

Automotive News



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PACE™
**What We've
Learned So Far**

Abstract

Innovation can be a dramatic source of competitive advantage. However, innovation is just one aspect of the complex, pressured business of remaining competitive, and a *consequence* of the conditions put in place. Innovation is not a “corporate Holy Grail”—something to be sought in its own right. We want to discuss that point of view, so that managers may benefit from the insights about innovation that arose out of the PACE process.

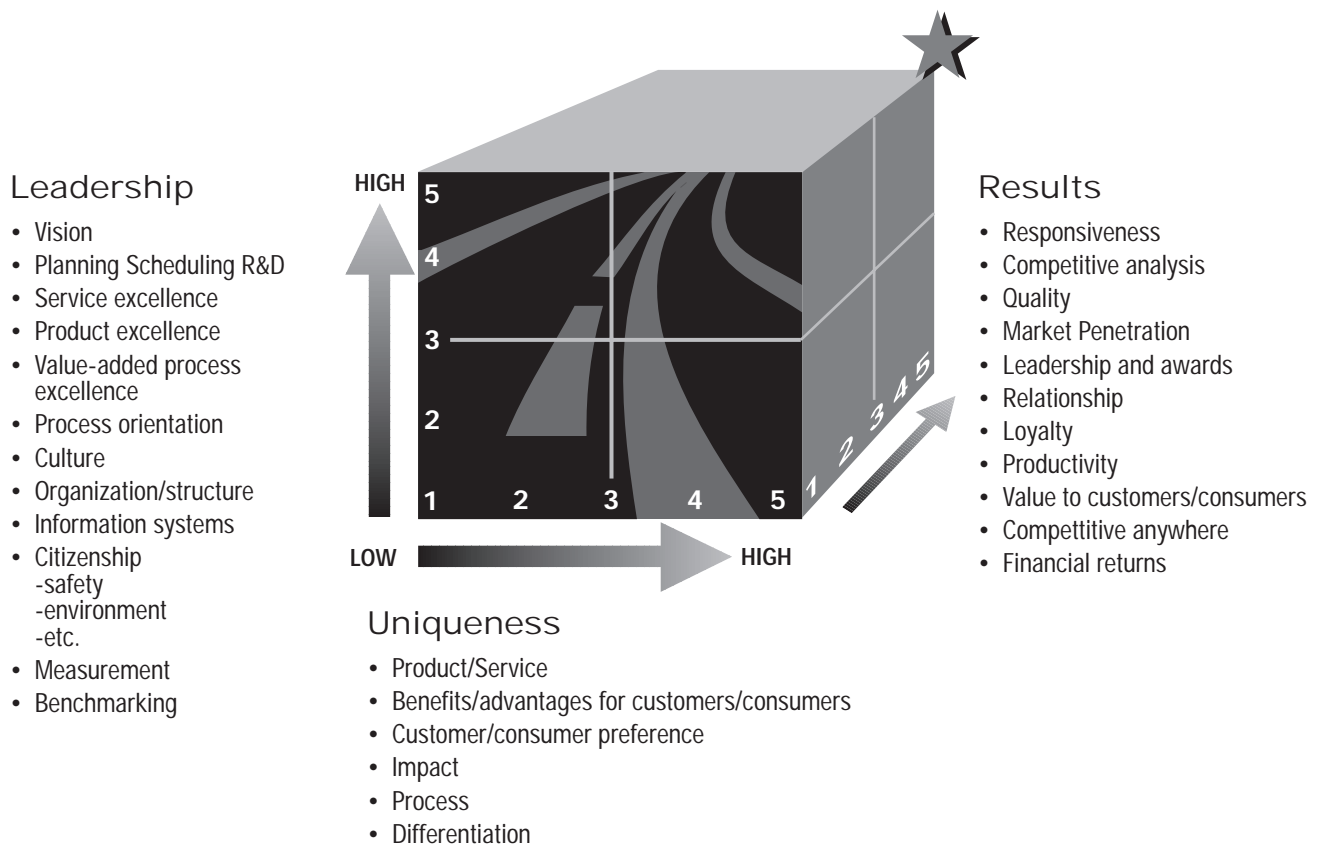
The ability to innovate is critical if an organization wants to excel and control relationships along its defined strategic path in the automotive industry. But it is difficult to “have innovation” in itself, or “get innovation” directly, without putting enablers in place. That is especially so if one wants to innovate on a sustained basis, and be able to discriminate when and when *not* to innovate. Without the right enablers, even the right cultural conditions are no guarantee of commercially successful innovation.

To understand the larger context of accompanying business conditions is a useful step in understanding innovation. This can help to encourage relevant innovation, improved processes, best practices, new products, customer satisfaction, and relationship control. Understanding contextual conditions is also crucial to one’s ability to judge the relative importance or value of a given innovation.

It is difficult to separate innovative products from related innovative processes. Is the innovation that is being rewarded “the thing,” or the process from which the thing comes? What if we are dealing with an innovative service, or its method of delivery? We accept these ambiguities, because PACE is interested in recognizing companies that have the multifaceted characteristics, practices, and cultures that assure a continuous flow of innovations and commercial successes. When we look at a differentiating, creative product or process, we evaluate whether an innovation is really part of a continuous flow of transformations, and not simply a “lucky strike”—however valuable it may be.

Innovation is a dramatic event in a dynamic, continuous “success process.” This process is depicted as a circle, or cycle (text, below). Our PACE “cube,” (*see following page*) a multidimensional device for evaluating innovation in a larger context, can be used to score proposed or actual innovations at every stage, or to help predict likelihood of success. Innovation and the ability to innovate are intertwined with a host of organizational choices and conditions, and can best be understood, managed, or judged within that larger framework.

The presentation of specific company examples, site-visits, and cases, and specific related scoring using our “CUBE,” is a tempting possibility. Doing so, however, is not in the scope of this paper, due to the need for confidentiality regarding current innovations among PACE finalists and winners. In subsequent studies and papers, working with the specific permission and cooperation of relevant companies, it is our hope to have the opportunity to illustrate more fully principles by example.



Innovation is one important part of a pressured, complicated world to be managed. It is not something a company can seek, Holy Grail-like, for immediate advantage. Rather, productive innovation is management's reward for managing many complex matters well. It is the job of this paper to present and explain that point of view. We hope this may be useful to the thoughtful manager who wants to manage for success through innovation.

Every organization wants both the reputation and the benefits of innovating. When it comes to innovation, we all believe we recognize it when we see it. Also, there is the belief that if innovation is good, more innovation is inevitably better. That being so, why isn't there more of it? Why isn't it found in more organizations? Why don't more companies deliver more of it to customers regularly? The energy in innovative organizations is palpable, but can that energy be "created"? When and how does innovation occur, and what leads to it? What cultures lead to bright minds solving problems in competitively beneficial new ways, or, better yet, lead to "solving opportunities"? Is innovation always good? *These are some of the questions that have arisen in the PACE process.*

“Our appetite for innovation is endless,” commented one PACE judge, referring to companies in the automotive supply chain, “yet innovation by itself is a sterile pursuit.” Industry should understand that innovation, like profit, is part of a larger picture, and a *consequence* of many complex actions and many complex judgments made well. Innovation

cannot be pursued directly; it happens when the appropriate attitudes and the right climate are encouraged, and the right provisions are put in place. Most important, it happens when everyone from top to bottom understands and operates consistently from a well-considered mission and strategy, with a vision that is clear, and values that are shared and rewarded all the way from the executive boardroom to the shop floor.

What is innovation? *An innovation is a product, process, or service that rewrites the rules of the game.* This is a simple, direct test for understanding or making judgments about innovations, and the hard-to-separate-out practices and processes that engender them. For the PACE process, we ask four questions to test for the hallmarks of competitively advantageous innovation.

Is an “innovation” really something we haven’t seen before?

We look for something new, or newly and cleverly applied, in a product, process, or service. Or we find an adaptation from another industry that is being applied creatively to the automotive industry. How different is it from anything we’ve seen before?

Innovation may mean that successful players in other industries or markets become major competitors in the automotive supply chain because of new applications of their core competencies. PACE awards are often for invention that’s successfully adapted and applied for the first time in the automotive industry.

Vehicles have been metamorphosing into very complex and sophisticated, integrated electro-mechanical systems. Thus, a whole new range of competitors that were not present before may now have a significant new industry or market in which to contribute and compete. The competition best positioned to put your company on the defensive may not yet be in your field of vision, because it is not yet in your field at all.

Additionally, surprise, delight, and novelty factors, both for customers and for customers’ customers, must figure heavily into any consideration of innovative merit.

Is an innovation being accepted and adopted by customers?

PACE winners have put forward innovations or innovative practices that have achieved some degree of acceptance and success, with the promise of wider impact. Some finalists don't become winners precisely because what we see is simply promise. Something innovative that is not yet fully applied, produced, and accepted is still just a very clever idea. We want to know it works, not just in operational terms, but as a source of efficiency, a productivity enhancer, a relationship-builder, a commercial success, a changer of lifestyles.

We would like to see innovation as a source of competitive advantage. We would like it to cleverly answer a question that someone has really asked, or would ask if they had the opportunity. Or it should answer a question that customers or consumers would never think to ask, but that immediately strikes them as something they were looking for all along.

Further, the fortuitous invention may be mistaken for the purposeful and intended product of a refined and established climate for fostering innovations. The PACE process and our experience in industry suggests that an innovation should be no accident, and that a company should be able to sustain continued innovation. Enlightened firms “go after” innovation by having the vision, attitude, culture, and environment for consistent behavior that will give them the innovations they need *when they need them*.

There is a kind of paradox in our pursuit of true innovation: while we look for revolutionary, “mold-breaking” innovation, we also look for evidence that the inventors and users have been able to apply the innovation in the real world, with noticeable results. But today's inventions, products, and services are developed so rapidly that the requirement that an invention be both freshly innovative and proven is not the logical contradiction that it initially appears.

Does this process or thing really change the basis of competition?

Does it in some way change the industry, alter the evolution of best practices, or create new best practices altogether? Changing the basis of competition means that a product, service, or process, or the combination of these, puts the competition in the position of having to react, or face a competitive disadvantage.

If an innovation is major, it has the ability to differentiate the product or service (hence the supplier), and even to affect the lives or lifestyles of the users. These same criteria can be used as tests by managers who are evaluating potential innovations in their own companies.

If an innovation really deserves the name, the nature or terms of the competition will change or be changed in a real and significant way. True innovation should affect (a) how things are done, imitated, improved, designed, manufactured, priced, or marketed, or (b) the lives and lifestyles of the users—or all of these.

The extent to which a new product or process causes technological advances or behavioral changes, and the extent of concomitant commercial consequences, determines the significance of an innovation.

- “Discontinuous” or “breakthrough” innovations are infrequent. For example, the transistor, cell phone, microwave oven, television, automobile, and jet propulsion, all incorporated major new technology and processes. They dramatically altered industries or created new ones, and transformed industrial behavior patterns and consumer lifestyles.
- “Dynamically continuous” innovations—inventions that offer consumers constant improvements and incremental innovations—(e.g., color TV, caller ID telephone, convection oven, PC “office suite” software) can have great impact commercially, organizationally, and in terms of enhanced customer satisfaction, though they would be regarded as more minor technologically or more modest in terms of likely changes in user behavior or lifestyles.
- “Continuous innovation,” the extension or modification of existing products or processes with little dramatic change in technology, can spell competitive advantage, commercial success, and product or service enhancements, whether visible to the consumer or not. It can certainly contribute to sustaining margins, to price premiums, or to customer preference. But these are the incremental, relatively small, clever improvements or innovative discoveries that bring us closest to *continuous improvement*, and that is evolution, not revolution.

It is important not to confuse innovation with continuous improvement. Continuous innovation or improvement has to do with “better.” The kind of innovation we are interested in, especially when we grant PACE awards, has to do with “different.” Our judgments are aimed at understanding what “different” is, what it signifies in organizational and customer terms, and which management or organizational practices lead to innovation in optimal quantities.

Knowing where, when, and why to undertake or encourage innovation in an organization is critical, because to innovate anywhere in a company puts the company at risk to some degree. This risk is not entirely attributable to the expenditures required for developing and commercializing an innovation, nor to costs alone. *The risk lies in the fact that an entire organization must change to some degree.*

The greater the magnitude of innovation, the greater the chance of putting the company at risk, in the classic risk-reward sense. That's because of the complexity of new technologies and their incompatibility with old ones. When viewed from a certain perspective, innovation can appear to run counter to business improvement; even as innovation brings desirable—or even indispensable—advances and competitive advantages, it can also bring discontinuity, disruption, and tumultuous change.

If greater innovations result in “different” rather than simply “better” products and processes, management will have to be prepared for provisions and costs, as support systems and resources are rolled in to permit transformation. Management also must be prepared to institute totally new ways of working. Some PACE finalists, as they applied their unique expertise or competencies in innovative ways in the automotive supply chain, have found themselves competing in an industry that is altogether new for them.

We see cleverness of product or service development coming from companies who encourage “trialability,” or “cheap failures.” Successful innovators accept and underwrite the risk of failure, while creating competitive leverage, positive organizational energy, and promoting institutional learning.

The imperative to change (be and do what is creatively different) has been almost a universal trait of premier innovative companies. The trick is to sustain circumstances that make productive innovations appear as a required part of institutionalized, sustained business process, and to synchronize the development of new innovations with the customers' ability to consume them.

The challenge in managing the process of innovation is to generate new products and processes, and to realize value from them. If starting with a “clean sheet of paper” means creating one-of-a-kind interesting products for which customers have a limited use, the company should reconsider its innovation strategy. (PC software is an example of how the pace of innovation can outstrip the ability of the consumer to use the new functionality).

Does an innovation change a company's business for the better?

An innovation may change the basis on which a company competes, or enhance its ability to compete, through greater differentiation. *It may better enable it to control and build its share of industry relationships.*

It should increase current and potential revenue streams. It should materially diminish the ability of historical competitors to interact successfully or cost-effectively in the marketplace without encountering new barriers or having to react to the innovation.

When judging an innovation, we want to know if it raises the overall level of quality, sophistication, productivity, and customer satisfaction. We may see a company “acquire” an entirely new application area to exploit, resulting in vast new opportunities for that company. (Such issues are suggested in overall context along the “Results” axis of our PACE “cube” for evaluating and measuring success due to an innovation.)

Once an innovation is introduced, it will, of necessity, play some role in the ongoing transformation of the company. Since innovations represent not only “better,” but “different” products and processes, as soon as a company introduces an innovation, it must also ensure that there is an appropriately altered set of competencies and support systems to keep afloat what is new.

Truly innovative companies are always going out of business; that is, they are constantly going out of the businesses they have traditionally been in, and through innovation, entering new ones.

We want to know if a company has put into place a sustainable process within the organization that promotes continued innovation. Certain organizational traits lead to innovation. To some extent, innovation will also lead to brighter organizational traits—not just requisite support, but behavioral change. PACE award winners display a refined ability to more than recover the costs of innovation.

A company can demonstrate many innovations and still have no guarantee of successes. First, a company may be providing answers to questions that are not only unasked, but not competitively relevant. Put another way, a company may be providing answers to “clever” product design or lifestyle enhancement propositions that will meet with no real interest, either at a sustainable market price, or at all. Second, inventive impulses that are not backed by good communication and research can lead to costly replication of solutions to already-solved problems.

PACE winners exhibit a heightened ability to *collaborate*, often in ways that would have been counter-intuitive only a short time ago. We see this collaboration extending across apparent functional boundaries within the company (or as redefined or blended functions); within or across the divisional boundaries of a larger organization; and among separate companies having disparate competencies, technologies, processes, and even customer bases or markets.

In order to build a car, van, or truck efficiently, companies must practice a high degree of collaboration across the automotive supply chain. This kind of cooperation is necessary because today’s vehicles are complex, laterally integrated electromechanical systems. Anyone who works anywhere in the industry must constantly and extensively collaborate with both “insiders” and “outsiders,” as a routine condition of engaging in design, production, or service delivery.

Some of the PACE winners we see, however, seem to have developed beyond parity or cost-of-entry collaborative cultures. We see extraordinary cooperative and collaborative skills and activities, with output and impact to match. Those winning organizations that learn to collaborate especially creatively and freely find that collaborative processes result in new applications that change their businesses significantly. This brings them relevant new competencies, new relationships, new markets, and enhanced visibility and differentiation.

Finally, it is important to remember that if it is *improperly understood or managed*, an innovation can also change the company for the worse.

Innovations can lead a company into technical or marketing areas for which it may be unprepared or which require unanticipated or unavailable resources. Further, it is possible for a company to be preempted by a competitor after much expenditure. An innovation also has the potential to rob time, resource, or stability from what's already successful. And what might be called *false innovation* may add unnecessary cost and complexity by creating multiple new solutions to previously solved problems, and disrupt or divert resources from ongoing business. While innovation can bring enormous benefit to a company, it should not be categorically considered a universal solution.

The successful company must have in place filters that prevent it from developing or investing in *false innovation*. Using information technology to capture experience and know-how and to inventory solutions is a way to prevent false innovation.

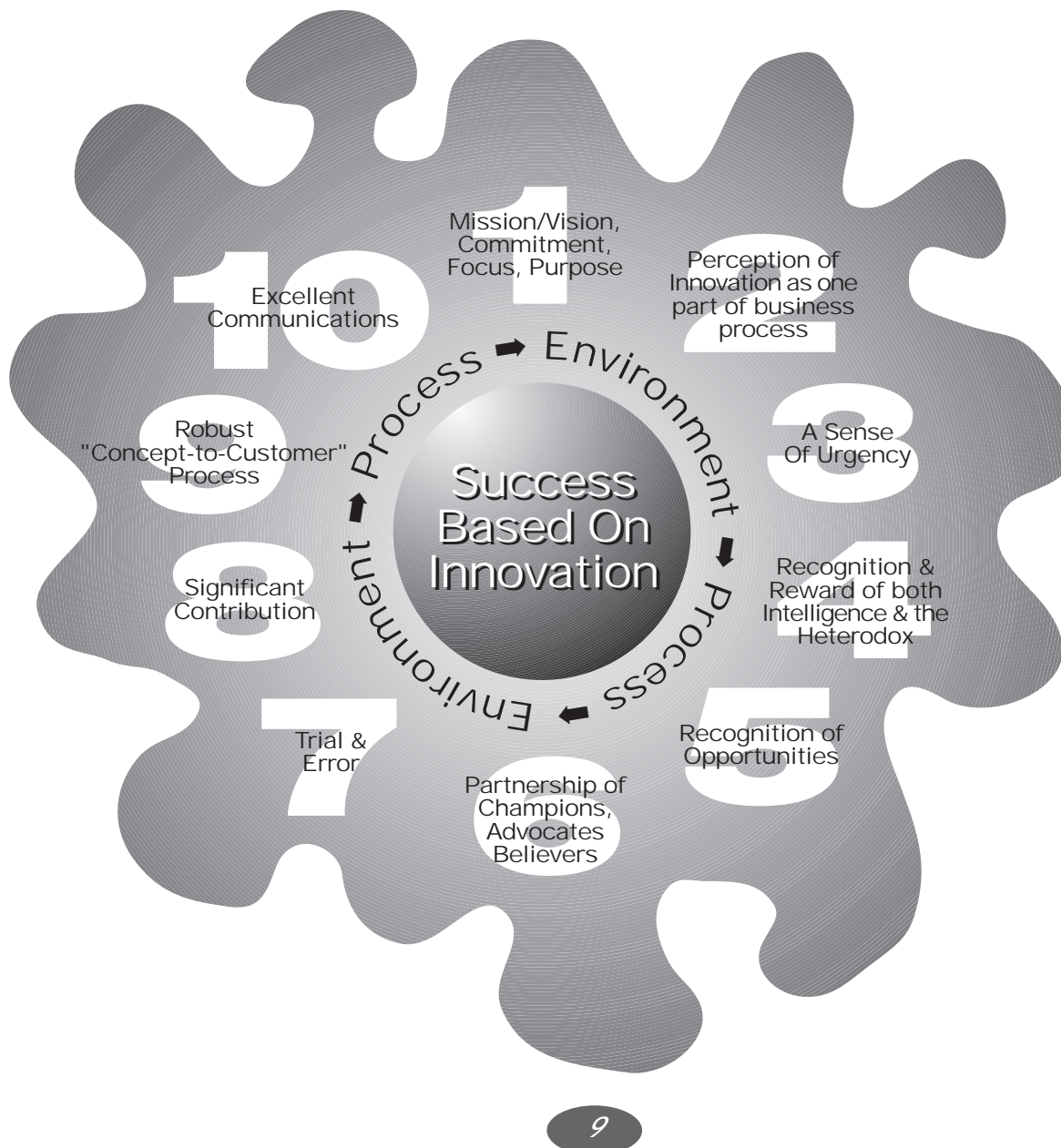
To summarize:

There are four hallmarks of competitively advantageous innovation. First, we haven't seen it before. Second, the idea has resulted in significant commercial or practical adoption and acceptance. Third, the idea and its commercial acceptance have changed the way people do business, rewriting the rules of the game. Fourth, the idea works in a company-specific way to transform the company's business for the better.



Success through innovation is best understood and judged as part of a larger, organic whole or process. Innovation is a critical ingredient in competitive success, but like success or profits, is a consequence of contextual conditions and mastery of larger businesses processes. Creating the right climate, and managing and understanding what is strategically relevant in the context of the entire business, is the path to the prize. The trick is to create and sustain the circumstances that keep innovation only as required as a part of ongoing business process.

For purposes of discussion, we can regard innovation as something key and visible within a dynamic, continuous process. This is depicted (below) as a circle, or cycle. Innovation and the ability to innovate are inextricably intertwined with a host of organizational predilections and conditions, and the only realistic, responsible way to understand, manage, or judge innovation is in that light.



Innovation is only part of a larger context of business process, and innovation is but one of the multiple, related ingredients of success. Relevant, reliable innovation is a *result* of the pursuit of conditions, practices, and process, not something sought directly, and innovation doesn't always guarantee success.

It's a complex, uncertain—even messy—world in which to plan, design, develop, build, market, sell, and service a product. With this in mind, it is clear that innovation is a critical, yet in and of itself insufficient competency. Companies need the ability to convert innovation into market value; they need to be able to integrate innovation with access to capital, marketing follow-through, and a collaborative culture, to name a few factors.

Some of these requisite factors for innovation are quite evident among upper-echelon players in the automotive supply chain. Where successes based on innovation are present, there is a continuous, constant, cyclical sense of a creative presence. Further, it is very difficult, if not impossible, to separate management and the leadership it provides from the business climate and ongoing business processes. Our graphic depicts this point.

Within that “blended” or organic continuity of considerations, there is a collection of other requisite factors that also has a continuous or cyclical flow, combining to make innovation commercially successful.

One: mission—vision, commitment, focus, purpose

There is no strategy without policy; and without policy, clarity of vision, commitments, focus, and a clear sense of purpose, innovation is likely to be occasional, haphazard, or without impact, unless you are simply very lucky.

Those who comprise the company's culture—anyone, anywhere in the organization, at any level—must clearly know the values they are working with, and where and how creative impulses ought to be applied. What will guide or direct insights productively all the way down to the factory floor, if not management's presentation of mission, vision, commitments, focus, and purpose?

Innovation ought to be a key topic within management's optimization agenda. Management needs to decide if it really wants to foster and support an innovative environment. If so, a company must be prepared to make the changes that innovation demands, support those changes, and make the leaps. Managers must be prepared to put incentives in place that support the values and behaviors to which they say they aspire.

If innovation is regarded as essential to an organization's competitive posture, then it ought to be part of the vision, mission, goals and objectives, hence planned, provided for, and directed. In that case, management must provide sustained *leadership*.

The ingredients that relate leadership to innovation are enumerated on the first axis of the “cube,” the measuring device we have used since the PACE process began, to understand, evaluate, and judge innovations. The cube illustrates that rather than simply rewarding products based on novelty, PACE takes into account the myriad other factors that contribute to true innovation.

Two: perception of innovation as one part of business process

We look for innovation that is integrated with vision, mission, business strategy, and cultural practices, rather than lucky hits. How is this different from the preceding point? This is apparent along the “leadership” axis of our “cube.” An attitude, a climate, and an environment that encourage consistently applied behavior will lead to the successes required at the times required. This implies a mature understanding of risk and failure, including a willingness to fail, and skill at managing “cheap failures.”

Innovation is perhaps best understood as one part of a larger phenomenon—entrepreneurship—where entrepreneurial action is defined in terms of innovation, risk-taking, and proactivity. Entrepreneurship creatively destroys the status quo. Even in the largest organizations, some of our winners have managed to institutionalize the attitudes and behaviors of entrepreneurship productively, while avoiding optimization of products and processes at too low a level.

Three: a sense of urgency

The watchword here is “urgency in moderation.” Winners display productive restlessness, discontent, and an ability to withstand big discontinuities. Paradoxes abound at innovative companies. The work environment may induce feelings of “comfortable discomfort,” or may prompt employees to call it a “pleasantly or enjoyably harsh atmosphere.” There is also a fear of losing business, of losing momentum. This kind of ambiguity and uncertainty is accepted as OK in companies that embrace innovation.

Some winning innovations and the strategies of which they were a part were clearly mothered by necessity, by extreme competitive business pressures, and perhaps by urgent corporate circumstances. In such situations, certain apparent risks and changes may become more readily accepted. But one way or another, the *imperative to change* is common to innovative companies.

This climate of change must be maintained without debilitating fear. For innovation to be an organic part of sustained success, there is no room for fear of proposing, of trying, or failing. There can be no inconsistent incentives or reward and sanction systems to confuse, confound, or impede.

There must be a healthy respect for the sometimes-unexpected forces that are unleashed when innovation and “the new” or “different” are sought. For instance, innovation consumes all the same resources as anything else a company may do: capital, people, time, space, faith, patience, and so on. It is important that the company can convey the urgency of the innovation, thereby justifying this expenditure or re-distribution of resources.

Four: recognition and reward of both intelligence and heterodoxy

Winners—those companies that manage success through innovation regularly—understand the resources and energies that are needed to sustain innovation. They also know that a key resource is, very simply, applied brainpower. Creative brainpower that is able (or enabled) to work with the same efficiency and productivity that is expected of capital equipment is essential for success.

Sometimes that means managing the inconvenient, valuing heterogeneity over homogeneity of thought, using “loose-tight” controls, being receptive to apparently odd approaches, and absorbing new disciplines. It necessitates strategically placed “idea antennae,” and an above-average ability to listen creatively. It means recognizing that million-dollar ideas can come from anyone, anywhere—even from a summer intern, as was true of one PACE winner.

Internal competition must be managed carefully, so that it is neither destructive nor duplicative. Because there is no road map to innovation, companies often end up with a lot of replication, as people in the product design community unnecessarily proliferate products in the name of innovation.

Successful leadership must manage the way ideas and innovations are rolled out and applied. Someone must exercise control, to avoid an excess of forms or types, and to ensure that innovation is organized and planned—not overcapitalized or a source of false commercial expectations.

Additionally, the creative use of information systems can be a critical component in the successful use and control of innovations (see “leadership” dimension of the “cube”).

Successfully innovative companies focus on reusable information—they capture and leverage data, experience, and creative intelligence. Knowledge already bought and paid for can be used and reused productively, eliminating unnecessary proliferation of designs and processes. Such knowledge reuse is important both to generate new knowledge out of prior experience, and to avoid redundant innovation processes and inventions which unnecessarily rob resources from bread and butter products.

Management must exercise leadership (see the “cube”) to get to differentiation or “uniqueness” of product and service. That means having, if possible, incentives to reward the clever expression, use, and application of intelligence, and to allow the heterodox or inconvenient to find a way to flourish in concert with company strategy. In some cases, the recognition afforded by a PACE Award has itself supplied a clear and tangible form of recognition, hence an incentive.

Five: recognition of opportunities

To recognize and define problems requiring solution is a traditional mindset and goal. PACE winners have the ability to do something more. Breakthroughs or discontinuous innovations are not necessarily the solutions to problems posed; they are as likely to be sudden relevant seizures of *opportunities*—totally new ways of going about things. By contrast, some in the design community proliferate costs and “solutions” by solving problems that are more presumed or apparent than real (or where solutions already exist, but are unknown or unrecognized). Despite this possible pitfall, it is important not to constrain creative impulses by responding too rigidly to predefined problems.

One difficulty managements face is that committing resources to exploring innovation can be inconvenient, and can compete with the time and money needed to do the daily chores that pay the bills. Provision for this freedom must be institutionalized in an affordable and productive way. Management should maximize the efficiency and relevance of creative people’s efforts, and know the right amount of innovation for current needs.

As problematic as “opportunity recognition” may be as a managed activity, it nevertheless is likely to lead to valuable insights, proactivity, and even breakthroughs, if unconstrained by barriers or pathways as currently perceived or defined.

Six: partnership of champions, advocates, believers

In the case of almost every PACE winner we have seen, innovation starts with a single person. Early in a successful process, they attract other people. These proponents or champions become the protagonists in a drama with uncertain resolution, but one which inevitably has a sympathetic, attentive audience, receptive to a new story.

If the business climate renders the audience unready, unwilling, or unable to “hear,” then the creative person becomes nothing more than a prophet rejected in his own land. *Early sponsorship by someone at a level advanced enough to develop and deploy sufficient resources is crucial to success through innovation.* Ensuring that such sponsorship happens is the activity to which management should devote its energies.

Internal and external collaboration is essential for any organization in today’s automotive supply or service business, but it is a skill that is especially highly developed among PACE winners. Such collaboration is obviously just as important as the formation of a committed team around a promising idea. The willingness of the team to hear dissent, while laboring to reach a goal and make the project work, is also valuable.

From management’s point of view, fostering innovation may mean allowing a certain amount of eccentricity or the unexpected. Champions will need to sense commitment and support all the way through the innovation development and realization process.

Seven: trial and error

Sadly, all great ideas degenerate into hard work, which uses up considerable time, space, and other valuable resources. Sponsorship and commitment without fear are important, visible factors in the successful realization of innovations. The very nature of innovation can rob the company of time, resource stability, or continuation of the job at hand. Management needs to find ways to cultivate “cheap failures” in order to amplify the number of real successes.

Management should cultivate “cheap failures,” because these failures can provide valuable insights and learning experiences on which future innovations may be based. Truly innovative firms accept risk in a judicious and meaningful way, and expect failures. They also expect to reap the rewards of failures as well as successes, as leverageable lessons learned.

More importantly, management must find ways to recognize, choose, and support the right opportunities early on.

Eight: significant contribution

Leaders or sponsors are reasonably sure of the relevance of questions being posed and answered by a proposed innovation. Is it meant to lead to user satisfaction? To an improved relationship? How much business might this idea generate? Which markets might it apply to? And most of all, is the answer to this problem or perceived opportunity already on hand?

That’s why information systems and experience capture are critical (and why our “cube” highlights effective business processes and information systems): we want to avoid replicating what is already known and done; we need to use the “library” of knowledge that successful companies use to make sure that unnecessary new design or reinvention does not occur.

In addition to preventing replication or redundancy, someone (proponents, sponsors, champions) in a culture that plans to succeed through innovation must be able to recognize the relative importance of any planned or proposed change, and the implications of an innovative idea. This means evaluating degrees of importance. Management must be able to recognize something so foreign to the status quo that it is potentially a discontinuous innovation or breakthrough idea.

But it also means being clear whether major breaks with current practices and processes are involved, or whether so-called “innovations” are merely normal evolutionary change. The “cube” is once again useful as it points to the three dimensions of “leadership,” “uniqueness,” and “impact.” The “cube,” or some other relevant measurement tool, may help would-be innovators to evaluate the likely relative importance of a proposed innovation, before they embark upon developing it.

Nine: robust “concept-to-customer” process

Products, services, or tools that really are discontinuous or breakthrough innovations make one aware of customers and customers’ customers. That’s because *the innovations that matter the most are the ones that have the intrinsic ability to change consumers’ lives or lifestyles*, not merely provide assembly efficiency, manufacturing productivity or product quality, service delivery, or total costs.

None of this dramatic change is possible without an ability to anticipate questions users or consumers might ask, if they happened to have the inventive imagination to ask the right questions. A company cannot go wrong by anticipating such questions, whether its design and production are for a consumer market, or for an industrial application first, on the way to serving the consumer market.

We see the concept of “user representation”—that is, input from the eventual end-user of a product—as a common and crucial ingredient in innovating for success—certainly for evolutionary or continuous improvement, or continuous innovation. But conversely, user representation can impede a breakthrough or discontinuous innovation. One imperative is to learn to recognize when early sponsorship of the odd innovative idea should not be quashed by user representation, or the wrong uses or interpretations of the idea.

The consumer or user point of view should come from everywhere possible. Seizing upon relevant ideas, reactions, and unfulfilled desires or needs in the marketplace is a form of institutionalized imagination at work. Along with disciplined curiosity and a planning outlook, such sensitivity to the needs of the customer takes us beyond the validation of projects merely by hearing the needs being expressed in car clinics.

Ten: excellent communications

The role of thoughtful, professional quality communications should be self-evident. Still, it is worth stating that successful innovators don't assume they can depend on the cleverness of the idea or its intrinsic value to win the day with the customer. Winners at innovating for success are often innovative communicators, too. This is equally evident in internal and external communications. Winners take the trouble to make communication an integral part of infrastructure, organization, and people. They are constantly finding inventive ways to get things across to everyone that matters.

Effective communication is an organizational skill and activity that has immense leverage if practiced cleverly, carefully, thoroughly, and thoughtfully. Above all, success depends on *respect for the recipient*. All the best innovation, expertise, and differentiation will have little value to the organization if it is not made real by creative communication in action.

This brings us full circle, that is, back to the communication of mission, vision, commitment, focus, and purpose—and the continuing environment in which to innovate and be innovative in a competitively relevant way. Priorities and ingrained beliefs—the words we live by—may be expressed by demonstration, leadership, incentives, and values, far better than by pronouncements.

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