

"The definitive guide to managing for creativity in  
any kind of company."

—Victor K. Kiam, Chairman, Remington Products Company, L.L.C.

# CORPORATE CREATIVITY

*How Innovation  
and Improvement  
Actually Happen*

ALAN G. ROBINSON & SAM STERN

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# **Contents**

Acknowledgments	ix
Introduction: The Power of the Unexpected	1
1. The True Nature of Corporate Creativity	5
A Look at Corporate Creativity • Managing for Corporate Creativity • The Six Essential Elements of Corporate Creativity	
2. How Preconceptions Limit Corporate Creativity	18
The No-Preconceptions Principle • Who Will Be Involved in a Creative Act? • The Fundamental Attribution Error • A Bad System Will Beat a Good Person Every Time • The Routine and the Nonroutine • What Will the Creative Act Be?	
3. What Do We Really Know About Creativity?	40
The Personal Characteristics of a “Creative” Person • Is There a Recipe for Creativity? • How to Motivate for Creativity	
4. The Decline of the Simple Suggestion System and the Rise of a New Generation	60
An Order-of-Magnitude Difference • Participation Is the Key • Systems for Corporate Creativity: The First Generation • The Rise of the Second Generation • Toward a More Holistic Approach	
5. How Misalignment Shuts Down Creativity	89
Lenin, Stalin, and Mass Creativity • The Trouble with Quotas • In the Absence of Market Prices • How Creativity Can Threaten a Manager	

<b>6. Alignment: The First Essential Element</b>	<b>105</b>
Making the Goals Clear • Creativity on the Front Lines	
• Advocates for Ideas • N659AA: A Very Special Airplane	
• Creativity Through the Rearview Mirror • How to Promote Alignment	
<b>7. Self-Initiated Activity</b>	<b>126</b>
The Bar Code: Born on a Florida Beach • The Point of Entry	
• Systems with Follow-Through Go a Long Way • Idemitsu Kosan's Rewardless System • How to Promote Self-Initiated Activity	
<b>8. Unofficial Activity</b>	<b>149</b>
Six Hundred Fifty Dollars for a Drawer? • Creativity Behind Enemy Lines • When Ink Explodes • Reaping the Benefits of Unofficial Activity • How to Promote Unofficial Activity	
<b>9. Serendipity</b>	<b>175</b>
Finally, Something to Put a Universal Solvent In • What Does Serendipity Really Mean? • A Dead Chicken Started It All	
• Serendipity Can Help You Find What You Seek • Redundancy and Randomness: The Raw Material of Creation • How to Promote Serendipity	
<b>10. Diverse Stimuli</b>	<b>193</b>
If Pigs Could Talk • Thirty-Four Days to Paint a Cadillac?	
• When Companies Identify the Stimuli • Stimuli Arise from the Work Itself • Helping Employees to Find Diverse Stimuli	
• How to Promote Diverse Stimuli	
<b>11. Within-Company Communication</b>	<b>214</b>
My Shoes Are Ruined • Mickey and Minnie in 3-D • Realizing the Creative Potential of Large Companies • How to Promote Within-Company Communication	
<b>12. Unleashing Corporate Creativity: Where to Start</b>	<b>237</b>
From Our Journey to Yours • Criteria for Corporate Creativity	
<b>Notes</b>	<b>249</b>
<b>Index</b>	<b>259</b>
<b>The Authors</b>	<b>277</b>

## Introduction

# THE POWER —of the— UNEXPECTED

➤ Many organizations helped us during the writing of this book and encouraged employees at all levels to spend time with us. Their interest and enthusiasm reflect the general realization that creativity in companies falls far short of what is possible. Most companies are aware that their creative *potential* greatly exceeds their creative *performance*. The problem is that they don't know what to do about it. We believe that this potential cannot be realized until people recognize where it actually lies. Consider this. Most creative acts, as they now occur in companies, are not planned for and come from where they are least expected. It is impossible to predict *what* they will be, *who* will be involved in them, and *when* and *how* they will happen. This is the true nature of corporate creativity, and it is here that a company's creative potential really lies. For corporate creativity, the real power is in the unexpected.

A good example of the power of the unexpected occurred at Japan Railways (JR) East, the largest rail carrier in the world. This company never anticipated that constructing a new bullet-train line through the mountains north of Tokyo would lead it to a new and very profitable business—in beverages. The new train line required many tunnels. In the tunnel through Mount Tanigawa, water began to cause problems, and JR East engineers drew up plans to drain it away. But inside the tunnel, construction crews had found a use for the water—they were actually drinking it. A maintenance worker, whose job was to check the safety of the tunneling equipment, thought it tasted so good that he proposed that instead of pumping it away into runoffs, JR East should bottle and market it as premium mineral water. His idea was implemented,

and soon the water appeared on the market under the brand name Oshimizu. Within a very short time the water became so popular that JR East installed vending machines for it on every one of its nearly one thousand platforms in Tokyo and eastern Japan. Advertisements for the water emphasize the purity of Mt. Tanigawa's snow pack, the source of the water, and the slow process by which it percolates through the mountain's unusual geological strata, picking up healthful amounts of minerals such as calcium, magnesium, and potassium. A JR East subsidiary now offers home delivery of it in cases or twenty-liter containers, and the product line has grown to include juices as well as iced and hot teas and coffees. In 1994, sales of Oshimizu beverages were \$47 million.

Spectacular creative acts like this do happen now and again in companies, but the vast majority of them are far less dramatic. Consider, for example, the American Airlines flight attendant who sent a suggestion into headquarters in Dallas, Texas, one of some forty-five thousand ideas the airline received that year from its employees. She attached a plastic lid to the suggestion form. This lid, she explained, was a cover for the metal pots that flight attendants use to serve coffee. It was meant to keep the coffee warm and to prevent it from spilling on the passengers in the event of turbulence. Standard procedure called for the catering division to provision each aircraft with ten of these lids. However, the flight attendant had noticed that at the end of each flight, at least half of the lids were being thrown away unused. She proposed that only five should be put on each flight. The airline initiated a study of her proposal. At first, the potential savings seemed negligible—each lid cost only 1.5 cents, hardly worth bothering about. It was soon realized, however, that saving five lids would mean saving 7.5 cents per flight, and with more than 2,300 flights per day on each of 365 days in the year, her idea about penny-and-a-half coffeepot lids was worth more than \$62,000 in annual savings.

JR East did not anticipate its entry into the beverage business, nor did American Airlines plan to squeeze cost savings out of its in-flight coffee service. Both ideas were initiated by individuals and were entirely unanticipated by their management. Through our investigations of creativity in companies around the world—even in Japan, where Japanese and foreigners alike seem to think it is not supposed to happen—we



came to realize that the majority of creative acts, whether dramatic innovations or tiny improvements, occur in this way. They are not only unplanned but completely unexpected.

Before we met, each of us had already arrived at this realization. For Sam Stern, it came during his two-year study of creativity in Japanese companies, sponsored by the Japan Management Association (JMA). The study looked in detail at projects that had received national awards from the government's Science and Technology Agency and the Japan Institute of Invention and Innovation from 1986 to 1990. An interesting fact emerged. More than half of these award-winning projects had been initiated by individuals and had not been anticipated by anyone else at their companies. Furthermore, the novelty and impact of these self-initiated projects far exceeded that of the projects initiated by management. A second phase of the JMA study compared all the award-winning projects (some two hundred of them) with a comparison sample of projects that were commercially successful but not especially creative. A similar pattern emerged: the award-winning projects were more likely to have been initiated by individuals, while those that were not especially novel were far more likely to have been planned for by management.

At about the same time, Alan Robinson was noticing a similar phenomenon in the world of continuous improvement. His studies of the best and the worst practices in the world took him to organizations in many countries. Almost all the companies he looked at made use of some kind of planned approach to continuous improvement, an approach in which *what* to improve, *by how much*, and *by whom* was decided in advance. Sometimes even a particular problem-solving method was prescribed and followed. Yet the top performers invariably placed greater emphasis on systems designed to stimulate improvements that had not been planned for. Here, too, the more novel and far-reaching improvements tended to be the unanticipated ones.

This book grew out of our common insight that companies could dramatically increase their creative performance if they recognized the true nature of their creativity and learned how to promote unanticipated creative acts. So that you can see this for yourselves, we have included many detailed accounts of how creative acts actually occurred in companies. In every case, we focused on the part of the story that is usually ignored—the unexpected origins in each instance. We often wondered

why they proved to be so difficult to unearth. Perhaps a natural tendency of management is to believe that it is more in control of events than it really is, particularly when those events lead to successful improvements or innovations. Over time, corporate word-of-mouth and even official company histories obscure the unexpected origins of creative acts, substituting simplistic and misleading accounts of what really happened. Early on, we learned the danger of relying on secondhand information.

There is no shortage of advice available on ways to promote creativity in companies, but much of it seems to assume that people will suspend their critical faculties. It is hard to imagine how making chicken yells, rearranging the furniture, or expanding the cafeteria menu to include Thai food and tofu (as one recent book suggests) could have helped the JR East maintenance worker or the American Airlines flight attendant come up with their ideas. The truth is that recommendations such as these have little, if any, connection to actual creative acts. In the course of our investigations, we have been careful to connect creative acts with the actions that really contributed to them.

An entirely different perspective on managing creativity comes with recognition of the power of the unexpected. We believe that any company that follows the recommendations in this book will raise its creative performance to much higher levels.

## Chapter One

# THE TRUE NATURE —of— CORPORATE CREATIVITY

*"Microsoft's only factory asset is the human imagination," observed the New York Times Magazine writer Fred Moody. . . . After exposing an audience to the Microsoft quote, I ask a telling question: "Does anyone here know what it means to 'manage' the human imagination?" So far, not a single hand has gone up, including mine. I don't know what it means to manage the human imagination either, but I do know that imagination is the main source of value in the new economy. And I know we better figure out the answer to my question—quick.*

TOM PETERS<sup>1</sup>

Early in the Korean War the U.S. Air Force hired Paul Torrance, holder of a newly acquired doctorate in psychology, to develop a training program that would prepare its pilots and crews to survive extreme conditions of deprivation and danger, including intense cold or heat; lack of food, water, or shelter; and being downed at sea, in the jungle, or even behind enemy lines. The immediate and urgent reason for his assignment was to prepare aircrews for the particularly brutal experience some would face as prisoners of war (POWs) in North Korea. Torrance reviewed the research literature and studied existing training programs. He also interviewed hundreds of Air Force personnel who had survived such experiences in World War II. In the end, what he found surprised him: the thing that had proved most critical for survival was something that no training program taught: *creativity*. Existing courses offered plenty of information about how to deal with a variety of hostile conditions, discussed actual cases of people who had survived and even escaped from POW camps, and often included realistic simulation exercises. But Torrance found that no matter how much training people

had received, when faced with the real thing, they almost invariably had to cope with *unexpected* situations. Those who survived had combined elements of their training and life experiences to create a completely new survival technique, one they had not been taught.

In describing the importance of creativity to survival, Torrance wrote:

*Creativity and invention are adaptive forces which have perhaps been given too little attention in connection with problems of survival and survival training. Successful survivors describe many creative and imaginative behaviors which not only solved immediate problems for them but apparently gave them renewed energy for continued adaptation.*<sup>2</sup>

This discovery fascinated Torrance and led him on to a distinguished research career in creativity, one that spanned more than forty years. In fact, he would later create the now widely used Torrance tests of creativity.

## **A Look at Corporate Creativity**

Few organizations would need a formal study to convince them that creativity is important to their long-term survival. However, Torrance's study also identified the connection between creativity and the unexpected, a connection that came to light only after he looked in detail at how air-crews *actually* survived. Corporate creativity is also tied to the unexpected. But we, too, came to realize this only after our own detailed study of how creative acts are actually initiated in companies. Let us now look at three examples, each of which occurred in a different industry.

### ***From Cheese to Clinical Medicine***

Creativity can and should happen in any kind of organization, not just in high-technology companies. Consider this example from Snow Brand Milk Products, a Japanese dairy company with 8,600 employees.

In April 1980, Tomoshige Hori, a young researcher at Snow Brand, went to a symposium in Tokyo on the thermophysical properties of materials, where he happened to attend a lecture by a professor from Keio University. The subject of the lecture had nothing to do with anything Hori had worked on, was working on, or planned to work on. It was

about a new way to measure the thermal conductivity of a liquid using a “hot-wire” with an electric current passing through it. Hori’s job at Snow Brand was to investigate ways to make dairy products more nutritious and better tasting. He worked on such projects as improving the “bite” of yogurt or the texture of ice cream. Even though the ideas discussed in the lecture bore no obvious relation to Hori’s work, or to any other work done at Snow Brand, he was intrigued and began to experiment in his lab. However, instead of using water, as described in the lecture, Hori decided to use a liquid his company had a lot of—milk. Using experimental apparatus that he built himself, he began to measure its thermal conductivity.

One midsummer afternoon, he left the lab and forgot to turn off the electric current to the thin platinum hot-wire. When he came back the milk had curdled. It normally took only twenty seconds to measure its thermal conductivity, but Hori had left the heat on for *several hours*. Glancing over the printout, he noticed that at one point a large temperature change had taken place in the hot-wire. It didn’t take him long to figure out that this temperature jump had occurred at the instant when the milk curdled. He knew that the point at which milk curdled was related to cheese making, although he knew little else about this process. His curiosity aroused, he did some reading and went to talk with the people responsible for cheese production at Snow Brand. He soon found out that being able to monitor the amount of curdling in milk is crucial to making good cheese. Just as cheese manufacturers all over the world had been doing for centuries, Snow Brand relied on the subjective judgment of skilled workers who stood over the open vats of curdling milk and, using their experience, called out when it was time to “cut the curd.” The timing of this decision was critical: cutting the curd too early resulted in a poor yield, but cutting it too late meant the cheese would have a poor taste. Hori realized that his discovery—that curdling could be detected by monitoring temperature changes in the platinum hot wire—could lead to a highly accurate and even automated process for making cheese. He tells what happened next:

*I was convinced that I had stumbled upon something new, and reported the result to my laboratory group. The reactions from my boss and colleagues, however, were not encouraging, and it was suggested*

*that I had better stop such anti-application-oriented or “weeds” research. I was in no position at that time to contest this decision and had to stop further work for the next one and a half years. . . .*

*Despite this discouraging setback, I decided that I must get the results published in a scientific journal, otherwise the idea would be put on the shelf with many others to just gather dust. I submitted a paper in English to the most authoritative journal in the field and applied for an international and national patent.<sup>3</sup>*

Hori's paper was accepted in the *Journal of Food Science* and, when it was published, generated considerable professional interest.<sup>4</sup> Encouraged, Hori once again approached his management and presented them with the results of his unofficial research. He showed them several letters from prominent foreign researchers who had written to him about the *Journal of Food Science* article. The evidence of interest and the approval of such well-known experts at last proved compelling, and about three years after Hori attended the lecture that started his interest in heat transfer, the management of Snow Brand Milk at last gave his project full official support.

Even with the full support of top management, however, it took a further two years to develop the idea to the point where it could be used in actual cheese production. Two more years were needed to enlist the support of the technical personnel at Snow Brand's cheese factory in northern Japan, which had been selected to pilot the new process. Hori, who was based in Tokyo, visited the plant almost every month during this time, spending more than a week there each trip. He knew that he needed the support and expertise of the company's technical personnel if his new process was to be successfully developed. He was also well aware of the human aspects of his discovery—in particular, it would affect the prestigious jobs of the highly skilled cheese makers.

By 1988, eight years after the professor's lecture on thermal conductivity, Snow Brand Milk had installed new hot-wire probes in the curdling vats at all its mechanized cheese plants in Japan. Today, in Japan and throughout the world, hundreds of thousands of tons of cheese are produced each year using the process developed by Hori. In recognition of his creativity, Hori received a national award from the Japan Institute of Invention and Innovation in 1990.

The story does not end there. In 1992, Stoelting, a U.S. dairy equipment company, began marketing Snow Brand's system in the United States under the name Optiset. In 1997, the largest customer for Optiset was Land O'Lakes, a leading U.S. dairy company. Other U.S. cheese manufacturers have been slower to adopt the hot-wire method because of the issues it raises regarding the jobs of their skilled cheese makers, who hold important and influential positions in the industry. The hot-wire technology developed by Hori has also been used commercially to measure the viscosity of inks, paints, and chemicals and may one day even provide a way to measure the viscosity of blood without having to draw a sample.

### ***Eliminating Your Own Job***

When people discuss creativity in companies, they generally refer to spectacular innovations in *other* organizations, the ones that make good stories. Rarely do they bring up everyday examples of creativity in their *own* companies, the bulk of which are far less dramatic. Consider this example we came across at DCM-Daewoo, an Indo-Korean joint venture that produces medium-sized trucks in Surajpur, India, a town about thirty miles west of Delhi. The creative act here involved an improvement in the way windshield-washer jets were adjusted to squirt water onto the correct area of the windshield. Previously, two workers were required to do this job: one sat inside the cab and pressed the washer button to squirt the water, and the other stood on the bumper and adjusted the jets. The worker inside the cab thought that with a simple extension-cord device attached to the windshield-wiper control arm, the worker outside the cab could activate the jets alone. With the help of the plant's continuous improvement department, he designed and built such a device and proved that it could be successfully used on the assembly line. In other words, the suggester proposed a way to *eliminate his own job*. The improvement was made, his job was eliminated, and he was reassigned to new work.

### ***What Are Those Yellow and Black Tags?***

There is also room for creativity in companies that must operate with highly standardized procedures, like the airlines, for instance. Consider this example from British Airways (BA), the largest airline in the world. In early 1993, Ian Hart, a BA baggage handler working in Terminal 4

at London's Heathrow Airport (BA's international terminal), initiated what would be an important creative act for his company. He often worked in the luggage carousel area where arriving passengers went to collect their baggage, and he found himself frequently being asked a certain question. The bags with yellow and black tags always seemed to arrive first at the carousel, and the passengers wanted to know how they could get these tags for their bags. Hart realized that the customers who were asking him this question were always the first people off each airplane, that is, BA's first-class passengers. He decided to find out more about the mysterious yellow and black tags. After some detective work, he learned that they were used for the luggage of standby passengers, including BA crew members who were deadheading, or flying as passengers to or from their work assignments. Because BA policy was to give precedence to paying customers over deadheading personnel, these employees flew on a standby basis, never knowing until the last minute if they would get a seat on a particular aircraft.

In time, Hart discovered that the current system unintentionally gave priority handling to standby passengers' luggage. Normally, passenger luggage was containerized before it was put into the cargo hold. Hart found that not only was the first-class container regularly topped off with the baggage of standby passengers, but this container was often among the *last* to be unloaded. This created a situation where first-class passengers often had to wait a long time for their luggage, whose imminent arrival they had learned to recognize by a parade of bags with black and yellow tags. Naturally, this created a poor impression of BA's first-class service. Hart proposed a change in the procedure. Rather than the first-class luggage being loaded into containers, he suggested that it be loose-loaded last into the aircraft's front hold, just before departure. On the aircraft's arrival, a BA staff member could be detailed to offload the first-class bags and get them quickly to the carousel. The idea was not a complicated one, but since it would require changing procedures worldwide and would affect many people, BA decided to test it on various routes in the summer of 1993. The trials were successful and Hart's idea became the current "First & Fast" procedure used on all of BA's inbound wide-body flights into Heathrow's Terminal 4. The average time for first-class luggage to arrive at the carousel dropped immediately from 20 to 12 minutes and by the end of 1994 had



dropped to 9 minutes, 48 seconds, with some routes regularly achieving 7 minutes. Only after his idea had been implemented did someone suggest to Hart that he write it up and submit it to Brainwaves, BA's suggestion system. In 1994, it was awarded the Chairman's Customer Service Award of the Year, and Hart received £11,000 (about \$18,000) as well as two round-trip Concorde tickets to the United States.

Few industries are as standardized as the airline industry, which handles large numbers of people and aircraft on a daily basis, and for which safety is paramount. But even so, Hart was able to initiate a creative act that was important to his company. First-class customers are extremely profitable to any airline and need to feel the extra attention they are paying so much for. Even in the most rigid environments, there are places and times in which creativity is not only appropriate, but desirable.

## Managing for Corporate Creativity

Each of the preceding examples is an instance of corporate creativity, which we define as follows:

*A company is creative when its employees do something new and potentially useful without being directly shown or taught.*

The tangible results of corporate creativity, so vital for long-term survival and success, are *improvements* (changes to what is already done) and *innovations* (entirely new activities for the company). As one would expect, most creative acts are improvements.

None of the improvements or innovations we have described so far were the result of a management plan. Moreover, all of them were brought about by people whom no one—including management and even the creators themselves—had previously identified as being particularly creative. Snow Brand never set out to change the way cheese was made, nor did DCM-Daewoo target its windshield-washer adjusting operation for manpower reductions. Before Ian Hart stepped forward, British Airways had no plans for high-speed handling of first-class luggage at Heathrow, and if it had, would it have asked a baggage handler to spearhead the initiative?

These examples and all the many others we looked at have led us to a critical realization about the true nature of corporate creativity. Most