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Leadership for Innovation: What Leaders Must Do for Innovation to Happen

Anthony J. Le Storti

"Leadership is crucial to innovation." At least, that is what we often hear. When projects succeed, we praise "visionary leaders" or "champions." When projects fail, we sometimes refer to "short-sighted leadership," "risk-averse management," or even less complimentary behavior. But, in practice, what exactly does it mean when we say that leadership is crucial to innovation? What is it that leaders must do or must be if innovation is to succeed on an ongoing, purposeful basis?

By examining leadership in terms of levels and phases of the innovation process, a picture emerges of a range of critical roles and responsibilities that leaders must fulfill. By taking this somewhat unusual approach, we can generate a list that provides—and prescribes—an operational taxonomy of how leadership contributes to innovative success. Conversely, if we wish to reflect on innovation efforts that fail because of leadership issues, this template offers a means of being more specific and diagnostic as to the nature and location of the gaps.

Framing Questions

It is often helpful to initiate an investigation with at least a tentative conceptual organization and a few key questions, the answers to which may provide a meaningful outcome. In the case of innovation, we can begin by conceptualizing organizational leadership as existing on three levels: operational, strategic, and tactical. At the operational level, leaders take on the overarching responsibilities for the survival and success of the organization for an indefinite period of time. At the strategic level, leaders focus on specific, high-value goals that are to be achieved over an intermediate period of time, for example, three to five years. Leaders at the tactical level focus their attention and efforts on lower-level, instrumental objectives to be accomplished in the immediate future, a time period probably measured in weeks or months. Ideally, goals, efforts, and leadership at all three levels are consistent, coordinated, and mutually supportive.

While this tri-level taxonomy offers a means of classifying organizational leadership in general, it also can be used to demark levels

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DIRECTOR'S NOTE

Throughout 2005-2006, our Roundtable meetings and Conferences have explored various aspects of innovation and creativity. One meeting focused specifically on the topic of leadership for innovation. We're following up on this important topic with an article by Anthony Le Storti – a guide for leaders on the roles they must play for innovation to succeed in their organizations.

Our second featured article is by Stephan Wiet, who spoke at the 2005 HSATM Conference. Steve, Director of Consumer Sciences for McNeil Consumer Healthcare, focuses on how to sustain innovation in a large corporate setting, addressing barriers, culture, and process.

The 2006 HSATM Conference, held in June, was devoted to the creativity-innovation connection. Chemical and Engineering News had a reporter in attendance, and there is no better way to acquaint readers with the highlights than to reprint her article.

Larry Gastwirt

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of leadership for innovation. It should be quickly noted that, in contemporary corporations -- organizations in which innovation is tightly tied to success and, therefore, of the highest concern -- it is rather difficult to separate corporate leadership from leadership for innovation. Yet, the intention here is to do so as much as possible. The hope is that, by temporarily partitioning off innovation-oriented responsibilities and behaviors from those of general leadership, we may gain a clearer and deeper understanding of the former. Also, with consideration for the scope of this article, the two highest levels of leadership will be our focus. (Endnote references are offered to those seeking more information regarding tactical or team-level leadership.[1]) Accordingly, our investigation may be framed in the form of two questions:

What are the overarching roles and responsibilities of leaders with regard to innovation?

What are the specific roles of leaders in each phase of the innovation process?

The first of these calls for answers at the operational level; the second focuses attention at the strategic level. Without claiming that the following lists are fully comprehensive, it still may be surprising as to how varied and numerous are the roles and responsibilities of leaders when it comes to innovation. This, in turn, starts to account for why we say that leadership for innovation is so important, or that its lack can be so detrimental.

Overarching Roles and Responsibilities

Success in the current global marketplace requires that senior executives provide direction and leadership for innovation as an ongoing corporate priority. C-level leaders must bear primary responsibility for three interconnected operations: managing the overall innovation process, developing and implementing an innovation strategy, and establishing and maintaining a culture of innovation. More specifically, these operational-level roles and responsibilities include:

Establishing and Maintaining the Vision

Researchers Teresa Amabile and Stan Gryskiewicz have noted:

> "Perhaps the most important role to be played by upper management in supporting creativity involves formulating and constantly communicating a clear vision of the organization as innovative, unafraid of risk, supportive of new ideas, and offensive (rather than merely defensive) in the marketplace."[2]

It is important to note that 'vision' as used above is not synonymous with 'corporate vision.' It is not a statement about long-term business objectives, but rather a statement of something in service to those objectives. 'Vision' here is a call to develop the conditions, processes, and attitudes that characterize an organization as "innovative." It is less about what an organization will produce or achieve and more about how it will operate.

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Developing Competencies for Innovation

Leadership for innovation at the operational level does not begin when a specific initiative is planned. Rather, it requires a comprehensive, long view. Leaders must envision and invest in the competencies that will be required five, ten, or more years into the future. This will be a combination of technological investment and purposeful recruitment.

With regard to the latter, one should think not only of a pipeline of innovations, but also of a "pipeline of innovators." Recruitment, hiring, and retention of those individuals who will likely provide the spark and fuel for future innovation projects should be a crucial, ongoing human resources effort.[3]

Establishing and Maintaining a Culture for Innovation

"A universal characteristic of innovative companies is an open culture." Rosabeth Moss Kanter[4]

Although more general and diffuse than some of the other operational concerns, establishing and maintaining a culture for innovation should be one of the most important goals of senior managers. Innovation is a function of behaviors[5], but behaviors do not occur in a vacuum. Rather they are embedded in a culture and promoted or constrained by the physical and psychological environment that is a culture. Further, research has revealed explicit characteristics of a culture conducive to creativity and innovation.[6]

A comprehensive treatment of such a culture is beyond the limits of this article, but the following is a beginning description. A culture fertile for innovation is characterized by openness, cooperation, and collaboration. Work is stimulating, challenging, and intrinsically motivating. Individuals are treated with respect; and management is appreciative, supportive, and encouraging of individual and team efforts. Feedback is timely and constructive; informal recognition is frequent and meaningful; and reward, though not salient, is fairly and transparently distributed. Senior management sets the strategic agenda, but teams and individuals enjoy operational freedom as to how best to pursue that agenda. Unsuccessful efforts in pursuit of innovation are expected, well tolerated, and leveraged for learning.

Facilitating Access to Thought Leaders and Co-Creators

Leaders have to make it easy for innovators to work together. Whether we refer to 'communities of practice', 'open innovation', or 'technology brokering', it is becoming increasing clear that higher-level creativity --and, therefore, potential innovation breakthroughs -- occur across normal conceptual and organizational boundaries.[7] High performers can, of course, be recruited for cross-functional teams; but beyond those discrete experiences, leaders will want to also ensure that their innovators have easy, ongoing access to others who will extend and enhance their efforts.

Ensuring Information Flow

Information is crucial to creativity and new learning, which, in turn, are the building blocks of innovation. It falls to executives to ensure that internal and external information resources are readily available to high-stakes innovation initiatives. Most importantly, leadership must firmly establish cultural conditions in which information flows freely. This is crucial not only for learning and knowledge management, but also because information flow builds trust, trust contributes to collaboration, and both are conducive to innovation.

Establishing Systematic Innovation Processes

In the competitive marketplace, innovation should not --indeed cannot -- be a hit-or-miss or occasional phenomenon. Best-of-breed

companies are systematic with regard to innovation. They conduct formal idea generation sessions, offer training in creative thinking and interpersonal relations, engage internal or external process facilitators, maintain innovation review boards, and have clear validation procedures.[8] Submission of ideas is easy, and consideration of ideas is fair and rapid. People know the status of their ideas as leaders provide feedback promptly.

Developing Innovation Strategies

To maximize success, innovation must be purposeful; yet it is noteworthy that many organizations do not have explicit innovation strategies. Companies have strategies for operations, finance, marketing, and so forth, but innovation, their lifeline for future success, often goes without dedicated planning. Leadership for innovation includes making clear, critical decisions regarding the investment of innovation-oriented resources.

Minimally, leaders will want to synthesize their thinking around the concept of "desired market impact." This includes determinations as to the scope and scale of creative efforts (ranging from "me too products" to hoped-for breakthroughs), the "galaxy of innovation" (fertile target areas ranging from line extensions to "white space" far beyond current offerings), and the level of market agitation (ranging from the defensive plans of an incumbent to more entrepreneurial, disruptive efforts). It is also possible that leaders will want to develop and align strategies across a range of products, market segments, geographical regions, cultures, and so forth.

Composing the Innovation Portfolio

Once a clear strategy takes shape, leaders are responsible for investments in the innovation portfolio. In reality, innovation is an "investment strategy." In seeking the "dividends" of innovation, resources are invested with the hope of healthy (but not guaranteed) returns. The innovation portfolio, therefore, will be a function of the resources available and the risk profile of corporate leaders. Its composition may range from a few small, tightly targeted efforts to a broad, multifaceted set of short-term and long-term initiatives.[9] In fulfilling this role, we look to leaders to make highly informed, very critical judgments shaped by prudent risk-taking.

Building Dedicated Communities

As Andrew Hargadon has pointed out, one of the most frustrating things that can go wrong even with very strong concepts is that the organization can fail to bring together the additional people and resources necessary to make development and commercialization happen.[10] Once the potential of an idea has been validated, senior leaders need to ensure that a dedicated community forms around the concept to bring it to fruition and launch. This follow-through may include reorganization, new hiring, or new capital investments.

Leadership Roles by Phase

To answer the second of our framing questions, we shift our focus to the level of a specific initiative or project, for example, the invention and development of new products for a particular market. We are now considering leadership at the strategic rather than operational level, which probably represents a shift from corporate leadership to R&D, business unit, or business development leaders. The roles and functions outlined here may apply to a single leader or to a leadership team. In the case of the latter, there will be a need for strong and willing cooperation among the members of that team. Leadership responsibilities here will be listed according to the phases of the innovation process, beginning with preparation.

Establishing and maintaining a culture for innovation should be one of the most important goals of senior managers.

Preparation

This is the "getting ready and getting together" phase in which the people and resources for a specific initiative are assembled. Leadership roles during this phase include:

- ***Sponsor:*** One or more members of the management team must accept general responsibility for the project. Sponsorship involves overall support and assistance for the operations and, hopefully, the success of a team or initiative. It falls to the sponsor(s) to negotiate and ensure the availability of team members. The sponsor convenes the team both in terms of primary action agents and any supporting or "adjunct" staff. The key concerns of the sponsor are ensuring that a promising area of investigation has been selected and the right people have been brought onto the team, but another key aspect of this role is liaison between the team and higher levels of authority

- ***Intelligence Officer:*** In order to properly launch the initiative, leadership must provide a thorough operational or strategic briefing of the area of investigation, including a competitive analysis. The leader(s) should provide market or internal information to include current and forecasted future conditions and the possibilities of threat or opportunity that they offer.

- ***Challenger:*** The vehicle for fulfilling this function is an exciting mandate. In commissioning a team, leaders must provide a clear statement of strategic intent. To begin with, this mandate should demark the area of investigation and its purpose; that is, it should provide the rationale as to why a particular area of interest has been chosen and its potential value to the company. It should also note important administrative or logistical elements (timeline, budget, resources available, etc.). Importantly, it must outline the criteria for success (e.g., desired level[s] of creativity, anticipated annual revenues, technological considerations, time to market). Note: while this statement of direction and success criteria comes

Overarching Leadership Roles & Responsibilities

- Establishing and Maintaining the Vision
- Developing Competencies for Innovation
- Establishing and Maintaining a Culture for Innovation
- Facilitating Access to Thought Leaders and Co-Creators
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- Establishing Systematic Innovation Processes
- Developing Innovation Strategies
- Composing the Innovation Portfolio
- Building Dedicated Communities

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from sponsoring leaders, it is very important that the team itself be given operational freedom as to how they will conduct their work.

• ***Resource Provider:*** Leaders must secure and allocate sufficient resources to include people, funds, and time to sustain a specific project. But it is important to note that innovation initiatives often have a way of rippling through the corporate system, so the role of resource provider can be complicated and may involve more than naming people to a team and giving them time and a budget. It often involves reassignment of responsibilities in order to free key people from their normal obligations. Since knowledge is a key resource in innovation, leaders in this preparatory phase may also need to consider what education or professional development (e.g., teamwork, technical knowledge or skills, business acumen) may be required for team members.

Invention/Discovery

As the project gets underway, the team begins its creative problem-solving. Team members focus their efforts on information processing, learning, problem analysis and idea generation. Supportive leadership roles for this phase include:

• ***Connector:*** Beyond the resources originally provided, this phase is likely to see the need for other resources. This especially may involve connecting team members to people and resources within or outside of the organization. In the role of Connector, the leader becomes a door opener, and, if necessary, a door banger. The leader now deals with colleagues to ensure that people, information, and technology are made available on a priority basis. If the organization already has an open and collaborative culture, there may be less of a need for connecting at a higher level; but in the absence of easily accessible resources, the leader should stand ready to do what is necessary to help the team complete its work.

• ***Guide:*** The leader may not know the answers to the substantive questions posed by the team as it goes about its work. This will especially be the case if the area of investigation is "out on the frontier." But in the role of Guide, the leader willingly shares experience, offers technical and procedural advice, and suggests direction when asked.

• ***Counselor:*** While the Guide role focuses on the substance of the challenge, the role of Counselor is one of assistance to the team members with regard to the interpersonal dimension of their work. This would especially include helping to quickly resolve destructive conflicts should they occur. But beyond such efforts, the Counselor can provide the very valuable service of advising the team as to how to gain approval or acceptance for their new ideas. It may very well be harder to persuade key decision makers to endorse an idea than it will be to conceive of the idea in the first place. An experienced and astute Counselor can be very valuable in this effort.

Innovation must be purposeful; yet it is noteworthy that many organizations do not have explicit innovation strategies.

Validation

Once a strong concept (in the form of invention, discovery, or licensing/acquisition possibility) has been developed and advanced, leadership roles shift. This phase can produce a bit of schizophrenia in leaders, as they must iteratively traverse between strong advocate and hard-nosed evaluator.

• ***Critic:*** In this role, the leader provides an honest, constructive assessment of the concept or plan. Creative ideas are very fragile; care is required so as to not kill a promising idea. Likewise, the enthusiasm of teams at this point generally runs high, and discouragement or cynicism can set in if team efforts are summarily quashed. Yet, for a concept to make it to implementation and launch, it must pass realistic tests of viability and desirability. Leaders serve their teams well by constructively criticizing the work and offering suggestions for improvement.

• ***Agent or Advocate:*** Minimally, the sponsoring leader(s) must get the concept or team on the agenda of key decision makers. Sometimes this may be a matter of getting the team into formal stage-gate processes, but it could be that first efforts are directed at enrolling influential others in support of the idea. One of the chief functions served by the leader here is building support among his/her colleagues. The experienced and politically astute leader will also prepare the team for the challenges of presenting the idea publicly and to senior personnel. Informally and formally, the leader promotes the concept, works for a fair hearing and review of the suggestion, and ensures that the idea or team is not inappropriately buffeted by organizational politics.

• ***Advisor:*** This is an extension of the Guide role, but with a bit of a shift in emphasis. As much as experience allowed, the Guide offered advice as to how to handle the substance of the innovation. But in the validation phase, there is a shift to the business of innovation. This phase may take an extended period of time, and the Advisor aids the effort by steering the innovators through the internal organizational maze: filing invention disclosures, developing a business case, composing a budget, and so forth.

• ***Expeditor:*** In a world in which days, if not hours, make a competitive difference, it falls to innovation leaders to facilitate and streamline the validation process to ensure that good ideas are advanced as rapidly as prudent decision thinking permits. Bureaucracy must be pushed aside and red tape cut away in order for key decision makers to hear and make a decision as quickly as possible on ideas of high promise. The Expeditor ensures that concepts are refined, proposals are polished, and presentations to decision makers are scheduled as quickly as practicable. Additionally, the Expeditor works hard to ensure that decision bottlenecks do not occur.[11] And beyond efforts on behalf of any particular project, the Expeditor works for constant improvement and streamlining of the validation process in general in order to keep the company competitive.

• ***Judge:*** There comes a time when, as best they can, organizational leaders have to assume an attitude of objectivity. There is where the "schizophrenia" may come in, as leaders who may have been sponsoring the team's efforts must now psychologically distance themselves from the team in order to make a critical decision about whether or not to proceed. In situations of limited resources, not all good ideas can go forward (and bad ones surely should not); fiscal responsibility must be shouldered. Leaders must decide whether or not the concept should move forward and more resources should be allocated. Additionally,

leaders, as Judges, should act as the organizational conscience, standing firm with regard to standards of quality, safety, environmental impact, and so forth.

Development and Refinement

For those ideas that survive the validation phase, the hard work of turning the promising concept into a viable innovation begins. Additional creative thinking must be brought to bear in order to fully develop and polish the idea. Meanwhile, running in parallel (and hopefully in coordination), strong business processes must be ramped up.

• ***Champion:*** Often, an idea may begin to move forward, but still not have complete organizational buy-in. In the Darwinian world of innovation, the Champion keeps organizational interest alive, especially with regard to promising ideas that are not yet widely supported. The Champion negotiates for the resources needed to move the idea to fruition; and, if a good idea is temporarily put on the back shelf for some reason, the champion works to move it forward when appropriate. Experience has shown that even a very strong idea (e.g., 3M's PostIt Notes®) will not advance in our larger modern corporations unless it has a Champion.

• ***Provider:*** It is often the case that considerably more resources are required to develop an idea than were necessary for invention or discovery. Great cross-functional coordination is necessary, and strong project management is key. The Provider acquires and/or allocates the additional resources needed for this phase. Importantly, the Provider ensures that a highly qualified project manager is appointed to bring the concept to fruition and launch.

• ***Optimizer:*** At this point, the company has a good idea, but now it has to be a great idea. The Optimizer works with the action team to maximize benefits while minimizing costs or disadvantages of the product or service. This is a hands-on role, because here the leader can directly bring experience and expertise to bear. The Optimizer provides constructive criticism to enhance and extend the potential of the idea in order to best meet customer needs. At the same time, the Optimizer often has to fight a defensive battle to ensure that the potential of a great idea is not diluted by organizational narrow-mindedness or lackluster support.

• ***(Market) Strategist:*** The function of a Strategist is not just one of planning. This role is crucial to producing a highly successful innovation. The Strategist uses prototypes and pilot programs to quickly involve the customer in order to further test, reshape, and refine the idea. The Strategist also scans and analyzes the area of implementation or commercialization so as to position and time the product or service for maximum impact. After doing so, the Strategist works to develop launch plans, align necessary resources, and plot implementation task and time schedules.

Implementation or Commercialization

This is the phase of fulfillment in which the creative idea becomes an innovation reality. The new product, service, or process is officially launched or implemented. Leadership must direct efforts to fully exploit the innovation's current potential while simultaneously focusing on the present and the future.

• ***Director:*** The innovation leader coordinates and manages all implementation efforts, ensuring that all tasks are completed, timelines met, requirements fulfilled, certifications acquired, and so forth. This phase may very well require quick, intuitive decision-making as plans may suddenly go awry and competitors may take aggressive counteractions. Even with all the effort and resources invested to this point, the success of the initiative may hinge substantially on the leadership behaviors associated with this role.

• ***Ambassador:*** If the Champion supports ideas that are still struggling for acceptance or implementation, the Ambassador is the representative of products or services that are in place. The leader in this role provides liaison and representation internally and externally to help tell the story of the product or service. The innovation's Ambassador works to educate others to the (corporate) benefits and to enlist greater support and more resources in order to best exploit the innovation's potential. The Ambassador also paves the way for the growth and extension of the innovation to include the development of line extensions and adjacent products or services.

Summary

In considering the range and significance of these roles of innovation leaders, it becomes abundantly clear that leadership is very important to innovation efforts. At both the operational and strategic levels, leaders must shoulder considerable responsibility if an organization is to be truly innovative on an ongoing basis and if individual projects are to be successful. ■

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Anthony J. Le Storti (ajls@ideatects.com) is Executive Consultant for IDEATECTS®, Inc. He directed the Center for Creative Studies at Gwynedd-Mercy College for 17 years, and he has taught graduate courses at LaSalle, Cornell, and Penn. He specializes in creativity and innovation, leadership development, and the dynamics of human systems.

His recent book, *When You're Asked To Do The Impossible: Principles of Business Teamwork and Leadership from the U.S. Army's Elite Rangers* (Lyons Press, 2003), focuses on leaders and teams that take on the toughest challenges.

*HSATM held its fifteenth annual conference in June, The Creativity-Innovation Connection. Over 120 attendees filled the auditorium in the Babbio Center for Technology Management to hear four outstanding speakers: **David Tanner**, founder of the DuPont Center for Creativity & Innovation, Professor **Christopher Barlow**, of DePaul University and the Co-Creativity Institute, **Steven Jacobs**, President of Bilcare USA, and **Anthony Le Storti**, Executive Consultant for IDEATECTS. The following report on the Conference is reprinted with permission from Chemical and Engineering News, July 3, 2006, 84(27), pp 40-41.*

Piercing The Veil Of Creativity

Conference shows that teachable tools, not just serendipity, can stimulate innovation

Sophie L. Rovner, Chemical & Engineering News

At times, creativity and innovation may seem like magic, or at least the province of a select group of particularly imaginative people.

*A recent conference hosted by the **Howe School Alliance for Technology Management** at **Stevens Institute of Technology** in Hoboken, N.J., sought to dispel these notions. "There is more of a science to creativity than I would have thought," said Lemuel A. Tarshis, the Alliance's director of technology transfer. "It is not mysticism. There is methodology that really works."*

Tarshis made his remarks last month during the Alliance's conference on creativity and innovation.

David Tanner, former head of R&D in *DuPont*'s industrial fibers division, is a strong proponent of innovation-fostering methodology. During his tenure at DuPont, he promoted the use of such techniques to defend the division from severe competitive pressure from Japan and Europe.

DuPont realized that "to build a more innovative organization, we needed to enhance the environment for creative thinking," said Tanner, who is now president of Tanner & Associates in Wellington, Fla. One technique to achieve this kind of cultural change is to give status to the effort. For instance, laboratory unit heads periodically replaced important monthly technical program reviews with creativity workshops. The substitution emphasized the workshops' significance.

Establishing rituals also helps change the culture, Tanner said. At the end of other monthly meetings, the unit head would invite two or three people to speak about their creative work at DuPont. The routine spread the word about creativity and altered perceptions about who could be creative.

Process engineers, for instance, initially felt that "creativity is not for us; it's for the research people," Tanner said. "But when they saw a fellow engineer get up and say 'I came up with an idea and I increased throughput 30-40%,'" the engineers not only came to understand what creative thinking was, but they also wanted to incorporate it into their own work.

Tanner described specific tools to generate ideas and arrive at a novel solution to a problem, including the concept of lateral thinking, in which a "provocation" jolts the mind out of its normal pattern of thought. The provocation is "an idea related to the problem you're tackling, but it makes absolutely no sense," he explained. "It's stupid, impractical."

Techniques to generate a provocation include pulling a random word out of a dictionary and seeing what new ideas it prompts about the problem. Alternatively, those trying to solve the problem can use exaggeration, distortion, and wishful thinking to elicit new modes of thinking. They can also list what they take for granted about the problem and then throw out those assumptions.

Tanner discussed an example in which a continuous flow filter system for Kevlar kept breaking down and causing quality problems. The system relied on an oscillating belt that had more than 70 moving parts. A team of R&D, manufacturing, and engineering staffers came up with the provocation that the moving belt should be stationary. This new mind-set led them to reduce the number of moving parts by 80%. Problem solved.

Another technique employs metaphoric thinking, which generates new ideas and concepts by connecting the problem under consideration to something that occurs in an entirely unrelated system, such as nature.

A DuPont research chemist used this approach to find a better way to dye Nomex fiber, which was used in flame-resistant industrial applications. Because the fiber had a very tight structure, the original dyeing process required swelling agents, which were costly and caused environmental problems, Tanner said. After attending a creativity workshop, the chemist pondered what in nature can be penetrated despite its tight structure. His answer? Earth.

Coal miners gain access to the interior of Earth

by digging holes and propping them open. Inspired by this analogy, the chemist added a large organic molecule during manufacturing to prop open the structure of the forming Nomex fiber, enabling dye molecules to squeeze into the fiber in a subsequent step. The improved dyeing process opened up new applications for the fiber including carpets, upholstery, and draperies.

"The essence of creativity is seeing the problem in a new way that makes the solution obvious," noted Christopher M. Barlow, a principal with the *Co-Creativity Institute*, a consulting firm based in Glen Ellyn, Ill. Take the situation in which a tall boat needs to move past a low bridge. Focusing on the desired result – getting the boat past the bridge – can lead to a truly novel solution, such as the Scandinavian practice of sinking the bridge under the water to let the boat pass, Barlow said.

Arriving at that kind of solution requires a shift in perspective, and it may take the members of an innovation team months to get to that new viewpoint. That being said, when the team members present their breakthrough idea to clients or bosses or investors, "it's like you're from the moon," Barlow warned. The team members shouldn't expect the audience to be able to shift its perspective immediately.

"It's probably as hard to make that shift as it was to think up the idea in the first place," he said. "So part of your job in working with teams is to bring the organization along." Team members can help by discussing interim progress with people in their departments.

Anthony J. Le Storti, executive consultant with Ideatects – a firm based in Doylestown, Pa., that specializes in creativity and leadership – said "creative ideas need as much if not more marketing internal to the company than they're going to need when you try to commercialize them and sell them to consumers. You have to do enough homework to say, 'Here's why we think that there's a market for this.' Give the idea a working title, a proposed product name. Come up with the packaging, do the illustrations. Even better, come up with the prototypes."

Teams may find it useful to solicit input from customers, though focus groups may not be particularly effective for generating major innovations. "The customers may not themselves understand what their problem is" or be able to articulate it in such a setting, Le Storti said. The key is to "get into their minds when they really are feeling the need." Children's Tylenol used to be a sour, crunchy tablet until a psychologist began interviewing kids during an illness or shortly afterward, Le Storti said. When the psychologist asked a little girl what she needed in the way of medicine, she replied, "I don't know what I need, but whatever it is, it should be soft, sweet, and pink." The manufacturer responded by developing a formulation that was soft and melted on the tongue.

Input from a variety of viewpoints – whether provided by customers or members of an in-house team – is key for successful innovation. To ensure that he has a wide range of perspectives, Steven A. Jacobs, president of Bilcare, a pharmaceutical packaging research firm in Phoenixville, Pa., said he likes to hire "people with a very high personal weirdness factor. High-PWF people bring outrageous, bizarre concepts to the table. They are not afraid to disagree with me; they are not afraid to challenge each other."

And when he puts an innovation team together, he likes to include people with little similarity of thought and with high cultural diversity. One team included a person from China, another from Ireland, an analytical chemist, a formulator, an information technician, and Jacobs (who is a pharmacist). "Each of us could play off the others," he said. "No one had the same skill sets."

Different teams have different styles. When Jacobs worked at *McNeil Consumer & Specialty Pharmaceuticals,* a *Johnson & Johnson* company, he and an R&D colleague were asked to head up two separate innovation teams to invent and develop new product ideas. Jacobs told his team members that he was a novice in the field but that he was there to empower them to be successful and that he knew they would accomplish amazing things. The other leader directed his own team in a manner that said, "I'm an expert in this field. I will lead you in the direction that I feel we need to go."

Ultimately, Jacobs said, "we found that people were intimidated by the expert. They felt stupid in comparison and therefore were not comfortable sharing their ideas." The differing group dynamics explained why the expert's team produced incremental advances, Jacobs said, but "our group was wildly successful."

Some companies try to keep creative efforts secret within teams or business units as a way to limit leaks to competitors. "This was the General Motors model," Le Storti said. "At one time, the design studios for the different families of cars were locked off from one another."

This type of restrictive atmosphere is all wrong, Le Storti said. "Imagine the paranoia in the hallways. And somehow, all General Motors cars still look alike.

"When you are trying to do creativity and innovation, you want the best input from whomever or wherever you can get it," he added. "Senior leaders need to set up in advance that there should be very quick and willing cooperation across functional boundaries. And as far as going outside the corporation, that's what confidentiality agreements are for."

What you want is everybody not seeing creativity and innovation as a special thing, but as part of their job.

Should an organization establish skunk works for its most ambitious projects, with special facilities and equipment as well as salary and bonus plans? Although there have been some very successful examples, including the *Lockheed Martin Skunk Works* that developed the F-117 stealth fighter and several other fighters and spy planes, Le Storti generally thinks this concept is a bad idea. Colleagues who aren't in the special facility may feel disrespected and may also feel that innovation isn't required of them because it's being handled by the staff in the skunk works.

"What you want is everybody not seeing creativity and innovation as a special thing," Le Storti said, "but as part of their job." ■

Innovation -Tougher Than It Appears

Successful innovation requires structure, process, and deep consumer insights

Stephan G. Wiet

As a consumer psychologist with nearly 25 years of experience, my passion is identifying consumer insights. I also help guide the product development process to ensure that these insights are successfully translated into new products offering uniquely differentiated benefits for the jobs consumers are looking to get done.

I have been involved in many successful new product launches, both "incremental innovations" – new flavors, fragrances, and packages that offer limited top line growth – as well as more substantial innovations that resulted in considerable business growth. I have also been associated with launches of products that fell considerably short of meeting sales projections, and with new product ideas that never saw the light of day.

My objective in this article is to briefly share my perceptions on the innovation process, and my conclusions on how innovation can flourish or flounder within large organizations. While my experience is drawn from consumer product companies, I'm sure that many of these conclusions have general applicability.

The Attractiveness of Incrementalism

This is a challenging time for consumer product companies. Many market categories are generally well-segmented and show limited growth. "Power" retailers have gained enormous market leverage – often dictating what products get to shelf and stay there. Store brands are no longer the simple white box offerings that offer consumers barely acceptable quality. Consumers are also more savvy shoppers. They are increasingly pro-active, educated, and demanding. For the past 10 years, many consumer product companies have experienced difficulty achieving sustainable volume-driven profit growth. CEOs have been preaching innovation as the cure for their ailing businesses. But there is a big difference between preaching and doing, and between "doing" and "doing it big."

It is relatively easy to innovate incrementally. Line extensions and quick product modifications can keep brands alive. Such innovations are necessary for sustaining a healthy business. Data gathered from such techniques as focus groups, market segmentation research, expert panels and thought leaders, need-gap analyses, consumer response centers, and internal brainstorming sessions are all viable sources from which new ideas can spring. Combined with a quantitative concept sort and a volumetric market test, a company can quickly screen incremental new product ideas and select those that achieve an adequate projected return on investment.

Such innovation is comfortable for large, risk averse companies. In a review of new products introduced in the US in 2004 (Information Resources Inc.), approximately 90% were line and brand extensions, whereas 10% were considered substantially new products. The natural attraction of line extensions is largely driven by economics and risk. Although average annual sales of a new line extension ($24 million) are approximately half that for a substantially new product ($53 million), it costs considerably less to launch a line extension than a substantial innovation ($10 million vs. $25 million). Furthermore, line extensions can be launched more quickly (12 months vs. 15 months), and have a quicker return on investment (12 months vs. 20 months). Finally, incremental innovations are less risky. Approximately 50% of line extensions remain on the market for 2 years, compared to only 25% of substantially new products.

Unfortunately, incremental innovation alone brings modest, incremental returns – hardly sufficient to sustain growth. It is much harder to innovate in ways that grow larger businesses at never-before seen rates, especially while "protecting the core." Innovating "beyond the core" can take a business to new heights. However, without separate processes in place that enable innovation beyond the core to be sustained and flourish, such innovation efforts typically fail. There are several reasons.

First, larger companies rely heavily on incremental innovations to maintain brand growth. When growth unexpectedly appears to be less than projected, resources and funding targeted for innovations beyond the core are often diverted to support brand growth. This resource change tips the balance of innovation toward incremental brand innovations and makes larger innovations less likely to happen.

Second, larger companies are typically impatient when it comes to developing new ideas. There is often an expectation that innovative new products can be developed quickly. While they sometimes can, innovating beyond the core typically requires time. The front end of this process is ambiguous and filled with uncertainty. Often, ideas that are "new to the world" need to be rapidly prototyped and exposed

to consumers for their early reaction. This type of innovation is iterative, as new features and capabilities are built into the product idea over the design phase. Longer time-lines are frequently required to turn ambiguous seed ideas into marketplace winners.

Finally, efforts to sustain innovation outside the core often fail because they can require new business models that companies are either unfamiliar with or unequipped to execute. This may include new methods for marketing, selling, or distributing novel product ideas.

The Innovation Game Has Changed

So how can companies successfully innovate both within and outside the core? The road to significant growth through innovation requires new organizational structures, processes to sustain innovation, and deep consumer insights. Perhaps most importantly, it also requires a culture that is driven and reinforced from the top down.

Many larger companies have recently restructured for growth by creating uniquely distinct cross-functional teams that are responsible for growing the core, and teams responsible for identifying adjacencies and new "white spaces." An example is depicted in Figure 1. These teams each consist of dedicated marketing, market research, R&D, and finance personnel. Some companies have even gone so far as housing each cross-functional team in different buildings so as to maintain their focus and objectives.

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Companies have also created separate governance bodies to oversee core growth and growth within white space areas. Each team reports to a different VP – one who oversees core growth and the other responsible for innovation within white spaces. Each VP has a distinct operating budget, growth goals and measures of success. A different governance board reviews new product ideas developed by each functional team.

The board responsible for reviewing and approving innovations within the core relies on standard financial assessments and well-understood business models to make decisions. Ideas that are approved move into the company's new product development process. The board overseeing white space activities function as new venture capitalists. Given the unclear business models they frequently face, this board's primary responsibility is to manage risk. They may require the team to report back frequently as new information is obtained. Seed money is appropriated in small increments early in the project to fund "test and learn" studies until a clearer business model is formulated. It is at this point that a larger appropriation is approved and the team moves forward toward final development and implementation. Both governance boards report to the company's management board, which has ultimate responsibility for managing the company's entire portfolio of new product ideas.

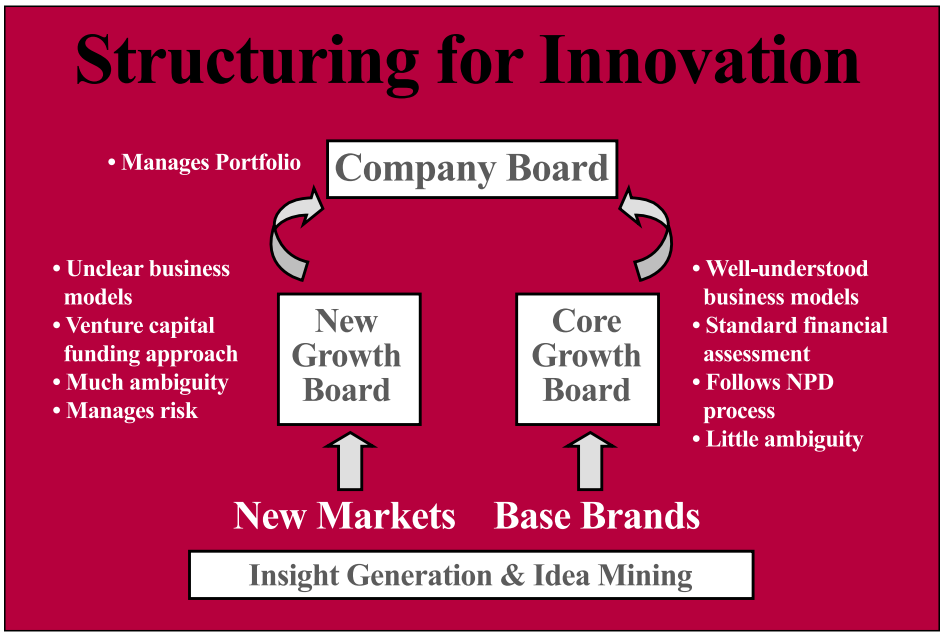

Figure 1. Structuring for innovation requires separating core and new market activities

It is the company culture that is likely the single most important attribute of innovative companies. Support for innovation starts with the company CEO and the management board. It is surprising how many CEOs today do not understand the critical role they play in building and sustaining an innovative culture. Their role is more than lip service and delivering self-serving statements about being an innovative company. It is a very visible commitment to resources, money, and internal support. It is the priority they set to "stay the course" despite unexpected fires that frequently occur within the core. The breadth of an innovative culture can be wide and diffuse, or narrow and focused with limited participation. Both strategies can work. However, without strong leadership at the top, innovation efforts will rarely be sustained.

So how do innovative new product ideas get created in the first place? The field of innovation has matured to the point where

processes can sustain a rich pipeline of new product ideas. In the front end of the innovation process, five critical stages are necessary:

• ***Linkage to Strategic Plan.*** Areas in which innovation initiatives will be targeted must link directly to the company's strategic plan. Coming out of the strategic planning session, areas of concentration are identified, selected, and approved by the management board. This linkage insures that the company will be focused on innovating in the right strategic areas and that the short and long term growth goals within the strategic plan are well understood and communicated.

• ***Sustained Discovery.*** The source of all great ideas comes from the development of deep insights. The sustained discovery phase is an immersion into the consumer, technology, and brand equities within which insights can be derived. From a technology standpoint, technology scans are beneficial for understanding advancements in the way companies can deliver possible solutions to consumers. A critical assessment of a company's brand equities can help teams identify new meaning that brands stand for in the eyes of consumers. However, it is the discovery of consumer insights that drive the innovation process. From a consumer standpoint, most companies have a rich array of consumer and market research information to help them jump-start the process. These include market trend analysis and market segmentation research, thought leader input, blog content, and the results of previous brainstorming activities conducted both within and outside the company. Companies will also reevaluate "fallen angels" – those ideas that were previously not pursued for various reasons and now appear more viable or lucrative given recent changes in the market landscape.

All of these idea sources contain content, but they often lack the deeper consumer insight and emotional tonalities that can turn a good idea into a great idea. The strongest single approach a company can take toward strengthening its consumer insight generation program is by implementing observational research as part of the innovation toolbox. This approach requires innovators to get out of the office or laboratory and watch consumers in the field solving problems. Observational research, sometimes referred to as ethnographic research, can be time consuming and arduous. But its benefits, outlined in Figure 2, far outweigh the time commitment.

The Power of Ethnography

- Emerging Trends
- Unmet Needs
- Unarticulated Needs
- Triggers of Use
- Environmental Interactions
- Compensatory Behaviors
- Customizations
- Intangible Product Attributes

Figure 2. Observation research yields an array of possible insights

Generally, observational research aims to get beyond what consumers say they do. It uncovers what consumers actually do and more importantly, how they do it. Observational research will uncover ways in which consumers are modifying existing products to improve their performance. This can result in the generation of new products or modifications to current products that offer greater consumer benefits. Observational research can uncover how a product is being used outside of its intended role, resulting in new product claims or new ways of positioning a current product. This research approach can often help a team uncover unarticulated, emotional benefits that a consumer is seeking to experience while using a product. Finally, observational research can identify a new array of unmet needs consumers have that can also be the focus for new product ideas.

For example, when observing a new mother deliver fever medicine to a young infant using a dropper, it becomes very evident that she requires more than two hands to do the job. First, the infant needs to be properly positioned in the mother's arms. Next, the mother needs to open the bottle, and squeeze the proper amount of medicine into the dropper. Next, there is a repositioning of the infant so the head is raised to accept the medicine – very difficult to perform while holding a dropper full of medicine. Once the medicine is delivered, the mother immediately wants to comfort the infant baby by repositioning it yet again. However, she is still holding the dropper, and wishing they could place it somewhere. Moms are reluctant to lay the dropper on a nearby table for fear of germs. On the other hand, it is nearly impossible to put a dropper back into the bottle with one hand because the bottle is small and may tip over. Given this simple observation, a vast array of insights and unmet needs become strikingly evident.

• ***Consumer & Technology Platform Development.*** The insights gathered from the consumer, technology, and brand equity areas are synthesized. From this synthesis, major themes emerge resulting in the formation of a number of key consumer benefit platforms (benefits that consumers seek within the target area of concentration) and technology platforms (key technology areas that can deliver those benefits). These major platform areas are then identified, selected, and prioritized based on a projected valuation that each platform is assigned. Within each benefit platform, an array of potential new product ideas is generated, along with accompanying technologies that can successfully deliver the benefit. Using the previous medicine dropper example, careful post-observation debriefing sessions can generate a number of unique solutions that will make the mother's job a more pleasurable one. This may lead to a redesigned bottle that will not tip, or an attachment on the bottle that will hold the dropper just prior to and immediately after delivering medicine so as to free up the mother's hands. The maturity of the technology solution comes into play here as well. If a technology is readily available, the idea may be commercialized in the short term. On the other hand, ideas utilizing technologies that require a longer development path are slotted farther down the product development pipeline.

• ***Concept Development.*** Those ideas that are within the core are developed into concepts, tested among consumers, and refined. Leading ideas are selected based upon consumer appeal and fit within the company's new product portfolio. Those ideas that may be new to the company, new to consumers, and outside the company's core businesses are similarly put into concept form. However, rapid prototyping may also be necessary to generate early consumer reaction to a new product idea never before seen.

• ***Concept Validation.*** During this stage, leading concepts and prototypes are being refined. For ideas that are within the core, go-to-market quantitative volumetric testing will project the potential value of the idea. Once placed into the company's portfolio, the idea may be approved by the governance board overseeing core growth and moved into commercialization. For those ideas outside the core and new to company, small test-and-learn studies may be required to determine the best business model to move forward. Once a successful model has been determined, the governance board overseeing white space opportunities may approve the project for commercialization.

Innovate Through the NPD Process

Innovation does not stop once a new idea is identified and approved to move into commercialization. Perhaps the most important area where innovation can be applied at this stage is in product design. The product development process is more than just assembling a product that delivers the obvious benefit for which it is intended. Great companies use innovation during the product development phase to build in higher-order benefits consumers seek but can rarely articulate. In so doing, product development is seeking to create a relationship between the product and a consumer, using a combination of technology, psychology, and art.

Certainly, a great new product must perform the job for which it was selected.

It is surprising how many CEOs today do not understand the critical role they play in building and sustaining an innovative culture.

The basic "functional benefit" serves as the foundation upon which all other higher order benefits are built. Technology is critical here in delivering the right benefit, in the right way, at the right time. However, deeper consumer insights can help a product development team design an idea beyond pure functionality. One perfect example is Apple's Ipod. While playing music is a basic functional benefit derived from this product, many higher order benefits were designed into the Ipod that clearly separated it from other music players that were less expensive and readily available. First, its ease of interfacing with Itunes, creating playlists, and cataloging music was a big departure from competitive music players. Second, the user interface on the Ipod itself was intuitive. Third, there was a "coolness" factor in its packaging and design that evoked emotions in both kids and adults like no other product on the market. In general, new products that appeal to consumers both functionally and emotionally have a greater likelihood of being successful.

Aside from the functional benefits that products offer, perceived benefits are also effective elements that can be designed into products. Perceived benefits reinforce the product experience both functionally and emotionally, and assert a "reason to believe." Often, these take the form of sensory cues. For example, cleaning products that have an overwhelming ammonia aroma, or toothpastes that have a strong minty flavor both connote effectiveness. Lavender fragrances connote relaxation, and can be an effective value-added perceived benefit for use sleep aids. Medicines that fizz, foam, or gush are perceived as fast-acting, and may be viable product forms that reinforce the benefit being delivered. It is important to consider sensory elements when designing new products to enhance the consumer experience.

Summary

In conclusion, innovation is tougher than it sounds. Successful innovation requires a process for maintaining a healthy pipeline of ideas within the core and beyond the core. It requires governance, leadership, and organization structures that support both growth areas. Successful innovation efforts require a strong consumer insight program that identifies unmet consumer needs and articulates the benefits consumer seek, both functional and emotional. Finally, attention to product design pulls it all together to yield a winning new product. ■

About the Author:

Dr. Stephan Wiet (SWiet@MCCUS.JNJ.com) is a Consumer Psychologist within the Johnson & Johnson family of companies. He is currently Director of Consumer Sciences at McNeil Consumer Healthcare, the over-the-counter pharmaceutical arm of J&J. He is responsible for leading R&D activities that enhance consumer understanding, translating consumer insights into new healthcare products, and optimizing the aesthetic features of these products. He also chairs McNeil's R&D Innovation Leadership Team, responsible for sustaining an innovative R&D culture. Dr. Wiet has held similar positions at J&J Consumer & Personal Products, and McNeil Nutritionals.

HSATM

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UPCOMING EVENTS

Combined Roundtable and HSATM Advisory Board Meeting
November 15, Noon-5:00PM
Babbio Center, Stevens Institute of Technology, Hoboken, NJ

The 2006 HSATM Advisory Board meeting will take place at 1:00 PM on Thursday, November 15, followed by the November Roundtable meeting from 2:00-5:00 PM. As is our custom at the final Roundtable meeting of the year, Howe School faculty members will present selected research findings and discuss their business implications. This year we will hear from Professors Holahan, Koen, and Shenhar. All attendees are encouraged to attend the entire meeting and to partake in a buffet luncheon from 12:00-1:00 PM.

Patricia Holahan's research explores successful product development practices that discriminate among three types of innovation projects – incremental, more innovative, and radical – using data gathered from 96 business units. Although commonly accepted that incremental and radical innovation should be managed differently, the results of this study suggest that best management practices for new product development activities may be more similar across project types than previously thought.

Peter Koen's work has focused on the "front end" of the innovation process, and he will present the findings of an industrial-academic team that has been studying success factors since 1998. Best practices, methods and tools used in the front end which consistently increase the value, amount and success probability of concepts entering the new product development funnel will be presented, based on the practices of over 180 companies.

Aaron Shenhar will discuss his recent research on project management. Since projects are initiated for business objectives, the mindset of project management must shift from just meeting time, budget, and performance goals to achieving expected business results. Based on this concept he will present a model that assesses a project according to (1) how well it is focused on business results and the right strategy, (2) how well structured the process of planning and execution is, and (3) how much the project's leadership is focused on the human side of motivating and inspiring the team. The model can be used to assess where organizations are today in the maturity of their project management processes and to set specific goals for improvement.

INFORMATION

For further information on HSATM activities or to submit an article, contact Dr. Lawrence Gastwirt at **212-794-3637 • Lawrence.Gastwirt@stevens.edu**

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