

# The Future of Innovation

Practice and Possibility among the Most Effective Large Corporations

An I L O Institute Research Study

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### The Network for *Innovation inside Large Organizations*

The I L O Institute is a membership organization providing critical information and a peer community for upper-level executives leading innovation inside multi-billion-dollar corporations.

Member executives generally have responsibility for new product development, internal process strategy, research and development, or information strategy.

The I L O Institute delivers member-directed research executed by a dedicated staff of analysts and research professionals, and offers highest-level dialogue on the real-world challenges of planning and executing innovation in large organizations.

Small-group meetings are at the center of I L O Institute experience. Groups of members, never larger than 25, meet three times a year to direct their research agenda, share information, and interact with Institute resources including Nobel prize winning economists and scientists, senior government leaders, and path-breaking academics.

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# The Future of Innovation

## Practice and Possibility among the Most Effective Large Corporations

### Executive Summary

Based on extensive interviews with executives leading innovation in large corporations - ranging from the CEO level to the project manager level - - this study concludes that, in terms of process strategy, the most effective innovation programs

- draw the **widest possible inputs from all sources**, within and beyond a company's boundaries, including suppliers, customers, and broad networks of other sources;
- **place this collection of ideas into competition with each other**, with as much judgment coming directly from the marketplace as early as possible in the process; and
- base their innovation processes in part on a **back-to-front model**, with a coherent plan and an effective team identified early in the innovation process for eventually moving successful new products or services from incubation to mainstream production.

In terms of tactics and day-to-day practice, three key points of consensus are widely held among innovation executives at large corporations:

**Vocal Support from the Top** - - Strong and frequent messages from the CEO of an innovating corporation are essential. The core message must be vivid, perhaps even extreme: without a commitment to innovation, the company has no future.

**Refuge and Champion** - - Innovators must be given refuge from day-to-day demands of corporate life to the fullest extent possible, and they need a senior management champion to "fly high cover," as one former Procter & Gamble executive put it.

**Fight the Immune Response** - - No matter how effective and heartfelt top-level support for the messy and threatening work of innovation is, large organizations can't help but put barriers in the way of innovation. Innovation leaders have to expect this, and fight strategically against the various barriers certain to emerge, including "sales prevention departments" like legal and loss-prevention that will object to important new ideas; "feature creep" that loads good new ideas with too many expectations for performance features; and star treatment for high-performers who will often try to shoot down new projects they find personally threatening.

The most significant emerging trends in innovation management are well articulated by BellSouth's Steven Tischer, who sees the development of new ways of relating to customers as more important than creating new products and services.

We are approaching an age in which, as Chevron's Ray Buschmann put it, "we're going to get closer and closer to the point that our products won't wear out." We're approaching a point at which computer memory will be almost infinite, and almost free; a moment in which highest-quality production will be available for a broad array of products at remarkably low costs.

Given these emerging realities, differentiation in the marketplace will in the future come far more from the quality of the relationship with the customer, rather than the quality of the products and services being delivered.

The net result of these changes is that consumer marketing will come to look a lot more like business-to-business marketing, with a much higher degree of collaboration, consumer control of manufacturing, delivery and packaging, and the professional-services-firm model replacing the old manufacturing model, as every enterprise becomes, to a degree, a consulting enterprise.

Executives from the following companies were interviewed and have comments in the full study:

*Unilever*

*Microsoft*

*Hewlett-Packard*

*Shell International*

*Herman Miller*

*BellSouth*

*The Coca-Cola Company*

*Sun Microsystems*

*Reuters*

*The Turner Corporation*

*Chevron Global Lubricants*

*Lucent Technologies*

*Procter & Gamble*

Comments from several executives interviewed from other companies are included anonymously, at their request.

In addition, analysis of innovation programs and practice at these companies are included, based on publicly available information:

**IBM**

**3M**

**Xerox**

**Eli Lilly  
Apple Computer**

## One

### Some Theory: Friedrich Hayek and High SAT Scores

*Economist Friedrich Hayek taught that competition among the widest possible pool of individuals will produce the most capable players of any game or performers of any task - - better than you could find by choosing people with the best resumes, the best educations, or the most impressive experience. And competition among ideas will similarly allow better ideas to emerge than we could find by trying to pick out the best based on subjective factors.*

*Key lesson for large organizations: The importance of the broadest possible input at the front end of the innovation process, followed by real competition among new ideas and fair judgment of winners and losers.*

Before looking at what the most effective large corporations do in their practice of innovation - - and before looking at the critical changes in how innovation will happen in the future - - this introductory chapter looks at a few of the most important ideas that underlie the best practices in innovation strategy. And the story of these ideas begins with, of all things, the SAT test for college admission.

Something interesting began happening in the admissions offices at elite colleges in the 1980's. After years of public hand-wringing over the decline in the average SAT scores of American high schoolers - - an incontrovertible fact: the scores were indeed lower, and still falling - - the average SAT scores of applicants to the most selective schools began to rise, in some cases quite dramatically.

Ever since then, the story has been largely the same.<sup>1</sup> Compared to two generations ago, students who take the SATs today get lower scores, yet significantly higher SAT scores are required to get into colleges ranging from Harvard and Yale to Oberlin and Reed. How could the average score be going down while selective colleges demand higher and higher scores? And what does this all mean - - is it good news or bad news?

The best answers come from the Austrian economist Friedrich Hayek, who argued throughout his career against the idea of predicted elites. No matter how carefully we might select a group of people to perform any activity, Hayek argued, no matter how well we select only the tallest and most athletic people to compete in basketball, or the

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<sup>1</sup> with the happy twist that in recent years that the decline in average scores seems to be lessening or even stabilizing, while the rise in scores among applicants at elite colleges is in some cases slowing as more and more applicants near the ceiling of the perfect score (the enviable "double 800's").

smartest and best trained people to make economic decisions on behalf of others - - the people we *predict* to be able to perform best will never be quite as good as the *actual* elite that would emerge from unfettered competition among everybody. Broad competition to find the real elite is a better tool than any kind of prediction of who is likely to do best at any specific task.

Hayek's critical insight was that the actual elite will always outperform the predicted elite if the number of people put into the competition to find the actual elite is large enough.

And this seems to be precisely what happened with the SAT scores of young Americans in recent decades. Because the SAT test is used mainly as a college placement tool, only students with some expectation of going on to college take it. In the years right after World War Two, relatively few students were on a college track, and a minority of eligible students took the test. Those who did tended to come from homes with higher incomes than those who didn't. They attended schools with better trained faculty and more demanding courses, and on average they also had better grades than those who did not take the test.

It makes all the sense in the world to bet that these elite high school students would be the highest scorers on the SATs, compared to the millions of other students in weaker schools, with less well trained teachers, from poorer families.

But it turns out that if you feed a large enough number of folks from lousy schools and poor families into the SATs, you'll see that a small handful of top scorers from among the massed millions will outshine the average of the few hundred or few thousand bred and educated for success. Lurking among every thousand students who would never have taken the SAT in the old days are a few young people who, against all odds, are able to score higher than the average of the old elite.

And that, more or less, is just what has happened. Over the years, more and more students began to take the SAT tests and the average test taker became less elite - - average family income went down, relative academic strength of their high schools went down, and average grades went down too. Without much mystery about why, with this larger proportion of high school students taking the SAT, the average score declined. But as Hayek's ideas would predict, *the very best of this larger group* turned out to be smarter than the best of the predicted elite. The average score declined, but the scores of the at the top of the performance chart went up.

More people get to compete, the average performance goes down, but the *best* performances are even better because of the richness of the input into the system. That's the core of Hayek's belief in open competition over prediction and planning.

**Microsoft's** Head of Public Sector Innovation in Reading, England, Chris Yapp, reflected Hayek's principles perfectly when, after I asked him how he would advise leaders of innovation to find the best ideas to feed into the front end of the innovation process, he said "I think promiscuity is the answer. Network like crazy and look for

sources that are contradictory.” Yapp’s bottom line, based on decades of experience at a number of technology companies, is that organizations must have a “voracious appetite for information.”

But this is easier said than done, in large part because of the way that broad and varied inputs of information tend to make bad ideas look bad, even when they are bad ideas belonging to people in power. Good knowledge management, like good economics, is in fact an exercise in freedom. When all ideas are free to compete fairly, the best ideas tend to win, but in order for that to happen the organizations within which people live their lives, most certainly including the organizations that pay people’s salaries, must recognize the long-term competitive value of freedom and must act consistently over time to support open competition of ideas in order for the best to emerge.

So when we get ready to approach the question of innovation inside large organizations, we have to ask, first, how ready our organizations are for innovation. That is, how ready are we for the best new ideas to overtake our old ideas? How ready are our organizations’ bosses to hear better ideas than their own, to judge them fairly, and then to invest in them? How ready are our experts to discover better ideas coming every so often from un-certified, no-status non-experts?

The first step to winning at innovation in large organizations is this: if we’re not ready for this kind of openness now, we have to get ready in a hurry.

### **The Contradiction that Must Be Embraced**

Efficiency will always be important for large organizations, but in our age of rapid and deep change innovation is more important. Working efficiently on the wrong things is simply a recipe for quicker defeat. The editors of *Business Week* summed this up well in a recent editorial when they wrote that “raising innovation success rates today is far more important than improving Six Sigma results.”

The trick is to balance the organization’s short-term interest, which consists in large part of having everyone do what they’re supposed to do, and its long-term interest, which requires allowing individuals to do more, and at times to do different things, so that they might provide the organization with a broad and deep stream of new ideas.

Another way to say this is that the organization must support the individual as an individual, in addition to supporting the individual as a team player. The trickiest part of this equation is that, in the end, only some of the individuals within the system will emerge as providers of important new ideas - - a small minority, in fact. But Hayek tells us that the best way to find those people is to encourage as many as possible to put their ideas into competition.

And while it is often difficult for large organizations to draw in ideas from all corners, size and visibility in the marketplace have some hidden advantages. Homi Byramji,



senior vice president for content at **Reuters America**, explains that “Big companies have an inherent advantage over small companies. People with innovative ideas who need support will take their ideas to the large companies. So large companies are generally exposed to more ideas that smaller companies never see. That’s the information advantage of having the capital and market presence of a larger, successful company.”

On the one hand, then, large organizations will struggle to do what they need to do - - to have truly open systems that draw the widest possible range of people into the process. All kinds of large-organization habits pull the other way. On the other hand, though, large organizations draw new ideas to them like magnets. Much can be gained through quiet affirmation of innovation - - by not turning away the idea flow, by changing practice and orientation to adopt a bias toward broad input.

### **Human Action Over Human Design**

But there’s more value in Hayek’s approach to innovation than big inputs. One fine encapsulation of a broader principle he championed comes in these few words: “human action over human design.” Within the large organization that seeks to foster and sustain innovation, this means that as ideas compete, we need to observe not how well these ideas *sound*, but what they actually *do*. That is, we need to create an opportunity for ideas to actually do things as they compete for institutional support, to perform and create, so that the competition among ideas is as meaningful as possible.

John Seely Brown, former chief scientist at **Xerox** and head of the Xerox Palo Alto Research Center, speaks to this specifically in terms of innovation in technology: “It is not technology per se that matters,” he says, “but technology-in-use, and that is what is so hard to predict ahead of time.”(This is from his introduction to Henry William Chesbrough’s book *Open Innovation*).

The central challenge, then, is to take the widest input and funnel it into a real competition that kills the bad ideas and identifies the good ones, based ultimately on real measures of economic value.

That first point, about inputs, is widely enough held that there are already many admirable organizations that encourage and reward innovation at the front end, but too many then leave lousy ideas and projects on the table without challenging and judging them in a meaningful way. I asked Scott Biondich, Global Packaging Manager for Carbonated Beverages at the **Coca-Cola Company**, *What steps that would help foster and support innovation do large organizations tend to resist that they should not resist?* His answer spoke directly to the question of real competition among ideas: “Kill projects that need to be killed.” he said. “Since development costs increase as new projects progress, we should be focused on killing early and killing frequently. Formal business base analyses, stage-gate reviews, and periodic portfolio analyses are a necessity to weed out the poor ideas and projects.”

To sum up, three ideas are essential when we begin thinking about fostering and supporting innovation inside large organizations.

First, we *need the broadest possible inputs* of ideas from everyone in every station inside our organizations, and as many useful people from outside those organizations too. The broader the input, the better the best of the ideas that emerge.

Second, *we have to be especially careful that we are not drawing ideas only, or mostly, from a predicted elite*. The usual suspects can't contribute as much as the best of the much larger mass of people can.

Third, *we need a real market-based structure for letting the ideas that enter the front end of innovation compete*. We have to find ways for them to compete based on real economic value to customers (which must include past customers, current customers, and future customers). We must resist the temptations to over-plan, and to judge ideas based on our limited experiences and interests - - the default position we'll wind up in if we don't open channels to the marketplace to do that vital work of real judgment of ideas.

## Two

### Thinking Systematically: Consensus on Three Ideas and Practices

*Supposedly, Barney Oliver, the first director of HP Labs, had a rule that in an organization of 10 people, you could support one innovator, in one of 100 -- two, and in one of 1000 -- three. Thus in an organization of 10000, you would have -- zero, because the bureaucracy and culture would cause them all to leave. -- Robin Jeffries, User Interface Engineer, Google*

Though large organizations take many divergent paths in fostering and sustaining innovation, a few points of consensus are clear.

The first point of consensus is that if an organization really wants to see innovation take root and succeed, ***strong, vocal support for innovation from senior management is essential***, in general statements and in clear policies. The highest levels of management must clearly and regularly declare that the future of the organization depends on innovation: without innovation, the organization will die.

The second point of consensus can be called the “refuge and champion” model: the most likely path to success for innovation *allows individuals and teams some refuge* - - protected time, money and organizational “opting-out” of usual practices - - ***along with a senior-management champion*** still working in the mainstream of the organization.

The third point of consensus is that an organization that wants to make innovation work must ***actively fight, at the operating level, the inevitable barriers*** and blocks to innovation that every large organization cannot help but put in place.

### **Vocal Support at the Top**

I asked Thomas Leppert, chairman and CEO of \$6.5 billion construction firm **The Turner Corporation**, how important thinking about innovation was for his company, given that it is not in one of the “obvious” innovation businesses, like technology or consumer products. His answer began with a number: thirty percent. “Thirty percent of our current business comes in areas that did not exist five years ago,” he said. “So innovation is essential to our future, measured by our business activity. There’s no escaping that.” Leppert insists on making this fact known throughout his company. He beats the drum, delivering the message in the clearest terms: innovation is essential to growth, and essential to staying alive. This is precisely what just about every executive involved in championing innovation would have every CEO saying often and loudly.

Brian Green, an innovation group manager at **Herman Miller**, the office furniture company, sees the need clearly. What must a large organization do to support innovation?

“Number one,” Green says, “is support from senior management. An active support role by senior management can help influence the culture, help provide resources and incentives for innovative activities, and more. Without that support, innovation will not occur or will at the least be reduced to skunkworks operations with limited budgets being pushed along by individual champions that consider the political risk worth taking.” There’s enough real risk in trying to create new products and new ways of doing business; adding the political risk of displeasing the boss will choke off most good ideas early on. The bully pulpit of the CEO is the best tool for eliminating that political risk. When the boss is clearly on the side of innovation, innovation has a fighting chance.

**Unilever’s** Global Leader of Innovation Process Development, Mehmood Khan, answered the same question - - *What must a large organization do to support innovation?* - - with concision (and caps): **TOP LEADERSHIP COMMITMENT & SUPPORT.** The head of a dominant software company’s research lab agreed, saying that even at the most dynamic companies, “the risk seems to have to come from the top. Small groups can take risks and grow to a certain size, but then the organization anti-bodies come out and kill it,” unless the top of the pyramid provides protection (more on fighting off the innovation antibodies below).

Ray Buschmann is Manager of Global Innovative Solutions for **Chevron Global Lubricants.** I asked him about how large organizations can make the workplace more congenial for the kinds of free thinking innovators who often rub the hierarchy the wrong way. But Buschmann rejected the premise of the question, that making things go smoothly might require conscious practices to help the innovators fit in. “Switch that question,” he said, “to ask about where the organization is going, and why innovation may be important, then people take notice: both the innovators and the skeptics. Start to talk about 30 years out, and what may happen to our traditional products and you get some attention.”

Reframe the question, Buschmann is saying, to get people thinking less about how to get along while we’re standing still. Get them tuned in, instead, to the fact that we need compelling forward motion. Once the players are all invested in moving ahead, we see that many of the problems we otherwise face are really symptoms of slowness, of too much standing still. You can fix the on-the-ground problems of innovators clashing with skeptics, Buschmann says, by attending to that larger principle that Leppert, CEO of the Turner Corporation, hit so squarely. If top brass is clear and consistent about the future hinging on innovation, countless other problems fade.

Brad Vigers at **Shell International,** adds, “A mandate from senior staff has been the single most crucial factor in supporting innovation efforts that I have been a part of.” Microsoft’s Chris Yapp offers some additional support, saying that “top cover for messy whacky stuff” is a requirement if innovation is really going to take place over the long run.

Just about every serious champion of innovation in large organizations agrees that a strong and clear voice from the top of the pyramid, affirming that innovation is crucial, and explaining that the organization’s future depends upon it, is essential.

## **Refuge and Champion**

Robin Jeffries at Sun Microsystems, identifies a “supportive manager, who keeps the wolves and naysayers away from the door” as one of the essentials that organizations have to provide in order for innovation to thrive. She’s not talking about the CEO or a division president, but the manager who might run a group of a dozen or a hundred people - - someone who is aware of the innovator’s work, supports it, and defends it not only at the policy level, but among the on-the-ground complainers who can add a sour note to a project’s internal reputation if no one keeps them in check. (Jeffries told this story to illustrate the need for refuge from bureaucracy: “Supposedly, Barney Oliver, the first director of HP Labs, had a rule that in an organization of 10 people, you could support one innovator, in one of 100 -- two, and in one of 1000 -- three. Thus in an organization of 10000, you would have -- zero, because the bureaucracy and culture would cause them all to leave.”)

One senior executive at a Fortune 500 technology company, who preferred to speak anonymously, offered a straightforward prescription for fostering and sustaining innovation inside the typical big-company bureaucracy: “Allow the innovators a means to retreat when necessary to work their issues. It is critical that they not be forced into an organizational structure that restricts their creativity.”

Microsoft’s Chris Yapp added that an essential difference is often made by “the willingness of leaders to sponsor innovation early in the cycle.” This kind of sponsorship is important for both practical and political reasons. A champion sends a continual signal to the rest of the organization that something worthwhile is going on here. And the practical value of protected time is tremendous.

Homi Byramji of Reuters America explained what most players in large organizations know all too well: “In many cases, the biggest deterrent to innovation is people being too busy to sit back and think, experiment, play, doodle, take a germ of an idea and develop it.”

The head of a West Coast research lab for a large computer hardware manufacturer told me that the ideal team for developing a new product “is shaped somewhat like a giraffe. At the top is one guy, highly visible and higher on the org chart than most people who would like to give you crap for rocking the boat. He’s your uncle - - he’s not adding much to the project day to day, but he’s aware of what’s going on, reminds other people at his high altitude that you exist, and he assures everyone that you’re up to something worthwhile. Then there’s the body, the mass of people at their machines or sitting around tables cranking stuff out, arguing, thinking, pulling their hair, actually making something out of nothing. Then below them are a few people like the legs and the feet, they know how to look busy and keep the whole thing in motion by running a little faster than

everybody around them. They look busy and contribute to other projects too, and overall prevent the guys above them doing the heavy lifting from being too visible or annoying to the other ordinary people at the company. Then of course you've got the waste material that drops out the back now and then, and you need the proverbial man with the shovel to make sure other people don't step in it. If you have all those elements working well, you've got every chance to succeed. But if you're just a body sitting there on the ground, without the head to keep you protected in the higher circles, without the legs to keep you in motion and somewhat above the groundlings, and without a little man with a shovel, you're not going to win."

**BellSouth's** Steve Tischer shared a related model when I asked him this question: *In your experience, are there one or two especially important steps a large organization can take to foster and support innovation?* "Create an upper-management-level team," Tischer advised, "whose influence is unmistakable. Have that team create an initiative that requires results, and expect business advantage." Note that the upper-management team creates the initiative, but does not execute it. That's the work of one or more teams below it, at a functional level, where *those teams* will do the day-to-day work of innovation. Why twice the effort, with a team up top to match the team on the ground? Because it takes just as much advocacy as it does actual work to keep innovation alive in a big organization. The senior-level team is there to protect the worker bees, who in turn will find the refuge they need precisely because they won't have to spend their days defending their existence or scrambling for lunch money.

A former **Procter & Gamble** marketer who worked on the pioneering WalMart account there and helped to reinvent brand management strategy to include more account management practices attributes his group's success in part to having the right champion. "We had to have a godfather, a fellow in senior management flying high cover for us. It was his last act before retiring. He probably would not have taken the risk had he been strategizing for his next step up the ladder."

Vigers of Shell International offers this advice to executives trying to foster innovation: "While often the pace and space with which innovators feel the need to operate results in them clashing with the slower moving, bureaucratic tendencies of large organisations, remember that in many cases, the innovators don't leave (at least most of them don't) - they simply lie dormant, waiting for the opportunity to innovate again when they won't be ignored or ostracised. Seek them out, encourage and nurture them - protect them if necessary, and wait for their ideas to take hold."

That's the consensus of on-the-ground innovation executives - - if you want the best possible performance with the greatest efficiency, you need to give the team working on something new lots of space and room to maneuver, and you need to give them a visible and dedicated protector. You need to give them refuge, and you need to give them a champion who will know what they're up to and spend his or her substantial capital vouching for the value of their work to the higher-ups.

## **Fight the Immune Response**

“Large organizations have large investments -- new things seem less important and involve risk.” Big companies have an almost infinite set of tools, systems and habits to suppress risk, and often in the process they kill valuable new ideas and initiatives.

I’ve probably heard more agreement on this point than on any other. Big companies do the kinds of things that serve the interests of big companies - - and those things are almost always unfriendly to the creativity and risk-taking that new ideas grow from. So it takes an unusual balancing act for a large organization to protect its short-term interests while at the same time allowing innovation to take root. The risk-taking, try-and-fail-till-you-get-it-right path to breakthrough ideas is a tough one for most corporate types to walk. Still, but with lots of practice, many can do it.

## **Sales Prevention Departments**

Microsoft’s Chris Yapp talks about the “simple things” organizations can do to help strike that balance, including “Preventing departments from seeing their jobs as tempering innovation.” (“Sales prevention departments,’ ‘risk avoiders,’ and other epithets come to mind,” he adds). The value of risk and innovation to an organization’s well being has to be front and center in every department, from PR to legal, to keep the nasty habits of defensive play from stifling innovation. As Turner Corporation CEO Thomas Leppert said clearly, with thirty percent of his current year revenue coming from business areas that did not exist in his firm five years ago, there’s no choice but for everyone in the organization to take responsibility for helping to find the new ways to do business that will drive business forward, and drive the wolf from the door.

## **Avoiding Approved Innovations Only**

Sun Microsystem’s Robin Jeffries has found that one bad habit of companies she’s worked with has been to decide that “only certain classes of things were innovative (e.g., I once worked in a company where no matter how brilliant the idea, if it was about saving money -- say we could build these for half the cost -- it was not valued or seen as innovative. Innovation was reserved for ideas that grew the business). That’s how I see organizations resisting innovation (the resistance might be ‘QA people don’t do innovation’ or ‘we can’t talk about doing something innovative here until X is done’ or ‘if it were valuable, our competitors would be doing something like it.’ )”

## **The Anti-Rump Rule**

One innovation executive in a Fortune 500 communications company sees another all-too-common big-organization bad habit as a major risk to innovation, and would institute this rule if he could: “Do not tolerate any ‘asses’<sup>2</sup> (see Harvard Business Review article

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<sup>2</sup> This is a somewhat more discreet reframing of the original language in the Harvard Business Review article

from 2004); the fastest way to get rid of talent is to scare it off with a thick head of any kind.” He’s referring to a brief piece by Stanford University professor Robert Sutton in the “Breakthrough Ideas for 2004” section from HBR in Feb. 2004, which included this summary definition of the unappetizing employee: “some organizations allow people (especially ‘stars’) to get away with abusing one person after another. . .” Bottom line: Respect and civility help make it safe for people to take risks. Too many large organizations exempt top producers from the ordinary expectations of treating people well. Making your numbers is no substitute for ordinary decency, though, and the star treatment for a select few, no matter where they sit in the org chart, will squash the feeling that good ideas are valued from all, and choke off the kind of broad front-end inputs that drive the best ideas upstream.

### **No Scheduled Breakthroughs**

And of course large organizations, complex as they tend to be, demand a degree of organization and control that simply does not fit the practice of innovation. Sun’s Jeffries remembers “the famous MCC [Microelectronics and Computer Technology Corporation] memo from Bobby Inman that had scheduled dates for ‘breakthroughs.’” Admiral Inman was certainly good at running his fleet, but, as Jeffries points out, “the responsibility for being innovative on schedule is an innovation killer.”

### **No Feature Creep**

Ruediger Klein, CDMA Portfolio Manager at **Lucent Technologies**, offered insight into an often overlooked version of anti-innovation antibodies. He talked with me about the need for “strong leadership to shield the team from demands on time, resources, and feature creep.” Demands on time and resources are obvious enough concerns, but “feature creep” is in fact equally deadly and a particular threat to projects that have succeeded in the innovation hothouse and are about to be “mainstreamed” into regular production and distribution.

Imagine the scene - - a group of mid-level managers is sitting around a table looking at the new product your team has battled for a year to get to a working prototype. Most of the people in the room had earlier bet against you, but you made it work. Now that it looks real, though, they start saying things like, “Hey, how about we make it a phone too. And an organizer. And a music player. And a mini-PC. And really it should have GPS too, right?” That’s feature-creep. Just as you reinvent the motor car so that it runs on air, they chain the circus train behind it and say, *well, why not make it pull this? If it really works, it should be able to pull the circus.* Maybe it can, or maybe asking the new product to do too much too soon will kill it fast. The skeptics win in either case, and have some fun along the way at your expense, and at the expense of the future.

So no feature creep. No breakthroughs scheduled by the boss. No fake definitions of what counts as innovation and what does not. No sales-prevention departments. No innovation anti-bodies. And, with a tip of the hat to Professor Sutton, no asses.



## Three

### Models for Real Competition at the Front End of Innovation

*Innovation has to come from the business units. It can't come from my desk. I can't have enough information about what's happening day to day at the operating level to create the most valuable new ideas and new ways of doing things. Innovation can't drive from the top down or the inside out. We can't predict the future well enough from inside. Those predictions need to happen closer to the ground. - - Thomas Leppert, CEO The Turner Corporation*

How can large organizations bring real market forces to bear on ideas at the front end of innovation? How can they create hard-headed competition among ideas that does not reflect or reinforce the official wisdom of the organization, but tests that wisdom against the real world needs of future customers?

The ideal solution - - a true, unbiased, unmediated market response to new ideas as they emerge - - is all but impossible. But a number of projects and programs are in fact getting part of the way there.

#### **The Lead User Model**

**3M Corporation**, for example, has collaborated with MIT professor Eric von Hippel to establish a significant “lead user” program that brings carefully selected prospective customers into the innovation process at the front end, and uses those customers’ needs, responses and behaviors as critical measures of value in the innovation process. This model gets high marks for getting prospective market feedback early in the process, but the selection of the lead users is a weak point - - the innovating organization, rather than market forces, selects the lead users; there’s a lot to get right, and a lot of opportunity for bias in selection, that can throw off the value of the process.

Lead users, as described in an article by von Hippel and 3M executive Mary Sennack, are users that: “(1) expect to get high benefit from an innovation and so have a strong incentive to innovate and; (2) that are ahead of a target market with respect to one or more important trends.”

Once the lead users are chosen, exposing them to a broad array of early-stage innovation is important - - the ideas that excite the lead user are validated, and collaboration on moving those innovations forward follows. If the right users are in the picture, and if they wind up interested in the right new ideas, the process is tremendously powerful, in part because the presence of an actual customer on the inside of the supplier’s walls accelerates change, quiets internal resisters (a customer is asking for this, after all), and

allows an on-the-fly evaluation of features and functions that is almost impossible to replicate.

3M certainly seems to be happy with the program. A stream of trade press publications, written or co-written by 3M staff, has told the tale of their MIT Lead User collaboration. And the web site of von Hippel's consulting firm cites a 3M study claiming that "annual sales of concepts generated by the average lead user project at 3M were conservatively projected at \$146 million after 5 years - more than eight times higher than sales for the average non-lead user project."

The Lead User model draws its strengths from bringing a piece of the real marketplace inside innovating organizations early, but it requires a strong dose of centralized planning. The process of evaluating and approving who gets to play, who counts as a lead user, is the base upon which the practice stands, but it is also the weakest element point of the model.

### **Databasing the Market into the Innovation Process**

Global consumer products company **Unilever** believes in broad input to the front end of innovation. Mehmood Khan, Unilever's Global Leader of Innovation Process Development, explained to me that at the heart of their efforts to draw in the largest possible flow of new ideas is a software system that dynamically matches ideas from all corners of Unilever's global operations against 40,000 market research studies, offering a remarkably broad range of market input early in the innovation process.

The sheer number of these reports is a great virtue, offering in their detailed, complex portrait of many marketplaces something real. Still, each report itself presents some degree of author interpretation. The greatest potential weakness of the system is that it matches ideas against how markets look to observers, rather than against market action.

This is the picture Khan paints:

We have 200,000 employees. Ideas come from all quarters. Someone who works in accounting can have an important idea, and they have a mechanism to put that idea into a system that will take it very seriously. We have a software program that sits on everyone's desk, and any individual can enter an idea. The program asks four key questions: What is your idea? What would it look like? Why do you think people would buy it? How do you think it could be done? The system asks whether the idea generator would like to partner with someone somewhere else in the organization to develop it further. The system sends the idea to the head of the local unit, who can send it back with questions, send it up to other groups to explore it, or set it aside. We have a robust database, internally developed, built into the system of 40,000 market reports, and it is easy to take any new idea in the system and check it against thousands of market opportunities that have been

identified, so we have a lot of digital power behind this system for encouraging innovation.

Aware of the limitation of relying on reports rather than direct market action, Khan adds that “We also have a heavy emphasis on getting our designated new products people face to face with consumers very often, more than ever before, based on the fundamental idea that innovation does not begin inside the organization, but in the marketplace itself.”

### **Wiring the market into the database, and letting it act: IBM’s Alphaworks**

**IBM** has pioneered a program called alphaWorks that seems to combine positive elements of the Lead User model developed at 3M with the technology-base and breadth of Unilever’s system. An electronic community resembling an extranet allows selected prospective customers to download software and other information products for experimentation and testing, and encourages feedback into the system.

This model encourages less bias than the Lead User program in selection of participating prospective customers (mostly because alphaWorks allows many more players at one time), while it also engages users in more “doing” - - they actually take the products in development and use them, discovering, clarifying, and extending their value in the process. AlphaWorks has received a great deal of positive press in recent years, though it’s worth noting that its most visible champion, John Wolpert, when he left IBM for a public/private innovation network in Australia spoke openly about how difficult, ultimately, it was to establish rules of play with participants.

The alphaWorks system may have been closer to a set of highly negotiated one-to-one relationships than it was to a dynamic market environment. Said Wolpert at a university graduation speech in Australia in 2004, about his work at IBM, “even when we know there might be a profitable connection between firms - we do what I call the open kimono dance: I’ll show you what I have if you show me what you have...No, you show me first... This dance can go on for months and months.”

### **Finding Context, and Setting Expectations for Scale**

One danger with programs like alphaWorks that succeed in drawing customers and prospective customers into the early stages of innovation stems from the fact that not all market behavior is alike, and not all is equally valuable. Users of new products tend to examine them within a narrow framework. Imagine, for example, prospective users encountering an innovation like the Internet in its earliest form. The Internet’s initial purpose - - largely created as it was by the U.S. Defense Advanced Research Projects Agency - - was relatively narrow. It was a tool for networking together different military technology engineers and researchers with tight security around the perimeter of the total user group, but open collaboration within the group. So potential users might reasonably have looked under the hood of this new thing and asked, *How good a network for top-*

*secret defense related research is this new thing? And how important is that kind of network for me, when what I really want to do is listen to music and go shopping?*

In its early stages the Internet would likely have drawn evaluations declaring that it was a pretty exciting tool for defense contractors, but of little value for personal entertainment and shopping. Years of evolution in the thinking about the Internet's practical possibilities were necessary before any really useful market behavior could help validate its ultimate commercial and social potential.

Sun Microsystems Distinguished Engineer Robin Jeffries has seen this kind of thing often enough. "It's my experience," she told me, "that getting true early stage (before you have invested much) feedback is EXTREMELY hard to do well. I wonder how many people use IBM's alphaWorks items for more than 20 minutes. What you really want to know is whether these things fit into people's work/home life in ways that are useful, not whether it's fun to use them for 20 minutes."

### **Context Questions We Must Ask**

So the question of connecting early-stage innovation to real market behavior is potentially misleading, and certainly incomplete, unless we build in steps in the process that help potential users set the frameworks for what these new ideas can really do for them. We need to look for signals about the scope and scale of the new things we're dealing with. Jefferies continues: "When you have a technology and you're not sure what people will use it for, some sort of collaborative process, where people try it out and the developers tweak it to meet their needs, can be very useful. In a way the history of the telephone was like that -- it was first meant to be a one to many medium for businesses, and then it became useful in various one-to-one personal situations. Society changed the phone and the phone changed society. When you have an invention of that magnitude (which is pretty damn rare), then you need to think very differently about how you get feedback. I'm sure that histories of the phone, of cars, of airplanes, maybe even of computers generically will show this sort of radical change, but that's maybe .1% of innovations."

So we have a core set of context questions that need to shape the ways we bring the market into the innovation process, including

*How big is this idea?*

*How far ahead of the market might it be?*

And we have to understand how to interpret the answers the market gives to our questions. When the market says *yes*, we can take that to mean *yes*. When it says *no*, we need tools to understand whether that means *not yet*, or *not like this*, or simply *no*.

Jeffries reminds us how difficult it can be to understand the scope of our innovations, both for innovators and for users. She also makes clear - - pointing to the development of

the telephone, the automobile, the airplane, and the computer - - how high the upside potential might be when we get it right.

None of these content questions have easy answers, but they contain a necessary agenda for innovating organizations to struggle with, to avoid being so skillful in our process execution that we miss the bigger questions that can help us tell the difference between pretty good new ideas and ideas that can change the world.

### **Ideas that Begin on the Outside: P&G, Microsoft, “Connect and Develop”**

Microsoft’s Chris Yapp described a strategic approach to innovation that helps the marketplace enter the new-ideas process. Instead of creating new things in an enclosed space, and then luring the market in, Yapp described a process of innovation that begins with observation of the outside world, and then looks for ways to connect the inside and the outside even before the development process begins.

“I think,” he told me, “that we are seeing a move from R&D to Connect and Develop, C&D,” borrowing a phrase put into common usage by Larry Hutson, VP for research and development at **Procter & Gamble**.

The connect-and-develop model at P & G grew up as the consumer-products giant began experimenting with a shift from the classic brand management model that P & G perfected, to include more account management approaches. Thus the brand manager for brand X might spend less time planning brand strategy in isolation from retail channels, and more time planning growth that serves the interests of retailers. More P & G managers went out and walked through purchase sites, taking notes, asking retailers what would make them happy, and looking to build advantage by becoming indispensable to the retailers, in addition to their traditional practice of trying to become indispensable to consumers.

Today, P & G holds a middle ground combining brand management with account management - - a “matrix model.” One former P & G marketing manager I spoke with worked on the WalMart account for P&G, the first time, he said, marketing people walked into the channel and planned innovation in the brand to serve the interests of the retailer. Was the process of change in marketing approach difficult? “It was a freaking civil war,” he said. But the results were positive and dramatic, including the creation of mega-large packaging for bulk quantities of familiar brands.

At Microsoft, Yapp describes the connect-and-develop approach as it looks to him on the ground. “As opposed to long-term research and breakthrough innovations most stuff is done with a customer in mind now rather than removed from marketplace.” So the innovator looks at the marketplace, sees a likely future customer, draws that customer in and builds something new in collaboration with the customer.

This is in some ways a variation on the Lead User idea, though Yapp makes an interesting distinction between what might be called the tactical innovation that solves

problems the customer knows he has, and the more strategic innovation which still demands some remove from the marketplace in order to protect long-term thinking.

Connect-and-develop is driven by market opportunity - - external partners qualify for collaboration because they have problems that need to be solved and budgets that need to be spent, potentially on the new things their input will help to create. They're less strategically important than Lead Users and are not necessarily on the cutting edge. They represent attractive short- and mid-term opportunities.

If connect-and-develop answers some important questions about the short- and the mid-term, it's hardly a complete approach to innovation. "The challenge is with the longer-range stuff," Yapp says. A more traditional model still plays out with long-range innovation at Microsoft, and the market comes in a step or two later in long-term innovation initiatives. The really big ideas, Yapp says, are incubated first and only a bit later do the innovators go about "exposing leading customers to research in the labs under non-disclosure so they have an educated view of what's coming."

At P & G, connect-and-develop meant cracking open the brand management model to allow the input of retailers to shake things up. At Microsoft it seems to bring more users into the development process to help identify short- and mid-term projects that will find much greater likely success than old-fashioned cloistered R & D might, though Microsoft still invests in the classic innovation model for long-term projects too.

At another Fortune 500 tech firm, it means making money sooner, at the cost of longer-range advantage. "We are encouraged to be innovative," one of their innovation leaders told me, "but not at the expense of delivering products on time." All well and good, if somewhere at the top of the organization a steady voice says that innovation is the key to the company's future, and says it credibly. If not, the bean-counters win.

Steve Jobs at Apple famously said, "Real artists ship." Artists need this message. Short-term quantitative need to hear the converse: "Real survivors innovate."

### **Strategic Limits on the Front End at Chevron**

Ray Buschmann, manager of global innovative solutions at Chevron Global Lubricants, describes a high-input-at-the-front-end practice within his company, beginning with what they're determined *not* to do: "The biggest waste of time and those that are almost certain to fail in larger organizations, are the 'blue sky' ideas, perhaps exemplified by the 'old suggestion box.' There it was, stuck to the wall with a letterbox appearance, or more recently of course, it has become 'electronic' so it has fancy names to which you can send your ideas on any subject." Buschmann sees the idea drop-off box, physical or virtual, as a door leading nowhere. "Who," he asks, "is going to empty the box and be responsible to take the idea forward?" Unless that question has been answered first, and answered well, the box is worse than useless; it is a false promise, Buschmann says.

“So let's turn that paradigm around,” Buschmann continues. In his innovation shop, he takes a blended approach that looks a little like old-fashioned strategic planning. Begin the process this way, he says: “Identify high priority customer/company problems aligned precisely with the corporate or organizational strategy and send out the problem to your intellectual capital database (your employees). Now you have got everyone working on an aligned problem that management wants to have solved.” So Buschmann is shaping the input process - - opening some channels but not all channels - - to the broadest possible input.

While Hayek might fault Buschmann for perhaps limiting the range and quality of ideas by predicting which areas are most worth exploring, he deserves credit for the kind of honest management of resources that begins with a vision of the best possible outcomes, rather than the best ideal outcomes. Buschmann will not promise that any and all ideas are going to be hand-reviewed by a well-paid team. Instead he makes clear that in certain areas, the need for innovation is more sharply felt, and the resources to get good ideas past the front end are ready to be deployed there.

Where there is more perceived market need - - perceived by the organization leadership, in this model - - there is more investment in broadening the front end and rewarding the broadest possible range of participants in the process.

The strategic focus of Buschmann’s model means that ideas will move faster once they are in the system – the signal-to-noise ratio becomes more efficient. Hayek would wonder how many vital ideas get lost with the “excess” noise, but Buschmann can make a case for the economic efficiency of tuning in to the areas of stronger signal.

The principal risk, of course, is that the organization’s leadership bets wrong - - they designate strategic areas that look the most fruitful but eventually prove otherwise. Because the system begins with interpretation of the market rather than with real market action, that risk is wired in.

## **Ownership**

When I asked Ruediger Klein, CDMA Portfolio Manager at **Lucent Technologies**, this question - - *In your experience, are there one or two especially important steps a large organization can take to foster and support innovation?* - - I got a terse but quite insightful response: “1) Protect Ownership / Reward Successful Ideas 2) Fuel Competition among Teams.”

Many management gurus would reject the focus on ownership and competition as barriers to teamwork, but Klein’s approach shines a spotlight on two critical operational questions. First, how can the organization make ownership feel real for the innovator? And second, how can organizations promote fair competition that strengthens the whole rather than driving it apart?

Some mechanisms for shared ownership are clear enough, like patents. Others are somewhat indirect -- like grants of stock. Critical to both is making the direct connection between the value of a new idea and an ownership stake in the project (like patents) or in the larger enterprise (like shares of stock).

Plain money as a reward has an appeal, but in fact accomplishes the opposite of Klein's prescription for ownership. The goal should not be for the company to effectively purchase the innovation from the innovator, which cash payment seems to do, but to create ongoing shared ownership by the organization and the individual.

Ownership is especially important once new ideas move beyond the input stage, and being to prove their worth. Ownership is an engine of fair and vigorous competition, each idea promoted, reshaped and refined by an owner with an interest - - literally -- in its success, the joining of individual ambition with the collective good.

### ***Internal Markets***

Ideas are hard things to buy and sell, but that has not stopped a group of technically-inclined business professors and Wall-Street-style quants from pioneering the practice of trading ideas like shares of stock, with some results worthy of careful attention.

Among the tech-jocks working on this approach is a group at MIT that has developed the idea of "securities trading of concepts," or STOC, and launched a consulting firm, Applied Marketing Science, Inc., to spread the model.

At the heart of the STOC model is the opportunity for potential product users to buy shares in a range of new products not yet built, bidding up the price for the products with the highest perceived value.

This is how Applied Marketing Science describes their mission: "Studies have shown that more than 70% of new product failures occur due to errors at the very earliest stages of the new product development process. AMS helps companies by integrating the Voice of the Customer into every stage of this process. Our tools are especially useful for early-stage product definition, often referred to as 'the fuzzy front end' of new product development." These number jockeys look to their market trading systems to make that front end less fuzzy by capturing and quantifying the consumer's ideas, desires, and responses to potential products.

Harvard Business School's publication *Working Knowledge* reported in December of 2003 on the specifics of one STOC experiment, driven by Ely Dahan at UCLA's Anderson School of Business. "Dahan's team," HBS reported,

uses an idea market where a panel of consumers trade in artificial stocks that represent each product. Consider a car company planning to introduce a new



crossover model two years from now. The car will compete with five existing models and five new models. In Dahan's market, each of the eleven models is represented by a stock. Consumer traders are given a specified amount of artificial dollars (say \$10,000) and equal endowments (say 100 units) of each stock. They are also provided with information about each model and a picture of its likely appearance.

Traders are then asked to buy and sell the stocks online with one another to maximize the value of their portfolios, based on their beliefs about which models will sell well.

Drug-maker **Eli Lilly** has run similar experiments, with selected researchers betting on which new drugs in the pipeline are the most likely to win in the long run.

The pieces fit together in a neat model - - the fuzziness of ideas running loose is replaced by the mathematical precision of a stock market. But recall the hesitations of Robin Jeffries at Sun Microsystems. The voice of the customer will speak any number of languages, and finding the right frame of reference for the customer facing an idea for something new often takes time.

The very newness of the biggest new ideas often skews their perceived value, and the role of the innovator at times is to understand what the consumer wants, but does not know he wants, or to understand what she needs, but does not know she needs. As Jefferies suggests, particularly when the bets are really big ones, the market's lack of imagination is one of the greatest barriers to progress.

### **Internal Markets to Answer Internal Questions**

Formalized trading markets can be used for more than finding the winners among a batch of new ideas. In fact, some suggest that these stock-market models are most useful for collecting and organizing internal information, and for allocating resources.

In July, 2004, *Time* magazine reported on an internal market at **Hewlett Packard** focused on forecasting sales. "A few years back," *Time* wrote,

A few dozen employees, mostly product and finance managers, were each given about \$50 in a trading account to bet on what they thought computer sales would be at the end of the month. If a salesman thought the company would sell between, say, \$201 million and \$210 million worth, he could buy a security — like a futures contract — for that prediction, signaling to the rest of the market that someone thought that was a probable scenario. If his opinion changed, he could buy again or sell.

. . . . Result: while HP's official forecast, which was generated by a marketing manager, was off 13%, the stock market was off only 6%. In further trials, the market beat official forecasts 75% of the time.

One skeptic I spoke to at a Global 500 information-based company looked over HP's experience and said, "Sure, you can get better forecasts by enhancing the self-interest in being honest. Letting people bet so that suddenly they make money by telling the truth about how long a project will take, or whether their formal sales estimates are artificially low, does not create real value. You're just rearranging incentives to get more truth, not really more wisdom, out of your people. There are probably better ways to create a culture in which people are honest about project timelines and sales estimates."

Internal trading markets aren't the true presence of *the* market in the innovation process. But they can serve as useful tools for sorting knowledge *about* the market, which has value. Still, we have to remind ourselves that the internal market might, at its worst, effectively organize any number of internal biases. Eli Lilly's internal market predicts which drugs will move fastest, but that does not necessarily mean these are the best or most valuable drugs. The internal market might be revealing (and reinforcing) bias about what makes a good, or a doable, drug in the process.

### **Back to Market Action: Naturally Occurring Internal Markets with Value for Innovation**

Market researchers have long understood the kind of bias that leads to research subjects saying things like, "I don't like the new product you're dreaming up" but filling their pockets with samples to take home and use on the way out. That's a great example of Hayek's distinction between human design and human action. Human design is abstract - - *Do I like this? Do I approve of it?* Human action is concrete - - *Can I use this? What would I do with it?*

A company like Unilever, where every worker is also a customer because Unilever makes common consumer products, has some advantages in the form of some naturally occurring markets worth observing.

*Which products are the biggest targets of "shrinkage"?*

*Which bins at the end of the day are empty?*

*If everyone gets a store credit good only for samples and prototypes, which ones get bought?*

What looks like selfishness and greed on among employees - - and what would be unacceptable behavior under most circumstances - - can actually be the purest expression of market forces inside a large organization. What employees *want* unselfconsciously, unconnected to their status as employees but expressing their status as consumers or product users, is hugely valuable information, and ought to be captured.

### **Valuing Tools for Getting Jobs Done**

Similarly, what workers want to make their jobs easier has great value for process innovation, too. Imagine an internal marketplace in which sellers share ways to eliminate unnecessary work tasks. And even more importantly, where tools for pleasing customers are sold and bought. How would a true internal market value these tools? How would it value information about a customer, or customers in general?

If support functions like market research were on offer, where would the surprises come - - perhaps when internal buyers pay more for the perceptions of a recently hired former employee of a customer, than for the carefully conducted market study?

What would fetch a higher price on the internal market, knowledge about a customer's weaknesses, or a customer's strength? Knowledge about its past, or speculation about its future?

These compelling questions represent untapped resources inside most large organizations. Carefully structured market models may prove to be excellent tools for capturing their value.

## Four

### Fair Competition

*The most common complaint to be heard among employees of large organizations is that new ideas are not judged fairly.*

The best innovators thrive on truth and real world experiences, yet large organizations are good at creating nested realities, little worlds within worlds that often keep people a step removed from ordinary measures of success and value. These mini-worlds have their virtues and their drawbacks. When built with a sense of fairness and a coherent relationship to the world outside, they can work well. But when power in these worlds is not used fairly and individuals feel they are judged based on slanted rules, innovation tends to collapse.

Fairness, in fact, is one of the most essential ingredients in building an innovation culture that works. It's essential to what comes after than broad front-end of the innovation process: the fair competition among ideas as they fight for support within the organization

In fact, the most common complaint I've heard about innovation being stifled is not lack of support, not lack of respect, and not lack of real commitment to change - - though I did hear all of these complaints. The most common complaint is that new ideas are not judged fairly.

And if we drive innovation forward by drawing in the largest possible range of input at the front end and then having ideas compete with each other, *fair competition among new ideas* becomes absolutely essential.

A system is most fair when inputs are most broad and openness to all players is affirmative and convenient. This means that potential contributors of ideas who might not know about the openness of the competition need to hear explicit credible messages that will draw them in. It also means that the average potential contributor of an idea should not have to take steps to make that contribution that others with more elite status in the organization don't have to take.

### **The Greatest Natural Sources of New Ideas: Work-Arounds and Complaints**

Among the best sources of new ideas are end-user work-arounds - - users of tools reshaping and refining them after they've been purchased, creating new prototypes for their own use that are immensely valuable to the producers, because they represent market action in an almost pure state. Yet far too many organizations look at end-user work-arounds as adulteration of products, or expressions of hostility toward the already

good-enough ideas of the manufacturer. These attitudes squander one of the greatest natural sources of informed, market-driven new ideas.

Complaints are precious as well, yet the natural response to complaints is to downplay them, because they represent failure. But complaints are the best naturally occurring sources of understanding what we do wrong. Just as most of us are inclined by nature and by habit to downplay the complaints we hear, we are also generally restrained in making complaints. Complaining is rude, aggressive, and at times dangerous.

But fair competition seeks out complaints because of their truth value. So a system of fair competition within an organization that provides products or services to others must include a vivid, frequent and credible call for complaints, to remove the social barriers to complaints, and to make complaining feel safe.

One of the best stories about the value of work-arounds and the value of complaints comes from Thomas Leppert, at the Turner Corporation. “We were building a hospital in Detroit,” he said.

Now, our business is a noisy business - - when you build a major new structure you’re going to make some noise. An existing hospital was operating adjacent to our site in Detroit and it became clear that the noise would be a problem for the patients there, especially those few who were closest to the construction. One of our people on the ground had a solution: he went out and bought 15 CD players for the patients, and some CDs. And they loved it. In fact, the hospital saw such a strong benefit for the patients, that they now supply CD players as a matter of course. If you consider the relative cost of different ways of dealing with noise on that scale, this was the least expensive and the most satisfying by far, and it was the creative thinking of one of our people, moving from the bottom up, that made it happen. There’s enormous value to that kind of innovation. In this case, it saved money, increased service and satisfaction, and in fact improved the lives of the patients involved.

The Turner Corporation employee could have dealt with unhappy patients in the adjacent hospital by trying to tune them out - - the way many of us react to complaining. Instead, he listened closely and used those complaints as a tool for enhancing the service he delivered.

As CEO, Leppert tells this story often, particularly at company management meetings. In telling the story, Leppert’s message is that improvisation in service to customers is essential. Listening to complaints, solving unexpected problems and working around obstacles are vital practices that the Turner Corporation will reward. The operating principle is crucial: capture and celebrate the good ideas, the tweaks and improvements in products and services that *have to happen* as the unalterable realities of the actual world collide with well-intended plans and products.

One of the greatest work-arounds of the twentieth century was the development of the World Wide Web. Tim Berners-Lee who created the basic model of the graphical web, told MIT's *Technology Review* that his principal motive was not so much to build the next big thing, but to build a tool to facilitate collaboration in his work -- something better than the text-only internet tools he'd been limited to before he invested his time and talent in finding a better way.

In summary, the first leg of the fair competition stool, the leg of most-broad input, is affirmative, convenient, and proactive, open to all, credibly broadcasting messages that make the system friendly to all, and actively seeks out those particularly valuable inputs of complaints and work-arounds.

## **Results**

The results of winning are critical to the perception that fair competition is happening. If the process is fair, but the outcome is fake in any way, no one will recognize the competition as worthwhile -- it will be nothing more than a fair *game*, the evenhanded application of a slanted ideal. It will be worthless.

Two things need to come out of fair competition for it to be worthwhile -- real rewards, and real accomplishment. Real rewards mean more than chits or innovation points. They mean money, stock, patents, vacation days, seniority, more time, more independence, more respect, and more influence in decision-making.

Real accomplishment is critical as well. Xerox PARC is the best case-study of innovation that lacked accomplishment. The genius of PARC led to dramatic, multi-billion-dollar ideas driven through the prototype phase, but not beyond, at least not beyond prototype *at Xerox*. Microsoft and Apple took these ideas the rest of the way, reaping the payoff that Xerox failed to capture.

The best reward of all for innovation is seeing a good idea become real on a large scale. If a good idea wins the battle against other competing ideas, and then *nothing happens*, the competition proves to have been less than fair, because it proves to have been less than real.

Any one of these is good; all together are best. Real accomplishment means that the end of the process of fair competition is the beginning of something bigger.

## Five

### Attackers and Defenders

*The first problem: Not knowing where the good new ideas are.  
The second problem: Not wanting to find them. . .*

#### **The First Problem: Knowing Where the Best Ideas Are**

Harvard Business School professor Henry Chesbrough's book *Open Innovation*, building on ideas from Clayton Christensen at Harvard, Eric von Hippel at MIT and others, expresses an important insight in these well chosen words: "Not all the smart people work for you."

Chesbrough's book answers a critical question: *Where are the best ideas?* Chesbrough's answer, in part, is *everywhere*, outside your walls as well as within. Because not all the smart people work for you, and because the best new ideas will often come from smart people, you'll want to look for those new ideas wherever those smart people are. You'll need to look *everywhere* for good new ideas.

#### **Chevron's External Innovation Community**

Ray Buschmann at Chevron has built a network of outside sources that practices part of what Chesbrough preaches. "One of the critical success factors" Buschmann identifies in his work "has been my initiative of setting up a regular teleconference of our External Innovation Community: non-competing companies that I am satisfied will assist me in getting a better understanding of what works and what doesn't, and equally I provide my own experience to them. I try to spend at least 15% of my time outside of my industry and leverage networking to the hilt. We meet for about 2 hours on the telephone every 2 months usually with no fixed agenda, other than action from the previous meeting."

#### **Herman Miller's External Design Team**

Brian Green at Herman Miller lives another version of open innovation as head of a design group without designers. Herman Miller benefits from a vibrant marketplace of ideas that it does not own, but can observe and acquire to the degree that it wishes. "We don't have any designers on staff," Green explains. "They are all external to Herman Miller. Designers have new ideas and come to us to commercialize their designs. Whether the innovation occurs through internal or external forces, it is good to have a

flow of ideas coming in from which to commercialize new products.” Herman Miller demonstrates the power of Chesbrough’s insight, as well as the big-company effect that Reuters’ Homi Byramji pointed out: ideas often find their way to bigger companies because those companies represent the capital that can turn a person’s dreams into large-scale reality. Just by standing still and being receptive to all comers, large companies take an information advantage, and help to fill the front end of innovation with input they do not have to fund, except for those few ideas they find compellingly appealing.

### **The Bigger Problem: *Wanting* New Ideas**

But there’s a bigger problem than knowing where good new ideas come from, and that is *wanting* good new ideas.

### **H-P’s Amor on Information Hoarding**

Hewlett Packard’s Daniel Amor captures this problem well when he says that “Innovation will only happen if the environment is open for change and the exchange of information is fostered. In many of my consulting engagements, I see companies that are resistant to change and think that not letting others know is a means of power.” The kind of power Amor is talking about here is not long-term strategic power, but short-term, rear-guard power that flows from risk aversion and upholding the status quo. It is power measured in internal coin, in small-world, inwardly-focused currency. It is precisely the opposite of the power that comes from making new things that others want today, and from having the systems and habits that enable you to keep on making useful new things tomorrow.

### **The Bigger Solution**

BellSouth’s Steve Tischer gets to the heart of the bigger problem of innovation, the problem of wanting to do new things. What must a large organization do to foster and support innovation? Tischer points to the work of venture capitalist Howard Anderson and says: “Distinguish attackers (to create new things), and defenders (of current business), and cultivate an attack mentality.” Anderson, echoing Clayton Christensen, talks about the vital importance of companies that think like defenders learning to think like attackers. But Tischer applies this idea to the internal process of innovation, and talks about *people*, rather than companies, becoming attackers.

And Tischer’s clarity is bracing. Innovation culture is an attack culture - - it is forward looking, unafraid of losing past and current advantage for the sake of future advantage. Attackers will experiment and fail on the way to success. They will risk current capital and lose some of it on the way to winning bigger battles. They will scare people, and even hurt people who are overly committed to the status quo, on the way to better things that will help secure the organization’s future.



Consider that one of the three points of wide consensus was that senior management must be vocal in supporting innovation, and must be clear that the future of the organization depends on it. Tischer's point about attackers and defenders adds substance to what top management must do. The message has to be more than "Our future depends on innovation." It has to include economist Joseph Schumpeter's idea of "creative destruction."

The message from the top has to be clear that familiar habits, familiar products, and familiar approaches to the market that many have mastered and take comfort in *are fair game*. The attacker's motto is No Sacred Cows. That is part of the positive message that must come from the top of the pyramid, the message that says, among other things, *attack*.

### **Real Change Equals Real Shifts in Power**

All this is far from easy, and challenges the internal structures that grow inside large organizations. As one senior technology executive told me, "Innovation changes the market. Innovation typically makes current methods obsolete. So, innovation shifts power, and shafts someone."

It's no joke when Tischer uses a word like "attacker," or Schumpeter talks in the stark terms of "creative destruction." We're talking about real change, real shifts in power, real destruction. Get innovation right, and some people will lose their perks and power. Some will lose their jobs. The alternatives are worse, but doing it all right requires the fortitude necessary to take privilege away from some and allow others the chance to earn it according to the standards of tomorrow, rather than the standards of yesterday, or even the standards of today.

### **The Third Term: Transfer Agents**

Given the full-contact intensity of effective innovation programs, must large organizations resemble battlefields? A past P&G executive described their experimentation with alternatives to the P&G brand management model as "a freaking civil war." Is that inevitable?

Certainly some degree of conflict can't be avoided, but a fourth point of consensus among the participants in this study was that innovation works best when skilled and dedicated staff are assigned ahead of time to help the best new innovations make the transition from the bubbling incubator to full-scale, mainstream products and services.

The key concept: *Plan backwards*.

Assume that among the several new ideas being developed at any given time, one or two will prove worthy and make it through to full-scale production. The people who will be good at making that transition work are different from the people who will be good at thinking up new ideas or driving them through the early stages. The transition agents are

more disciplined and better organized. They're friendlier with the mainstream processes and people in the center of the organization.

But they respect the fringe too, and they need to be present early in the innovation process so that the spark-plugs who drive the early phases know who the transition agents are and see that they've been around since the beginning of the initiative.

So you need attackers, you'll always have defenders, and in between the two, making peace and keeping things moving ahead, you're going to need your transition agents too, built into the innovation process from the very beginning, hovering in the background as ideas are being hatched, and skilled at taking today's new concept and passing it over to the people who can scale it up and bring it to the world.

## Six

### The Future

*In the future, creating new products to sell to our customers will not be that important. The real value in innovation will come from inventing new ways of working with and relating to our customers. - - Steve Tischer, BellSouth*

#### **Innovation and the Ways We Relate to Our Customers**

The ideal front-end innovation tool would bring all of the marketplace into the innovation shop, and test new ideas by demanding that they do something so that the marketplace can measure the value of what they do. That's much more useful than measuring the value of what we think they might do.

If we can't have all of the market do this, we want some - - the most valuable future segments of the market - - to be able to do it. And if we can't have the real market, we want a legitimate proxy for the market.

Why do we want this? Because this will help us create better new things we can then sell and use to serve the market. But perhaps this is too quick an answer.

Getting innovation right does more than help us create useful new things. It helps us reinvent the model of enterprise, and reshape the relationship between buyer and seller to reflect and embrace the new realities of our new age.

One of the most important things I heard in my research came from Steve Tischer, at BellSouth. Tischer is a dedicated resource focused entirely on innovation, and his thinking and research led him to make this remarkable statement: "In the future, creating new products to sell to our customers will not be that important. The real value in innovation will come from inventing new ways of working with and relating to our customers."

So the idea of bringing the marketplace inside the innovating organization might not be a means to another end, but might just be the end itself, a model of innovation that changes the simple we-make-you-buy relationship between innovator and customer.

Lowering that boundary between supplier and buyer might be more than a tool to reach higher targets. We may be talking here about changes that accelerate the inevitable reshaping of boundaries between organizations and market roles, and rebalances the equations of interest - - for example, higher price is bad for you but good for me because

I'm the seller - - to offer ways of doing business that provide all players with more value and satisfaction at overall net lower cost.

If innovation in products and practices becomes a way of changing our relationships with our customers, perhaps we ought to measure success in innovation in part by evaluating those new kinds of relationships. (The measures can be hard dollar measures, as well as qualitative measures).

Our frame of reference for innovation, based on all marketplace experience within memory, tends to lead to questions like these:

*We make tires. How can we make tires that serve our customers better, that they'll want more of?*

*Or maybe we can make something related to tires that they'll want to buy - - how can we do that?*

But we generally don't ask:

*We make tires. How can the ideas and experiences of the people who work for our suppliers and our suppliers' suppliers add value to our organization?*

*How can our people do good for our customers' customers through their daily work and their daily play?*

*How can our relationships in the marketplace help us ask better questions about how we operate?*

These questions might seem extreme, but if we are heading into an era in which a vastly large segment of the market for goods and services will be commodified, what sets one company apart from another will likely migrate from the quality of goods and services to remaining areas of distinctiveness, certainly including the distinctive business relationship.

As one consumer-durables executive told me in my research, "We make the mistake of assuming that the business relationship is about the deals made between CEO and CEO, or VP and VP. But the value of these deals comes at the ground level - - your people doing small scale work, repeated ten thousand times, that helps my people, and the good ideas on your shop floor find their way to my shop floor."

### **Short Term Versus Long Term**

As companies invent new ways to relate to their customers, the balance of long-term and short-term interest becomes particularly important. Some companies will squander

opportunities by pushing too hard on the short-term, as one innovation executive at a Fortune 500 tech firm describes:

We have moved away from a general 'innovative' culture to one that is much more integrated. This means that we are not pushing the technology as far along as might be possible. However, our payoff is sooner. The technology investment is more quickly integrated and the advantages are realized sooner, but the advancement is significantly less. We do very little general innovation. We are encouraged to be innovative, but not at the expense of delivering products on time.

The virtues of financial discipline and partnering with customers is pushed too far in this organization, at the cost of long-term advantages. But there are better ways to address the profound changes ahead.

One powerful alternative - - and a process that has great wind in its sails today - - is that consumer marketing will come over time to look more like business-to-business marketing, with far more collaboration, far more negotiation, and far more customization in the process than the benchmark of consumer marketing today.

Taking this process a step further is a prediction that business guru Tom Peters makes frequently: marketing of all kinds, and business structure in general, will trend toward the professional services firm model. All businesses will operate more like consultants than like manufacturers. Peters points out that “In the professional services firm model a customer is - - a partner; someone with whom we co-invent the future. . . ; someone who wins when we win. . . .”

As cost of manufacturing trends toward zero, the relative value of creativity and design becomes far more important - - so that Fortune 500 tech firm focusing on sort-term revenue is going to be fighting the larger momentum.

The biggest questions will become

*Who owns the new ideas?*

*Who owns the risk in the long run?*

*How can we share the process of product development, and share the risk, without losing too much ownership and too much long term upside?*

*Where in the risk/reward chain do we want to be?*

### **Guess What Folks: Our Products Don't Wear Out. . .**

Among the issues facing manufacturers in the future, “the big one,” Chevron’s Ray Buschmann told me, “that most people have not thought about, is the increasing

reliability of products no matter what the industry: guess what folks - products won't wear out, because they are so good, or won't need changing as much, and on our projections I don't think we can generate enough new customers to make up for the short fall of the loss of sales due to the enhanced reliability.”

So the business model of the future will have to include more business with each existing customer - - closer integration, closer collaboration, and shared ownership of future value.

Large-scale trends in technology and manufacturing are heading towards a future in which more and more producers will be able to produce more and more product of higher and higher quality at lower and lower cost. Quality of distinct products will cease to be a significant differentiation between competitors.

Turner Corporation's Leppert said plainly that it will be the quality of the relationship between seller and buyer that will make all the difference in this new world.

So when we seek to manage innovation, we need to be mindful of changes we can make in how we work. We have to consider the process of innovation itself as the subject of our efforts to innovate, and experiment with new ways of doing business. This means more than being more collaborative with customers, more than plugging in a Lead User model or wiring a robust desktop knowledge-management system.

It means constant experimentation, occasional failure and occasional success. Organizations with the discipline to tolerate and to learn from the failure and to drive each success as far as it is able to go, will be the long-term winners.

## Seven

### The Genius Versus the System (the System Wins)

#### **The Choice. . .**

Imagine that you have a choice. You can create an organization that has brilliant and effective structures for collecting a very wide range of ideas for innovation, puts them into fair competition, and regularly sees the best of these ideas emerge in the form of new products and services.

This organization is all about structure and system. Individual personalities do not dominate. To the extent that outstanding creative minds drive value, it is the system that brings a steady stream of these creative minds into the limelight; the personalities are a product of good systems, no single individual dominating.

Or you can have a true genius at the top of the org chart, a man or woman who is the ultimate arbiter of new products and services. All the formal systems for creating and judging the best new things lead to the office of that honcho, and he or she makes the key decisions. The good news is that this person really is a genius. The genius bets right most of the time.

Which would you choose? And, perhaps more importantly, is there a way to capture the virtues of both models?

#### **Microsoft**

Thirty years ago, two of the most compelling stories among rapidly growing start-ups were Apple Computer and Microsoft. Today, two of the most compelling stories in large company management are Apple Computer and Microsoft. Each represents a variation on the themes of the genius at the top of the org chart.

The *Wall Street Journal* recently reported a feature on the twice-annual “Think Week” that Bill Gates undertakes on an unnamed island off the Washington coast to make critical decisions about new products and services. “It’s a twice-yearly ritual that can influence the future of Microsoft and the tech industry” the Journal reported. “A Think Week thought can give the green light to a new technology that millions of people will use or send Microsoft into new markets. One week in 1995 inspired Mr. Gates’s paper, ‘The Internet Tidal Wave,’ that led Microsoft to develop its Internet browser and crush Netscape. Plans to create Microsoft’s Tablet PC, build more-secure software and start an online videogame business were also catalyzed during Think Weeks.”

So long as Gates bets right, there is a remarkable efficiency to this process. Why build a big system to invent new ideas when Gates can lock himself in a cabin and think them up himself?

Actually, though, the innovation model at Microsoft is really a hybrid of lone genius and a real system. Gates spends most of his Think Week time reading papers that have worked their way up the chain inside Microsoft. He is not so much the generator of ideas as the arbiter, the principle of judgment. The efficiency of the structure is evident in what happens after Gates gets back from Think Week. "If I write a comment [on an idea paper written by staff] that says, 'We should do this,'" Gates told the *Journal*, "things will be re-ordered, engineers will move. It's not like I can just read this paper and say, 'Hey, cool, looks good.' They'll assign 20 people to it then."

## **Apple**

Equally compelling is the story of Steve Jobs at Apple. At Apple, innovation lives even more centrally with Jobs than it does with Gates at Microsoft. And the Apple case study comes with the useful twist that an observer can see Apple-with-Jobs and an extended period of Apple-without-Jobs, and reach some tentative conclusions.

The critical question that both cases raise is whether there is as much value in structures and systems to foster and support innovation as there is in a single mega-genius innovator at the top of the company. Can a system of fair competition be more valuable than Gates in a cabin or Jobs in his office making (one hopes) the right choices?

From the beginning at Apple, Steve Jobs has been less a pure computer guy than a brilliant thinker about how people use tools, and how they interact with the objects they own. His partner in Apple's founding, Steve Wozniak, built the guts of Apple's first machine. Jobs shaped what the machines looked like, how they found their way to their first users, and how the rest of the world thought about these new devices.

Apple was born in 1976. By 1984, with a billion and a half dollars in annual sales, Jobs recruited John Scully, then president of Pepsi USA, to take over as president and CEO while Jobs remained as chairman of the board and head of the division driving the revolutionary Apple Macintosh. A year later, Scully pushed Jobs out entirely. The Apple board stripped Jobs of his operational duties, and two months after that he resigned from the board and set about creating a new computer company, NeXT.

For a few years, Scully and Apple prospered, largely by selling the brilliant Macintosh, Jobs' invention. Soon enough, though, the company began to falter, and Scully was ushered out in 1993. After a pair of uninspired leaders spun through the revolving door at Apple, Jobs worked his way back in, becoming CEO again in 1997.

The year Jobs stepped back in, the company lost close to a billion dollars, following on an \$800 million dollar loss the year before. The next year, Jobs brought in \$300 million in profits. The year after, \$600 million. The next year, \$800 million. By the close of the



2004 fiscal year, riding the wave of the Apple iPod's tremendous success, Apple reported \$2.2 billion in profits, with six and a half billion dollars of cash on hand.

### **Making the Right New Things at the Right Time**

What had Jobs done right? He hadn't really reengineered Apple. He unwound a number of key deals his immediate predecessors had signed, and he signed a major deal making peace with Microsoft (ending some serious litigation, and sending Apple stock up 33% in the process). But these were incidental to Apple's future. These acts were about avoiding doom, not about marking a path for the future.

What Jobs would prove best at, once again, would be finding the next revolutionary product, the next invention that would connect the technical power of the Apple shop with the hearts and minds of consumers. What Jobs was truly brilliant at was doing innovation - - making the right new things at the right time.

Jobs returned to an Apple that had spent years trying to conserve its advantages in the marketplace and slow inevitable erosions as its core products aged. Jobs did something radically different: he pushed toward the future with unerring instinct, and began inventing the right new product to establish new advantages.

He did that without a lot of strategic process, but with great brilliance. He bet right, acting on what anyone now, thirty years into the drama of that man's professional life, would have to acknowledge as astoundingly precise abilities to sense the right arena for the next world-changing battle, and the right new product to bring to the fight. Jobs knows how to think beyond the usual limitations in business, to forgo the processes that would dilute the right answer in a sea of process and less-right alternatives.

Apple's board answered the critical questions it faced in 1997 in the best possible way it could. What to do in the face of a looming death spiral? Hire Steve Jobs.

Good answer for Apple, at least for the moment. But not a useful one for the rest of us, and not enough of an answer even for Apple in the long run. Either Apple will institutionalize and systematize what Jobs gets right - - including a process for identifying the next great genius, or a bunch of parallel mini-geniuses to sprinkle throughout the company's leadership - - or it will decline again once Jobs decides what he wants to do next in his life, or when his physical abilities to do the work begin to fade.

### **Steve Jobs: A Question, not an Answer**

Jobs is the perfect example in our age of getting beyond reengineering, beyond fixing up and protecting inevitably fading advantages we have now, and focusing on the sea of opportunities in front of us. But he's an example of doing the right thing as one man, supported by a company, rather than a system and structure that provides right answers regularly and predictably. Jobs remains a black box, a question, not an answer.

Look at the consensus best practices in large-organization innovation. Apple doesn't *do* much of these important practices, but they *know* much of what these practices help people learn. Twenty-first century Apple, firmly under Jobs, bets right on customer wants and needs without much research compared to peer consumer-driven companies. Apple gets more intuitively.

This is efficient, but not sustainable. Apple, in its brief history, has proven that it can make lots of money with Jobs in the picture, but it loses money when he is not at the top of the org chart. That's a short-term strength and a long-term disaster.

If innovation is a practice about the future - - and it certainly seems to be - then Apple will win more battles but ultimately lose the war. Microsoft more clearly struggles to evolve. That's evident in its growing product portfolio. If Microsoft has Windows, Word, Excel, and PowerPoint, Apple has its core desktop and laptop computer models, and the iPod. But Microsoft also has its MSN Microsoft Network, Internet Explorer, MS-SQL, server software, and a dozen more major products. Microsoft makes more bets, fails more often because of that, but wins more often too, and invests heavily in its winning products and services.

The evolution in the Microsoft product base tells the same story as Gates' Think Week tells: the struggle to take the genius-at-the-top model and turn it into a machine that will carry on without the founding genius. Microsoft's structure makes it possible for players throughout the organization to shape innovation. Even though innovation ultimately must be blessed by Gates, he is not the starting point, not the fountain of all creativity, but instead serves as an evaluator of other people's ideas.

The fact that both of Apple and Microsoft, hot start-up stories of the 1970's, are driving forces in the technology business today is remarkable. Both have beaten enormous odds, and made profound contributions to the way we all live today.

But it's worth noting that Apple's market valuation is \$35 billion, while Microsoft's is \$270 billion. Much of this difference in value - - a difference that approaches an order of magnitude - - can be traced to differing innovation strategy. Apple represents the crowning achievement of the genius, making big bets and betting right far more often than most. Microsoft represents the vision of a genius who knows enough to draw broad inputs from a wide range of sources into the innovation process. That might not account for all of that \$235 billion value gap, but it surely accounts for a serious bite of it.