



Exemplary Models of Firm Innovation: Strategy and Leadership for the Twenty-First Century Competitive Environment

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Abstract

The author begins the article by outlining factors that influence the innovation success of firms. Second, he presents the resource-based view and the contingency perspective as the theoretical underpinnings. Third, he presents the literature review, methodology, and three approaches employed by exemplary innovators in stimulating creative and innovative ideas within their organizations. Fourth, the author discusses how exemplary innovators manage creativity and innovation. Fifth, he draws implications for would-be innovators seeking to make innovation an integral part of their strategic thrust. The author concludes by emphasizing a similarity between innovations of the previous two centuries and those of the twenty-first century. He then draws a lesson from the above centuries that can be applied today: adept, well-managed companies that commit the right resources to innovation and leverage their external environment will shape the markets and build the new industries of the twenty-first century (Chesbrough & Teece, 2002).

Keywords: Firm, Exemplary, Innovation, Competitiveness, Strategy

1. Introduction

Following prior research the author defines innovation as used in this paper as a process that begins with an invention, proceeds with the development of the invention, and results in the introduction of a new product, process or service to the marketplace (Edwards & Gordon, 1984). Innovation begins when a firm chooses an invention for development, with the ultimate goal of introducing it to the market (Kuznets, 1962). This definition is also consistent with Schumpeter's description: "The making of the invention and the carrying out of the corresponding innovation are, economically and sociologically, two entirely different things" (1939, p. 85).

The role of innovation in creating firm value has long been recognized. Firms undertake investment in research and development in hopes of developing innovative products and services that lead to increase performance. Prior research has found a positive correlation between innovation and firm value (Griliches, 1981). For example, Griliches (1981) reported that investment in innovation can yield returns of 200 percent over the long run. Similarly, much has been written on factors that contribute to the innovative success to firm (see Brown & Eisenhardt, 1995; Damapour, 1991; Fiol, 1996). Some of these factors are aspects of an organization's structure and culture, project team composition, within-firm and within-team knowledge flows, and top management and project leadership skill, commitment, and attitudes toward change (Griliches, 1990). More specifically, technological innovations often follow a "trajectory"—a related stream of technological development (Dosi, 1982; Winter, 1984). Continuous exploration and continuous exploitation are both necessary for a firm to progress along a technological trajectory (Puranan, Singh & Zollo, 2006).

2. Theoretical Underpinning of the Article

The author applies the resource-based perspective of the firm and the contingency theory as the theoretical framework of this article. The resource-based view of the firm seeks to explain how organizations develop and maintain competitive advantage using firm-specific resources and capabilities (Wernerfelt, 1984). According to this perspective, resources are assets or inputs to production that an organization owns or accesses (Helfat & Peteraf, 2003); while capabilities are the ability to use resources to achieve organization goals (Amit & Schoemaker, 1993; Helfat & Lieberman, 2002). The basic premise is that resources and capabilities increase the efficiency and effectiveness of firms (Barney, 1991).

Similarly, contingency theory has a long tradition of discussing how different dimensions of the external environment interact with organizational attributes such as the degree of competition in an environment (Pfeffer & Leblebici, 1973), the availability of financial resources (Pfeffer & Salancik, 1978), manufacturing intensity (Thompson, 1967), and market size (Lawrence & Lorsch, 1967).

3. Literature review

3.1 Sources of Firm Innovation

There are, of course, innovations that spring from a flash of genius. Most innovations, however, especially the successful ones, result from a conscious, purposeful search for innovation opportunities, which are found only in a few

situations. Four such areas of opportunity exist within a company or industry: unexpected occurrences, incongruities, process needs, and industry and market changes. The additional sources of opportunity exist outside a company in its social and intellectual environment: demographic changes, changes in perception, and new knowledge. True, these sources overlap. Different as they may be in the nature of their risk, difficulty, and complexity, the potential for innovation may well lie in more than one area at a time. Together, they account for the great majority of all innovation opportunities (Drucker, 2002).

3.2 Organizational knowledge and firm innovation

It is widely accepted that an organization's capability to innovate is closely tied to its intellectual capital, or its ability to utilize its knowledge resources. Several studies have underscored how new products embody organizational knowledge (e.g. Stewart, 1997), described innovation as a knowledge management process (e.g. Anthony, Eyring & Gibson, 2006), and characterized innovative companies as knowledge creating (e.g., Nonaka & Takeuchi, 1995). So close are the ties between research on knowledge and research on innovation, in fact that in recent years scholars have seen a blurring of the boundaries between these areas (Ahuja, 2000; Dougherty, 1992; Subramaniam & Venkartraman, 2001; Tsai & Ghoshal, 1998).

Although the basic link between organizational knowledge and innovation is on the whole persuasive, more remains to be understood about its precise nature. It is known, for instance, that organizations adopt different approaches for accumulating and utilizing their knowledge and that these approaches manifest themselves as distinct aspects of intellectual capital—namely, human organizational, and social capital (Davenport & Prusak, 1998; Nahapiet & Ghoshal, 1998; Schultz, 1961). Research has also delineated the differences between incremental and radical innovative capabilities (Abernathy & Clark, 1985) and noted that they vary in the kinds of knowledge they draw upon (Cardinal, 2001). Yet the finer aspects of how organizational knowledge gets accumulated and utilized remain unconnected to the specific types of innovative capabilities organizations possess, with most studies only linking knowledge to very generic, broadly defined innovation outcomes (e.g., new product introductions and technology patents) (Tushman & O'Reilly, 1997; Ahuja & Katila, 2004).

4. Methodology

This paper relies on the literature review of current relevant articles focusing on firm innovation. Except where a source was needed specifically for its perspective on broad issues relating to firms' overall business environment, the author screened papers by "firm innovation" and by numerous variants of keywords, focusing specifically on firm innovation management. Source papers included refereed research studies, empirical reports, and articles from professional journals. Since the literature relating to firm innovation is voluminous, the author used several decision rules in choosing articles. First, because firm innovation is changing fast in today's environment, the author used mostly sources published 2000-2007, except where papers were needed specifically for their historical perspectives. Second, given the author's aim to provide a practical understanding of the main issues in firm innovation, he included, in order of priority: refereed empirical research papers, reports, and other relevant literature on current firm innovation practices. To get some perspective on the current state of firm innovation, the author begins with a brief look at exemplary innovators find their creative ideas.

5. How exemplary innovators discover their creative ideas

5.1 They think long and hard about what is practical in their particular business

Studies indicate that exemplary innovators (EIs) usually have a pretty clear idea of the kind of competitive edge they're seeking. They have thought long and hard about what's practical in their particular business. And just as hard about what is no. For example, by drawing new product ideas out of current products—and tapping existing skills and technologies—EIs reduce the chance that they will come up with ideas that are impractical to produce or market. And using systematic patterns, rather than the preconceptions of customers or marketers, to generate ideas liberates a firm's innovation process from the straitjacket of existing concepts and assumptions (Goldenberg, Horowitz, Levav & Mazursky, 2003). However, the process of generating and finding innovative ideas is not an easy task in most firms. How then do EIs find good, concrete ideas? Brainstorming is one approach. Good ideas most often flow from the process of taking a hard look at the customers, the competitors, and the business all at once. So in looking for ways to innovate, EIs concentrate on (a) what is already working in the marketplace that they can improve on as well as expand (b) how they can segment their markets differently and gain a competitive advantage in the process (c) how their business system compares with their competitors' (Pearson, 2002), and adapt their business system accordingly (Hargadon, Parise & Thomas, 2007).

5.2 They look at how to create segments or markets for their products

Another strategy employed by EIs is to look at how to create segments or markets for their products. It sounds simple, but it takes a lot of creativity and skill to segment a market beyond simple demographics, ferret out what individual

groups of consumers really want, and actually create distinctive product performance features (Pearson, 2002). EIs do this by employing their ability to innovate through unique designs (Verganti, 2006).

5.3 EIs look in their within their business system.

A third approach used by EIs seeking good innovative ideas is to look in their business system. Beyond its products, every company has a business system by which it goes to market. That system is the whole flow of activities, starting with product design and working its way through purchasing, production, MIS, distribution, customer sales, and product service. It will come as no surprise that these systems differ from one competitor to another, even in the same industry. And in almost every case, each competitor's system has particular strengths and vulnerabilities that can provide a fruitful focus for EIs innovative energies. The underlying concept here is that a distinctive system can give EIs a big competitive edge for all their products. This is because it will help them leverage their inherent consumer appeal in ways their competitors find hard to match (Pearson, 2002).

6. Findings

Findings from the author's research show that EIs possess nine main characteristics that distinguish them from their peers. These attributes are presented below.

6.1 EIs embrace new innovation mindset.

The first attribute is that EIs embrace new innovation mind-set. That is, they share the following operating beliefs: (1) good enough can be great. Many companies unintentionally slow the innovation process by pushing for perfection. For EIs, they believe it is better to put something out there and see the reaction and fix it on the fly. It's another way of saying 'perfect' is the enemy of 'good enough.' (2) Step, don't leap. Great leaps forward, when companies many years and millions of dollars seeking to jump over existing companies, almost never work. EIs are aware that they have a much greater chance of success if they start with a simple springboard, and (3) the right kind of failure is success. Most well-run companies naturally consider failure to be highly undesirable. But remember, most of the time the initial strategy for a growth business is going to be wrong. For this reason EIs recognize that learning what's wrong with an approach and adapting appropriately is a good thing, not a failure (Anthony, Eyring & Gibson, 2006).

6.2 EIs know that most of their best innovations had come from connecting ideas across internal businesses.

The second characteristic that set EIs apart from their peers is that EIs know that most of their best innovations had come from connecting ideas across internal businesses. That is, they used the connect-and-developed model. In other words, to focus their idea search, EIs direct their surveillance to three environments: (a) identify top ten consumer needs (b) identify adjacencies—that is, new products or concepts that can help them take advantage of existing brand equity, and (c) define strategy to evaluate technology acquisition moves in one area that might affect products in other categories (Huston & Sakkab, 2006).

6.3 EIs have the ability to develop a strategic game plan for innovation.

The third quality of EIs is their ability to develop a strategic game plan for innovation. EIs create a short list of innovation ideas for their target market and to assess whether those ideas adhere to the general pattern of success they have uncovered and to their specific checklist. The discipline of checking seemingly high potential ideas against a rigorous list of questions keep EIs from moving forward with a plan that is similar to something that worked in the past but different in some crucial ways (Wolpert, 2002). For this reason, EIs do concentrate more on patterns and less on quantitative measures or outcomes.

6.4 EIs practice management innovation.

The fourth feature of EIs is that they practice management innovation. A management innovation can be defined as a marked departure from traditional management principles, processes, and practices or a departure from customary organizational forms that significantly alters the way the work of management is performed. Simply put, management innovation changes how managers do what they do such as (a) setting goals and laying out plans (b) motivating and aligning effort (c) coordinating and controlling activities (d) accumulating and allocating resources (e) acquiring and applying knowledge (f) building and nurturing relationships (g) identifying and developing talent, and (h) understanding and balancing the demands of outside constituencies. For EIs, management innovation is not a one-time revolutionary initiative. Rather it is ad hoc and incremental. A systematic process for producing bold management breakthrough that includes (a) commitment to a big management problem (b) novel principles that illuminate new approaches (c) a deconstruction of management orthodoxies, and (d) analogies from atypical organizations that redefine what is possible (Hamel, 2006).

6.5 EIs look at innovation systematically.

The fifth peculiarity about EIs is their ability to look at innovation systematically. They know that their competitive successes are built on a steady stream of improvements in production, finance, distribution, and every other function,

not just a big hit in sales or marketing or R&D. So EIs make sure they've got players who can deliver consistently. And they create organizations that give those players all the backup they need. That means (a) creating and sustaining a corporate environment that values better performance above everything else (b) structuring the organization to permit innovative ideas to rise above the demands of running the business (c) clearly defining a strategic focus that lets the company channel its innovative efforts realistically—in ways that will pay off in the market (d) knowing where to look for good ideas and how to leverage them once they're found, and (e) going after good ideas at full speed, with all their resources brought to bear (Pearson, 2002).

6.6 EIs have a strong commitment to strategic networking

The sixth attribute of EIs is their strong commitment and believe in the power of networking. Successful innovation requires the ability to harvest ideas and expertise from a wide array of sources. For EIs, that means bringing in insights and know-how not just from outside parties but from other businesses. They understand that the need for external perspectives seems almost self-evident: If they stay locked inside their own four walls, how will they be able to uncover and exploit opportunities outside their existing businesses or beyond their current technical or operational capabilities? Yet perhaps even more self-evident to EIs is the need to lock in their innovation initiatives to protect them from competitors. They do this by establishing a network of strategic intermediaries. This is because intermediaries facilitate the exchange of information about innovation among companies while keeping their secrets. The intermediaries can be trusted to maintain confidentiality because if they ever violated the terms of an arrangement no company would hire them again (Wolpert, 2002).

6.7 EIs possess the ability to innovate through design

The seventh trait of EIs is their ability to innovate through design. EIs understand that products that are radically innovative tend to have the following qualities: (a) they offer longer commercial lives than other goods (b) they create in consumers bolder expectations for the brand and high receptivity to their equally startling successors, and (c) they tend to enjoy especially high margins, because they are so dissimilar to the offerings of competitors (Verganti, 2006).

6.8 EIs possess the propensity to have more than one experiment going on at the same time.

The eighth characteristic of EIs is their propensity to have lots of experiments going on all the time. This encourages more risk taking since they don't expect every experiment to succeed. This also holds down costs since tests and trials don't get expanded until they show real promise. And it improves the odds of success because EIs usually bet on a portfolio, not on one or two big, long-odd projects (Chesbrough & Teece, 2002).

6.9 EIs possess the ability to institutionalize simplicity in decision making.

The last, but not the least, quality of EIs is their ability to institutionalize simplicity in decision making. The goal here is to manage complexity before it is hardwired into plants and costs. To do this, EIs would determine who has responsibility for making innovation decisions across the value chain (Gottfredson & Aspinall, 2005).

7. Discussion

When it comes to corporate innovation, the myth of the long genius dies hard. Most companies continue to assume that innovation comes from that individual genius, or, at best, small, sequestered teams that vanish from sight and then return with big ideas. But the truth is most innovations are created through networks—groups of people working in concert. The misconception has never been more damaging, as companies pour more money into generating ideas and they end up frustrated as innovations simply don't develop. In order to do away with this bad practice and lay the groundwork for innovation, organizations must make it easy for their employees to build networks—talk to their peers, share ideas and collaborate.

7.1 Developing an environment conducive to exemplary innovation

The process developing an environment conducive to innovation consists of the following steps: (1) Get the right people talking. There is a crucial first step companies can take to improve innovation: figure out what everyone inside the company knows—and make sure they talk to people with complimentary talents. (2) Rapidly test and refine ideas. With the rapid pace of change in many industries, companies must clear up the decision-making process to make it easier to push ideas through to the test stage. If it is not clear who has final say over a new idea, or if too many people have a say, it can lead to bottlenecks and sap the energy of those with big ideas, leading them to avoid risky proposals. Clearing up those processes can help fight fear of failure and promote creativity. Companies must also clear up the building and testing process for new products. That means having resources inside the organization that can be mobilized around a new opportunity, such as a model shop devoted to turning ideas quickly into prototype. In some cases, companies can improve their testing speed by turning to outside partners. A company might tap a trusted supplier to quickly provide new and promising materials, for instance. Or it might ask retail partners to make shelf space available for a brief test of a new product.

(3) Think twice about leadership. The people who usually get chosen to come up with new ideas are top performers in individual areas. But they may not have connections within the company that are vital for getting the job done. For instance, a star engineer might be tapped to lead a big project. But a lower-level engineer who has worked in more divisions of the company might be a better choice, since he or she could draw on broader knowledge and connections inside the organization. (4) Make collaboration easy. Very often, companies undermine their efforts by keeping workers sequestered in their groups. Research shows that collaboration between R&D groups stall when it takes longer to get approval to transfer people from one project to another than to actually get the work done. While executives will not be able to entirely overhaul organizations, they can at least make sure that they aren't impeding innovation. One effective strategy is to allow employees to work with more than one department at a time. So, for example, someone in R&D could collaborate with others in the business units without requiring juggling of budgets or formal reassignments. (5) Consider energy. Emotion plays a substantial role in networks. If one feels positively about a co-worker, he is more likely to turn to him for help and advice. And one is more likely to generate interesting ideas with that person than with someone who leaves one feeling drained or irritated. Therefore companies should map the energy and enthusiasm in their network—in other words, ask people to say who leaves them feeling positively or negatively (Cross, Hargadon, Parise & Thomas, 2007).

8. Managerial implications for would-be exemplary innovators

Several lessons are drawn from the analysis of the influential factors of EIs in this article, which can benefit would-be corporate innovators. First, to organize a business for innovation, managers must first determine whether the innovation in question is autonomous (it can be pursued independently) or systemic (it requires complementary innovations). They must also assess whether the capabilities needed to produce the innovation can be easily obtained or must be created (Chesbrough & Teece, 2002).

Second, companies should make sure that as they begin to execute their innovation strategies, they need to encourage adaptation and flexibility. They can do this by following a simple mantra: Invest a little, learn a lot. Research shows that many companies that think they are following an 'invest little, learn a lot' approach are actually falling into one of three classic traps: They are unwilling to kill projects that have fatal flaws; they commit too much capital too soon, allowing a project team to follow the wrong approach for too long; or they fail to adapt their strategies even in the face of information that suggests their current approach is wrong. To avoid these mistakes, companies should be rigorous about staging their investments. Early investments should focus on resolving critical unknowns. Identifying where the team should focus is straightforward. They must ask the following questions: What are the consequences of being wrong about an assumption? Is it catastrophic or potentially harmless? How much certainty do they have that they are right? How long would it take and how much would it cost to become more knowledgeable? By answering these questions and identifying critical assumptions, teams can direct their investments to the appropriate experiments. After running the experiments, companies then have one of four options: (a) double down—Information clearly points to a winning strategy with no obvious deal-killing uncertainties, so move forward rapidly (b) continue exploring—All signs look positive, but there are still untested assumptions, so keep experimenting (c) adjust the game plan—Investigation suggests that the current strategy is not viable, but another approach might be, so change the approach and begin experimenting again, and (d) Shelve—There is no clear path forward, so move on to other projects until something else changes. The key is to make decision rapidly. Studies show that companies seeking to build their innovation capabilities try to move dozens of ideas forward simultaneously. Starting with a lot of ideas is important, but success requires the fortitude to shut down the unpromising ones and redirect those that are heading in the wrong direction. If companies wait too long to make these decisions, they end up diverting resources toward fruitless efforts or continuing to executing a fatally flawed strategy (Anthony, Eyring & Gibson, 2006).

Third, because innovation is both conceptual and perceptual, would-be innovators must also go out and look, ask, and listen. Successful innovators use both the right and left sides of their brains. They work out analytically what the innovation has to be to satisfy an opportunity. Then they go out and look at potential users to study their expectations, their values, and their needs. To be effective, an innovation has to be simple, and it has to be focused. It should do only one thing; otherwise it confuses people. Even the innovation that creates new users and new markets should be directed toward a specific, clear, and carefully designed application. Fourth, careful analysis of the needs—and, above all, the capabilities—of the intended users is also essential. It may seem paradoxical, but knowledge-based innovation is more market dependent than any other kind of innovation (Drucker, 2002).

9. Concluding remarks

It should be noted that innovation is always a risky pursuit, with an uncertain and often distant payoff. But must that fact doom it to erratic investment? Or can innovation become a staple corporate priority as, for example, quality has become? Research shows that stability can be brought to corporate innovation and that the result will be much greater strategic gains and much stronger returns on investment. But sustainable innovation requires an entirely new approach.

In stead of being a largely isolated process—carried out often with considerable secrecy—innovation needs to become more open (Wolpert, 2002).

To sharpen an organization's receptivity to change and innovation, several ingredients are essential. First, and foremost, top management must be deeply and personally involved in the process. Innovative companies are led by innovative leaders. It is that simple. Leaders who set demanding goals for themselves and for others, the kinds of goals that force organizations to innovate to meet them. They must also set specific, measurable goals that constitute outstanding relative performance—like becoming number one in a particular market. Not vague, easily reached objectives. Innovative leaders aren't necessarily creative, idea-driven people (though objectively many are). But they welcome change because they're convinced that their competitive survival depends on innovation (Pearson, 2002).

Research confirms that in the 1990s disruptive innovations have had a major impact on industry structures, from travel to computer retailing to communications, and have often given rise to change in the process (Christensen, Baumann, Ruggles & Sadtler, 2006). Similarly studies indicate that the leading industries of the late nineteenth and early twentieth centuries—chemicals, steel, and railroads—all experienced rapid systemic and disruptive innovations. The winners were the companies that made major internal investments to shape the markets rather than those that relied on others to lead the way. While business conditions have certainly changed, many of the principles that worked a century or decade ago still pertain. Today, leading innovative companies like Intel, Apple, and Microsoft make extensive investments to enhance their current capabilities and spur the creation of new ones. The lessons of the second industrial revolution apply to the third: Adept, well-managed companies that commit the right internal resources to innovation and leverage their external environment will shape the markets and build the new industries of the twenty-first century (Chesbrough & Teece, 2002).

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