things, but it would still not be enough. To overcome this skepticism, management has to be consistently trustworthy, and demonstrate this through character and competence. Trust is a very personal thing; people need positive proof on an on going basis that the consequences for dissent are reasonable.

Reduce the fear factor.

Remove those elements of the hierarchical model that create fear in the workplace. Fear is not one of those resources that is scarce in today's economy. With fear, you only get compliant behavior - if you are lucky! People saying: "Yes, sir?" immediately pose a serious threat to your business. This

may work well in life threatening, disaster or crisis situations, but not for sustaining long-term survival in the increasingly complex world of business. Too many people are afraid to say something because they perceive it will destroy their ability to move up the corporate ladder. They prefer to play games, and this kills anything creative.

The management team which "never" errs and which books no "subversive" suggestions from the shop floor has no hope of developing a creative organization, whatever statements or structural changes they may make? It is impossible to be an entrepreneurial and an authoritarian organization at the same time.

Accept that failure or marginal success are very common.

The culture has to drastically change, from one that "shoots the messenger" to one that looks for the merit in mistakes before talking about the concerns. No one makes a 100% error unless they intend to sabotage the job. There is always something good to focus on in any mistake. If the perception among employees is that every undertaking must yield a major success, then creativity and innovation are lost. It is much like gold mining, in that many tons of rocks may yield but a few nuggets, but those nuggets make all the waste and effort worthwhile.

Learn from the past.

Individuals do not operate in a vacuum, they do not create their ideas out of nothing. All innovations have a pedigree, an intellectual lineage that goes back far beyond the person or persons who "created" them. In fact, this is so

(continued on page 7)

The Idea Incubator

by Frank Helton

How can fish farming be gaining on cattle ranching?

Fish farming is poised to overtake cattle ranching as a food source by 2010, according to **Lester R. Brown**, board chairman of the Worldwatch Institute.

The world's once-bountiful natural systems for food production - rangelands and oceanic fisheries - are reaching their productive limits, argues Brown, while aquaculture is already the fastest-growing sector of the world food economy. Its output grew at 11% per year during the 1990s, with fish farmers producing 31 million tons in 1998, up from 12 million tons in 1990. During the same decade, there was little growth in either beef production or the oceanic fish catch.

Aquaculture uses fewer resources than ranching. Cattle need to consume 7 kilograms of grain to add 1 kilogram of live-weight, but fish can add a kilogram of live weight with less than 2 kilograms of grain. And since it takes 1,000 tons of water to produce 1 ton of grain, fish farmers use water more efficiently than cattle ranchers, even including the pond water required in aquaculture.

In a world of land and water scarcity, the advantage of fish ponds over feedlots in producing low-cost animal protein is clear. About 85% of the aquaculture industry is concentrated in developing countries. China leads the

world in fish farming, with India a distant second. Indonesia, Thailand, and Bangladesh also have significant aquacultural output. In China, more than 12 million acres of land is devoted exclusively to fish farming; over 4 million acres of rice land is used to produce fish and rice together.

How can we travel on Mars?

The ultimate SUV - 5-foot-tall tires, an inexhaustible power supply, and a drive train rugged enough to traverse the canyons of Mars and it's inflatable for easy transport. **Jack Jones**, an engineer at the Jet Propulsion Laboratory, designed this super-buggy to reconcile NASAs seemingly contradictory demands for exploring Mars. The agency wants a robotic explorer big enough to roll over large obstacles, but small and light enough to slip easily into a launch payload.

An inflatable structure allows this Mars buggy to satisfy both goals. On Earth it weighs just 55 pounds and, knocked down, would measure 3 feet wide and 10 inches high; on Mars, air pumps would puff the rover to full size. Its beach-ball-like tires are made of a puncture-resistant polymer, and its solar cells are also inflatable, expanding into a tepee shape to catch low-angle light and shed dust. Jones has successfully guided the rover through 30-mile-per-hour gusts, over 2-foot-tall rocks, and across sharp-edged volcanic

flows. Under consideration for a 2007 Mars mission, the rover is already a hit on Earth. "We've taken it to Disney World, and the kids love it because you can make the rover run over them and they barely feel it."

How can we stop drunk bicyclists?

Friends shouldn't let friends bike drunk, says **Guohua Li**, an emergency room physician at Johns Hopkins University. Each year, about 800 people die in bicycle accidents - and those who are seriously intoxicated are 20 times more likely to suffer serious or fatal injuries.

Li followed up this finding with a study of the records of 124 alcohol related biking accidents from a Maryland trauma center. Then he returned to the scene of the mishaps to assemble a control group for comparison. At each spot, he and his assistants stopped cyclists at random and administered anonymous Breath Analyzer tests. Those with blood alcohol higher than 0.12 percent - about the effect of one beer - made up 2 percent of the control group, but 12 percent of the injured group, a six-fold increase in risk. Those who tested as legally drunk, with blood alcohol of more than 0.08, were 20 times as likely to injure themselves. **Susan Baker**, a health policy expert at the Johns Hopkins School of Public Health and a study co-author, sees a sad irony in the results. "Many of these bicyclists may be people who have lost

their driver's licenses after drinking and driving".

How can we improve windmill farms?

Windmill farms take up space. They're also noisy, and can be an eyesore. So **Bryan J. Roberts**, a researcher at Australia's University of Western Sydney, came up with an alternative idea: a flying windmill called a gyro-mill that looks like a king-size kite stripped of fabric and outfitted with helicopter rotors. An electric motor would drive the rotors as the gyro-mill climbs up into the jet stream. There, the motor would be switched off. The jet stream would turn the blades, keeping the craft aloft and also generate electricity, which would be piped down to the ground via a copper-cable tether. Roberts envisions flotillas of gyro-mills, each producing 20 megawatts of electricity.

To prove the concept, Roberts has asked the Australian government to cough up nearly \$1 million to test a small 50-kilowatt prototype.

Australia's aviation agency must approve the project, since planes would have to be banned from the area because of the dangling tethers. Roberts says a remote section of New South Wales would be ideal, and he is optimistic about getting the go-ahead later this year.

How can stop the growth of kudzu?

Stuart Wilkinson is probably the only person on Earth who has to

stop and think, "Oops - time to feed the robot." He's the creator of Chew Chew, a 3-foot-long train-like machine that runs on food. A plastic "stomach" contains E-coli bacteria that metabolizes sugar, releasing electrons as it breaks it down. A chemical derived from the henna plant scoops up the electrons and carries them to one side of a fuel cell. They are then drawn even more strongly to oxygen atoms on the opposite side, so the electrons flow across the cell, creating a current.

Wilkinson, a roboticist at University of South Florida in Tampa, added an esophagus to vent carbon dioxide and to prevent the robot from ingesting air with its food; even a little bit of oxygen would disrupt the chemistry and block the flow of electrons. This restriction keeps Chew Chew a vegetarian because without oxygen, bacteria cannot digest the fats found in meat.

Right now, a meal of three sugar cubes takes 18 hours to digest but provides Chew Chew with only 15 minutes of power. Wilkinson is optimistic that drastically improved "gastrobots" will someday be able to monitor a farmer's orchards or vineyards, feeding on plants as they go. "One idea is to release a swarm of gastrobots that are targeted to a particular pest plant, like kudzu. You let them out and they consume just that species to keep themselves going."

Are stock brokers a bunch of sheep?

Hard numbers may confirm what day traders have long suspected:

Stockbrokers are a bunch of sheep. Physicists **Victor Eguiluz**, at the Niels Bohr Institute in Denmark, and **Martin Zimmermann**, at the University of Buenos Aires in Argentina, created a program in which software agents randomly buy, sell, or share information when they receive a simulated stock tip. These "brokers" were linked together to act like herds. When the researchers varied the speed at which the digital brokers shared rumors, the model replicated real stock market patterns. Fast-spreading rumors produced large price variations, while slow ones yielded smaller, noisy fluctuations. The rumor mill effect blurs the line between passing tips and manipulating prices. "If just a few percent of the people who receive the tip follow it, it can have an amazing effect on the market."

How can we get cleaner air from gas pumps?

For every 10 gallons of gas we pump, 1.3 oz. of vapor floats into the atmosphere, contributing to the destruction of the ozone layer. So concerned scientists at GKSS Research Center near Hamburg created a machine that sucks the vapor from the air. With each gallon of gas pumped, one and a half times as much air is pulled into the station's holding tanks, where a series of silicone-treated filters reclaim the hydrocarbons and redeposit them into the station's tanks. The air that's released is 95% clean.

Kids Ask the Hardest Questions

by Thomas E. Ollerman, Ph.D.

Who invented the cell phone?

You can thank inventor *Martin Cooper*. The silver-haired 72-year-old grandfather made the first call from a cell phone in 1973, five years after he started working on the idea. But he predicts his invention will be obsolete in a few decades because humans will have telecommunication chips implanted directly in their bodies.

He thinks you will be able to communicate by either thinking about or saying the person's name. It might not happen in his lifetime. But it will definitely happen. Back when he dreamed up the cell phone, people said it couldn't be done. They said no one would want to talk person-to-person on portable cell phones. Now more than 100 million people in the U.S. use them.

Cooper spent half of his 29-year career as an engineer with Motorola Inc., developing the portable, battery-powered cell phone. It took 15 years and cost the company \$90 million to make it a practical reality - and he had to fight skeptics along the way. There were a lot of naysayers like AT&T, the industry giant back then that was focused on selling car phones, which only worked inside vehicles.

Cooper envisioned a different technology to give people the ability to phone anytime from anyplace and Motorola worked night and day to make it happen.

On April 3, 1973 - 97 years after Alexander Graham Bell became the first person to speak over a phone line - Cooper took a two-pound box of wires and batteries that contained 2,700 different parts onto Lexington Avenue in Manhattan and made the first private call from a handheld cell phone. He called a friend named *Joel Engel*, head of research at Bell Labs.

Hired by Motorola in 1954, he developed portable products, including the first handheld police radios, made for the Chicago police department in 1967. He then led Motorola's cellular research. Today he's the head of ArrayComm Inc., a San Jose company developing a new technology designed to make cell calls clearer and more reliable. He doesn't think the big change in the future will be technology. It will be people and the way they use technology.

Are people getting fatter or what?

A staggering 300,000 U.S. deaths a year are linked to obesity. But Americans aren't alone when it comes to weight problems. According to new statistics, 1.1 billion people worldwide have a body mass index higher than 25, which classifies them as obese or overweight. Researchers at the Worldwatch Institute in Washington, D.C., blame this trend on the spread of the sedentary, urban lifestyle.

Is there an end to the solar system?

Until recently our solar system appeared to have no end in sight. Astronomers had discovered that the space between Neptune and Pluto is full of Kuiper belt objects - chunks of rock and ice left over from the formation of the solar system - that seemed to continue as far as telescopes could explore. But graduate student *Lynne Allen* of the University of Michigan may have spotted the end of the vastness. Along with her adviser, *Gary Bernstein*, and *Renu Malhotra* of the University of Arizona, Allen surveyed the outer fringes with the powerful four-meter telescope at Chile's Cerro Tololo Observatory. The team easily detected Kuiper belt objects out to a distance of about 5 billion miles. But beyond there, where scientists expected the icy bodies to be even more common, they found nothing.

It could be that the solar system has an edge to it. Perhaps early on, a rogue protoplanet broke free and took a bunch of the Kuiper belt objects with it, or a passing star stripped away our sun's outer kingdom. On the other hand, the edge might be the original boundary of the primordial solar system. If so, astronomers have greatly overestimated the size of the gassy disk from which the planets coalesced.

From the Institute for Collaborative Alliances

BY Scott Romeo

Looks Good on Paper

Many organizations are completing a financial and legal due diligence on their alliance opportunities, but are failing to look at either corporate or country cultural issues. As a result, there is an 83% failure rate when two or more companies try to work together.

It won't happen to us.

This is the attitude many executives have taken as they enter into strategic relationships. Mergers, joint ventures, acquisitions and alliances are struggling to produce a return on shareholder value, yet these relationships are being initiated at a rate of several hundred a day worldwide. While many executives believe it won't happen to them, statistics indicate that a company only has a 20% chance of success.

It's the simple things.

Many of these relationships appear to be a success on paper, but fail to produce results during execution. While legal and financial experts adequately complete their due diligence, the key to success is in the implementation.

Many alliance-related stories of the past two years indicate that these relationships are failing due to a culmination of several missed expectations that are culture-based.

One of the mostly highly chronicled mergers of the past year has been the DaimlerChrysler merger. It was believed by all that this "merger of equals" looked good on paper; however, the two sides faced several cultural differences from the very beginning. For example, the Daimler team resented the fact that they were not allowed to smoke in the Chrysler Auburn Hills headquarters. Due to differing travel policies, the Executives from Chrysler traveled "coach" or "business class" while the secretaries for the Daimler Executives were permitted to travel First Class.

Apparently no one completed a culture compatibility assessment to identify and address these potential differences. While one or two differences may not be determining factors in the success of an alliance, overtime, the culmination of several of these basic differ-

ences, exacerbate the issues.

Lessons Learned.

While a financial and legal due diligence is critical to initiating and developing a working relationship, it is even more important that a cultural assessment be conducted in order to identify and address those potential pitfalls that are contributing to the 83% failure rate among alliances.

ICA has developed a cultural assessment consisting of nearly 2,700 Key Indicators that identify cultural differences between organizations. "We completed a cultural assessment of an organization with two facilities within site of each other and they had two distinct cultures which often prohibited them from working together," said Scott Romeo, Senior Partner with the Institute for Collaborative Alliances.

-- Scott A. Romeo

For further information, contact:
Institute for Collaborative Alliances

1749 South Westwood
Mesa, AZ 85210 USA

480-838-4854

www.icalliances.com

Creativity (Cont.)

(From page 3)

frequently the case that the typical response to such innovations is the plaintive question: "Why didn't I think of that?"

Use those creative ideas.

A company always has pockets of people who rise to the challenges in front of them, people

who feel some control over their destiny and who have a real belief they can make a difference. However, these people will stop producing creative ideas for your organization if you do not use them. It is not that they will not have any creative ideas; it is just that they will stop sharing them

with you!

For further information contact: Ian Rose, IBR Consulting Services Ltd., 5110 Meadfield Road, West Vancouver, British Columbia, CANADA V7W 3G2 (604)-926-9181 or (fax) 604-926-9182. E-mail: IBRConsulting@compuserv.com

Animal Whys?

by Jocelyn Little

- On October 18, 1987, the Associated Press reported a school of dolphins surrounded a small boat and pushed it in the direction of a buoy. There the man in the boat found a young dolphin entangled in the anchor rope. He freed the animal and the other dolphins began whistling with joy, leaping out of the water and following the boat until it reached port.

- The blood fluke is a terrible parasite that afflicts more than a hundred million people yearly. During its complicated life cycle it must pass from a snail host to sheep or cattle. The infected snails expel mucus, which is then eaten by ants. A single parasite makes its way to the ant's brain, takes over the nerve center, and henceforth guides the ant's behavior. Like little robots, the ants are compelled to climb to the tips of grass blades and cling there for hours, stuffed with parasites. In the words of William Hohorst, German parasitologist, they "literally offer themselves to be eaten" by sheep and cattle.

- Elephant-trunk fish navigate in the murky waters of the Nile by surrounding themselves with an electric field.

- Hydras live underwater and move by turning cartwheels on their tentacles. They look like disembodied hands.

A Chinese Language Lesson

Can you match the words with the correct translation?

- | | |
|------------------------|--|
| 1. Hu yu hai ding? | a. When two Chinese people have a black baby |
| 2. Ti ni po nei | b. Are you trying to save electricity? |
| 3. Ai bang mai ni | c. I hurt myself on the coffee table. |
| 4. Hu flung dung? | d. Do not light up a cigarette. |
| 5. La ni kah sun | e. You look like you've gained weight. |
| 6. Wai so dim? | f. This is an interesting meal. |
| 7. Wai yu mun ching? | g. Is the bus late? |
| 8. Tsum ting wong | h. You're blowing your diet. |
| 9. Ti ni bai bi | i. You stepped on my foot. |
| 10. Kno tsmo king | j. I have no money. |
| 11. Chin tu fat | k. Are you harboring a fugitive? |
| 12. Tayst lyk pooh | l. Late night Chinese talk show |
| 13. Mi tso hor ni | m. A small horse. |
| 14. Wai yu do dat? | n. Why are you singing a Spice Girls song? |
| 15. Hao long wai ding? | o. Did someone fertilize the field? |
| 16. Wai yu sing dum | p. You're very pretty. |
| 17. Mi so poah | q. A premature infant |

<p>Thought to Ponder...</p> <p>The more you give, the more you get. The more you do unselfishly The more you live abundantly. The more of everything you share, The more you laugh, the less you fret. The more you'll always have to spare. The more you love, the more you'll find That life is good and friends are kind. For only what you give away, Enriches us from day to day. - Unknown</p>	<p>Answers to above:</p> <p>15-g; 16-n; 17-j; 11-e; 12-f; 13-p; 14-i; 6-b; 7-h; 8-a; 9-q; 10-d; 1-k; 2-m; 3-c; 4-o; 5-l;</p> <hr/> <p>Executive Trivia Answer...</p> <p>Danger of wiper arm failure.</p>
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