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HEADLINERS

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TAMING

INNOVATION



**COMPETITIVENESS ROARS WITH
FORMAL MANAGEMENT STRATEGIES**

BY TOM IMERITO, CONTRIBUTING WRITER

ILLUSTRATED BY TONY ESPOSITO



Since the dawn of the industrial revolution about two hundred years ago, innovation has paved a road to human progress and personal wealth. Originally couched in the arms of discovery and invention, innovation was an inevitable outcome of the innate creativity of geniuses such as George Washington Carver, Thomas Edison and George Westinghouse. Since then, innovation has evolved from a way of life for a few gifted individuals to the lifeblood of continuing success for their corporate descendants.

INVENTION VS. INVESTMENT

The task of managing innovation is deceptively simple, at first blush. Scientific and technological creativity have been around for a long time. Formal management processes, not as long, but long enough to function within a set of widely accepted conventions. The trouble comes with the awkward combination of two mutually unsympathetic elements: invention and investment. But, trouble or no trouble, the rewards associated with the successful implementation of innovation are more than mere plums to business decision-makers; they have become the *siné qua non* of competitiveness.

The newly emerging discipline of innovation management concerns itself in dynamic ways with virtually every aspect of management theory and business practice from corporate finance to supply

chain management, and human resource development to the cultivation of enterprise-wide creativity. Today, innovation is considered to be sufficiently imperative among business leaders that it has begun to take on a mantle of its own.

John Gabrick, Founder and CEO of MindMatters, a Pittsburgh innovation software and consulting firm says, "It used to be that innovation management was a C-suite topic. Recently there are a lot more vice presidents or directors of innovation."

Dr. Dan Rardon, Manager of Advanced Technologies at PPG Industries, looks at innovation from two high-level viewpoints, revolutionary and evolutionary. Revolutionary innovations change the way industries work and the ways they address unmet needs or offer solutions to old ones in a completely new way. Evolutionary innovations are improvements that add value to existing products or processes for existing customers. An example of a revolutionary innovation was the television, which usurped radio as the main broadcast reception device in the mid-20th century. The remote control, on the other hand, was an evolutionary innovation. It didn't change television technology, but made watching easier and lazier.

LISTENING TO THE MARKET

Richard Lunak, President and CEO of Innovation Works, a state-funded early stage investment

organization, cites five key ingredients for successful innovation: **1)** a leader's passionate pursuit of a vision for the company; **2)** focused execution to achieve tactical and strategic objectives; **3)** the ability to change course as necessary as the business develops; **4)** an enduring sense of the product's value to customers and; **5)** awareness of the market dynamics surrounding the company.

In discussing innovation, Lunak, a successful entrepreneur who helped develop Automated Healthcare (now known as McKesson Automation), frequently returns to the importance of sensitivity to market "pain" in the early stages of innovation management.

"I have seen innovation happen most successfully when people who are entrenched in markets understand a particular customer segment, and then stumble upon a problem that those customers face, and then adapt existing technology to solve those problems, rather than someone with technology expertise looking for a corresponding market application."

Ann Dugan, Assistant Dean at Pitt's Institute for Entrepreneurial Excellence, corroborates Lunak's view: "There's the market, the process and the team," Dugan summarizes. "What does the market have to say about the innovation? Is there a market now, or can you create it? Can you manage the timeframe and the activities to move it forward? Do

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you have a good set of benchmarks? Because some of these projects never really move forward. And sometimes, by the time somebody moves it forward, it's too late, because the world has come up with some better product or service to meet that need," she says.

PUSH VS. PULL

Both Lunak and Dugan's comments make tacit reference to the ever-present contention between "technology push" and "market pull," in innovation management.

"We try to avoid a pure technology push, without market pull," PPG's Rardon says. As the terms suggest, technology "push" refers to products that have no existing customer base, and as such, require the manufacturer to push product knowledge and desire toward consumers. With market "pull" customer needs already exist, so the business proposition is a matter of persuading customers that a new product will fill a recognized need better than the current product (or lack thereof).

Petra Mitchell, Acting President at Catalyst Connection, sums up the importance of innovation in maintaining competitiveness today.

"Anybody who is making a commodity product today is in trouble," Mitchell says. She went on to explain her organization's role in fostering innovation. "Catalyst Connection is a state-funded business development enterprise that helps companies stimulate innovation by identifying their competitive strengths and developing business strategies based on ideation, market research, competitive analysis, pricing, management skills, and product portfolio management."

With a careful eye toward business pragmatics, PPG's Rardon commented on his four key criteria for assessing an innovation's value:

- 1) **Market potential:** "Finding the real need is a very difficult process."
- 2) **Intrinsic value:** "What is the net-present value and how much would a consumer pay for this innovation?"
- 3) **Manufacturability:** "Can we make this at an attractive price and a respectable profit?"
- 4) **Time to market:** "How long will it take to realize a return on investment?"

SOLUTIONS FROM INSIDE

MindMatters' Gabrick looks at companies as innovation machines.

"Seventy percent of the solutions a company comes up with come from inside, because the people inside know the solutions, it's just that nobody's collecting them," he says. Gabrick, whose company facilitates the company-wide collection of ideas, insists that management buy-in is essential to establish an innovation culture in a company.

"Most large companies tell you that they are committed to innovation, but how far down does that go?" he asks rhetorically. "Does the person working on a new idea feel that they can spend time on the project? And if they do spend time working on an innovative idea, is management going to look at it and provide feedback? Management may look at a hundred ideas, kick a couple forward and then never get back to the people who came up with them. That's very discouraging. We try to get managers more engaged."

Gabrick's hybrid software and consulting approach to innovation management facilitates the cultivation of enterprise-wide participation in the innovation process with a step-wise method: Management participation. Evaluating the ideation process. Establishing incentives. Committing financial resources. Tracking progress. Analyzing outcomes. And projecting performance expectations.

BUYERS AS CRITICS

On the consumer side of innovation management, George Davison, Founder and CEO of Davison International, has discovered a shortcut to key market information.

"We're not critics, we let the buyer be our critics," Davison says. "Because you can spend \$100K doing studies, where for \$10K, I can get the whole thing done, soup-to-nuts in a package, show it to chain store buyers and get their feedback. Buyers know what's going to move off their shelves. It's their livelihood."

Davison speaks with obvious pride about his company's achievements.

"In the old days, they would spend \$200K on two products. Today, we can crank out 20 products for that number, because we have systems."

A history of technology buff, Davison went on, "Henry Ford didn't invent the car. He invented the process of making an economical car. And we have invented the process of economical inventing. We turn out eight to 10 finished, new-fully-packaged prototype products a day from our plant. Instead of taking two new products for a buyer to see, our clients can bring 20 or 30. And any buyer will have a hard time saying no 30 times."

Davison, whose company is North America's largest prototype manufacturer, has branded his multifaceted method of innovation management with the portmanteau name "Inventegration." Although he is obviously dedicated to developing better methods of managing innovation, he is positively passionate about managing the creative people who work for his company. Davison's commitment to creativity is evinced most notably in his product ideation/design/engineering/prototype/packaging studio/laboratory called "Inventionland," where creative types work four 10-hour days a week, and have three-day weekends 52 weeks a year.

THE NEWLY EMERGING DISCIPLINE OF INNOVATION MANAGEMENT CONCERNS ITSELF IN DYNAMIC WAYS WITH VIRTUALLY EVERY ASPECT OF MANAGEMENT THEORY AND BUSINESS PRACTICE FROM CORPORATE FINANCE TO SUPPLY CHAIN MANAGEMENT, AND HUMAN RESOURCE DEVELOPMENT TO THE CULTIVATION OF ENTERPRISE-WIDE CREATIVITY.

FROM TRIAL AND ERROR TO FINITE ELEMENT ANALYSIS

In a fundamental turn for innovation design and engineering, the recent advance of computer horsepower, arguably a form of innovation, has taken the discipline to new levels of sophistication.

Pittsburgh's ANSYS, Inc. develops software for product engineers and designers that simulates real-world performance on a computer screen. ANSYS' technology, called finite element analysis (FEA), employs a method called meshing, to segment a computer drawing of an object into a series of grids, each of which is assigned a set of physical performance characteristics such as weight, density, strength, ductility or flow, to name only a few among thousands. The software reduces the risk associated with new product development by facilitating the creative exploration of many more design alternatives than traditional trial-and error prototype methods could ever do.

PLANTING SEEDS FOR THE FUTURE

If grant funding can be taken as a sign of good things to come, The Kaufmann Foundation has put innovation management on the map in a big way for Pittsburgh with a \$3 million grant for Carnegie Mellon University's initiative to establish entrepreneurship and innovation management programs across campus. Pradeep Khosla, Dean of CMU's College of Engineering, characterized the program, which is expected to grow to \$18 million dollars, as an exemplary piece of education reform.

At this juncture, there can be little doubt that Pittsburgh has the scientific, technological, industrial, academic, economic and human resources necessary to make the most of innovation. With innovation management resources as considerable as these, it may not be long before Pittsburgh becomes known as the place from which the road to innovation success begins. ●