1 Creativity and Innovation in Organizations

There is little doubt our lives, and progress in our world ultimately, are driven by innovation. When we think of the new inventions, new discoveries, new processes, new music, new forms of entertainment that so enrich our lives, however, we typically think in romantic terms. We ascribe the innovation we find so appealing to the genius of a single individual. We see the innovation as an outcome of a mysterious, almost magical, process using terms such as insight, incubation, and imagination to describe how these innovations are born into the world. The innovator, a single person, is seen as a hero battling the social forces, people, competitors, and government, which hope to destroy the magic that brought this innovation to life. As much as we may love this image of innovation, it is garbage.

Consider just a few examples. We consider Walt Disney a great creator. Gabler (2007) describes a career where his success, and the firm’s success, was based on the progressive exploitation of new technologies, recruitment of talented artists, and careful sourcing and editing of material. Another example may be found in Steve Jobs – an innovative hero in the world of technology. As Isaacson (2011) reminds us, however, the innovations that flowed from Apple were as much, if not more so, due to the work of a talented cadre of engineers as Jobs’ careful imposition of design and usability constraints on the work of those engineers. We assume that firms working in high technology arose from the genius and vision of eminent engineers such as Andy Grove of Intel. As Gertner (2012) reminds us, however, the success of Intel is as much attributable to earlier work done at Bell Labs and the support of the United States government as the “genius” of Andy Grove.

These few examples serve to make our basic point that much of what we assume about innovation is quite simply wrong. The reality of innovation is far less romantic than we commonly assume. It is far more prosaic, and it is from institutions, both government and industrial organizations, that innovations emerge. And, because innovations emerge from institutions, academic, governmental, industrial, and nonprofit, it is not at all unreasonable to assume that leadership will prove critical to the development and adoption of virtually all innovations (Mumford & Licuanan, 2004). In this Element, we will examine what those asked to lead innovative efforts must do. Before turning to the leadership of innovative efforts, however, it would seem germane to understand why innovation is important to institutions.

1.1 What Is a Firm?

Katz and Kahn (1978) provide what is perhaps the most succinct description of exactly what we mean by the term firm or institution. Firms are ultimately based
on a division of labor, with the division of labor resulting in both greater expertise on the part of workers and greater efficiency in the production of goods and services sought by stakeholders – often, but not always, a firm’s customers. A firm uses this division of labor to produce goods and services of value to stakeholders who, in turn, provide resources to the firm for access to those goods and services.

A firm must organize itself in such a way as to transform inputs, materials, and information into these valued goods and services. Thus, firms, or institutions, structure the work done by people in this division of labor to produce goods and services as efficiently as possible. Accordingly, in describing firms, we will speak of key functional units: manufacturing, purchasing, sales, and so on. The nature of, and relationships among, these functional units is what we mean when we speak of the “firm.”

The activities that occur in these functional units, of course, must be organized, evaluated, and directed (Bass & Bass, 2008). It is the role of the leaders in a firm to organize, evaluate, and direct the activities of functional units and the people who work in these units in such a way as to maximize the resources returned to the firm and optimize the efficiency of the firm’s transformation process (Yukl, 2011).

Firms seek to maintain and enhance the efficiency, and value, of the products and services they produce. Often we assume firms simply seek stability through control of markets, supplies, and the transformation process. Firms, however, exist in a competitive world where change occurs over time. This rather straightforward observation has many notable implications. First, firm activities must be directed as much to the future as to the present to allow adaptation to change (Jacobs & Jaques, 1991). Second, firms must explore their environment, and their future, as well as exploit their current efficiency in the transformation process (March, 1991). Third, firms must learn about the opportunities that might arise in the future to be able to exploit emergent affordances in such a way as to enhance the value of their products and processes (Kogut & Zander, 1996). Put more succinctly, firms are not rigid, fixed entities but instead are best conceived of as adaptive, evolving, learning entities as they seek to both explore and exploit a dynamic, and potentially chaotic, environment.

1.2 Why Is Innovation of Value?

Traditionally, it was thought firms simply sought stability – stability that inherently rules out the value of innovation. Adaptation to a chaotic, changing environment, however, requires innovation. And, in fact, innovation is a key to the founding, success, and survival of firms. The founding of a new firm, an
entrepreneurial activity, is typically based on innovations in technology, process, and markets (Schumpeter, 2000; Wong, Ho, & Autio, 2005). These new firms may seek to exploit an emergent technology, often a technology “stolen” or borrowed from others with further development, but not always. Sometimes innovation in productive processes or markets can allow new firms to develop and thrive. Regardless of the basis on which a new firm is established, innovation is a key requirement.

Once established, firms select, or create, a strategy they believe will support and sustain their operations over time. Miles and Snow (1978) describe four types of strategies seen in firms: prospectors, analyzers, defenders, and reactors. Defender firms generally discount the need for innovation, seeking to maximize returns from an extent system. Reactors will innovate when necessary. Firms settling on a prospector (e.g., 3M) or analyzer (e.g., IBM) strategy, however, see innovation as critical to the fundamental existence of the firm. Thus, their business and business strategy is inherently bound to ongoing chains of innovation – typically with respect to certain fundamentals such as long-chain polymers in the case of Du Pont. And, in prospector and analyzer firms, firm success is explicitly tied to the development and deployment of innovations. Thus, a firm’s founding, and often its strategic approach to the “business,” is inherently tied to innovation.

Perhaps more importantly, firm success appears tied to innovation. One key index of the success of a firm is its survival. Firms come and go but our best firms remain with us over time. Cefis and Marsili (2005) examined survival, or time in business, among Dutch manufacturing firms. They found that firm innovations, both technological and process innovations, extend firm life expectancy irrespective of firm age, size, or markets. Indeed, Naidoo (2010) found that firms’ ability to weather, or survive, external crises, such as economic downturns, often depends on the timely development and deployment of innovative products and services. Thus, innovations can represent a kind of firm insurance policy. Regardless, however, a firm’s long-term survival seems to depend on its capacity for innovation.

Innovation, however, is not just critical to firm survival. The profits and growth of firms also seem to be tied to innovation. For example, Scherer (1965) showed that firm patent rates, one marker of innovation focused on technical innovation, were strongly related to firm profitability and growth in size with the value of those innovations far outweighing the costs entailed in their development. Howitt and Aghion (1998) reach the same conclusion, noting that firm innovation in technology results in growth of profits that outweigh investment costs. Indeed, it is not only innovations in technology that contribute to increased profits and growth – innovations in marketing,
Not only is innovation critical to the founding, strategy, profitability, and survival of firms, it has a number of less tangible, but nonetheless valuable, benefits for firms. The employees of innovative firms are happier and more committed to their organizations. It is easier for innovative firms to recruit talented workers. Customers are more committed to firms fielding innovative products. And, innovative firms are more likely to be responsible citizens investing more in their communities – both the business community and local communities.

1.3 Why Is Innovation Hard?

Given the impact of firm innovation on profit, growth, and survival, one would expect firms to innovate all the time. Firms may want innovation but, in point of fact, innovation in firms is relatively rare. Many attributes of firms militate against innovation. To begin, development and deployment of an innovation is costly – often substantially so. For example, drug companies may spend hundreds of millions of dollars to develop a new treatment, and, even if viable, it may not sell well enough to justify such an enormous expenditure. Thus, it may not always be in the firm’s best interest to pursue an innovation. To complicate matters further, even a viable innovation may not “fit” with the firm’s extant processes or extant markets. As a result, the firm may not have the capabilities needed to successfully exploit an innovation (Osborn & Marion, 2009).

It is not only the costs associated with development of an innovation that are of concern. Firm efficiencies depend on a stable, or reasonably stable, process for transforming inputs into viable products. And, any innovation to some extent will disrupt the efficiency of this transformation process. The cost of innovation to efficiency is one reason why many firms look at innovation as a risk. What should be recognized here, moreover, are the norms and work processes of those in a firm are tied to, and to an extent embedded in, extant work activities – activities likely to be disrupted by innovation. To make matters even worse, people may, and often do, see innovations as a threat to their skills, expertise, and employability. And, loss of skill, the entailed loss of value, and the potential violation of norms and extant business processes all will lead people to react negatively, strongly negatively, to innovative efforts (Blair & Mumford, 2007).

The cost and social disruption attached to innovation, however, are not the only forces that will lead firms to reject innovative efforts. One issue here is
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technical. Innovation comes, technically, when there is a readiness for the innovation (Wise, 1992). And, often a field is simply not ready to develop even the most promising technologies. Another issue arises because innovative efforts, despite even substantial investments, often fail (Huber, 1998). Firms do not like to spend resources on failures, and people in firms do not like to fail.

Still another reason why firms reject innovative efforts is the nature of the innovation that may undermine, or kill, existing product lines (Chandy & Tellis, 1998). Innovations, moreover, may prove too easy for other firms to imitate or may have to short a cycle of ownership by the firm – both forces that act to undermine the value of innovation (Bessen & Maskin, 2009).

To complicate matters even further, it is clear that successful firms must “stick to the knitting” building expertise and business processes with respect to certain key fundamentals applying in a certain business area (Hounshell, 1992). Innovations incongruent, or inconsistent, with these fundamentals cannot be readily understood, or efficiently exploited, by a firm (Licuanan, Dailey, & Mumford, 2007). Simply not understanding an idea, or its implications, makes it difficult for firms to adapt, or support, innovative efforts.

1.4 Where Does It Occur?

Clearly, firms experience real pressures to innovate; yet, at the same time, they confront real pressures not to innovate. This quandary, however, poses a question. Where and when are firms willing to adopt innovative ideas? We will start here by examining the environment in which firms operate and its impact on innovation. Ford, Sharfman, and Dean (2008) examined firms’ willingness to take creative/innovative strategic decisions with respect to environmental influences. They found that firms made innovative decisions when the environment in which the firm was operating was technically complex and turbulent. Competitive pressure and resource availability, ease of obtaining finance on high rates, also have been found to contribute to firms’ willingness to innovate. Firm capital intensity, or infrastructure requirements, however, militates against innovation. Thus, firms seem especially willing to innovate in complex turbulent environments where resources are available to support the costs of an innovative effort.

Damanpour and Aravind (2012) have examined how the structural characteristics of firms contribute to their innovations. In this meta-analytic study, two key characteristics of firms were identified that contributed to innovation. First, the firms were relatively flat, implying that innovation was not inhibited by multiple layers of critical evaluations. Second, these firms were typically professionalized – implying that technical, professional, evaluation structures,
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and a focus on professional contributions are critical for innovation. Notably, however, neither firm size nor the level of bureaucracy in the firm inhibited innovation. In fact, size and bureaucracy were positively related to innovation. Although these findings might at first glance seem counterintuitive, one must remember size provides resources and bureaucracy serves to minimize the “off-task” burden placed on those doing creative work.

The influence of firm professionalization on innovation, moreover, points to another characteristic of firms contributing to innovation. Innovative firms focus on a limited set of fundamentals relevant to the firm and the profession. Thus, Hounshell (1992) describes Du Pont’s focus on organic chemistry, while Gertner (2012) describes AT&T’s focus on communications. This focus on professional fundamentals, however, is noteworthy for another reason. Innovative firms value learning with respect to those fundamentals (Silverberg & Verspagen, 1994). Indeed, innovative firms not only establish, and value, structures supporting learning (Calantone, Cavusgil, & Zhao, 2002), learning is considered of sufficient value that the value of learning will offset the cost associated with failed innovative efforts (Mumford & Hunter, 2005).

In firms working in a turbulent, resource-rich, professionalized environment, where learning is valued with respect to fundamentals, one might expect to see innovation. In this regard, however, it is important to recognize that there is not one form of innovation one might see in such firms. Accordingly, it is common to speak of product and process innovations (Boer & During, 2001). Although we often assume product innovations are hard, difficult to execute, in firms, process innovations, changes in human resources recruiting, for example, may be as difficult, if not more difficult, to develop and field due to institutional resistance. Perhaps, more significantly, product and process innovations must often be tied together in an integrated system of innovations. A case in point may be found in Ford’s work on automotive assembly lines (Wilson, 2014).

Some of these innovative efforts may be professionally significant and others less so (McKay & Kaufman, 2020). What is of note here, however, is that chains of innovation are typically required to produce viable new products, and the success of the product will depend on the various pieces of these chains working in harmony. A case in point may be found in shipping containers, a viable technical innovation, but one which also requires new cranes, new docks, and new truck designs. Thus, innovation in a firm may require new production procedures, new staff, and the establishment of new markets.

One implication of our foregoing observations is that cross-functional teams are often required as an innovative product, or process, moves from initial development to fielding (Mumford, Bedell-Avers, & Hunter, 2008). The need for input from other functional units, such as manufacturing and marketing, may
well prove crucial to the success of an innovative effort. In this regard, however, it is important to bear in mind that bringing in new people and new functional perspectives may have some noteworthy disruptive effects for the team working on an innovation. To complicate matters even further, innovative experts may need to be placed in other areas, for example manufacturing in the case of technical innovation, to help those units cope with the implications of an innovation in further day-to-day operations (Mumford, Bedell-Avers, & Hunter, 2008). These observations are noteworthy because they imply that there are a lot of moving parts, and a lot of moving people, in any innovative effort.

The complex nature of an innovative effort, moving people, additions and subtractions of expertise, and chains of product, process, marketing, and financial innovations, implies one cannot be certain about the ultimate outcome of any innovative effort. It may work, then again, it may not. And, whether an innovation works or not may be a result of multiple considerations: Was the product, or idea, bad, were we lacking a needed innovation in production, did we miss something that made the product difficult to use? One implication of this observation is that innovation in firms is not simply a matter of coming up with an idea or prototype. Instead, the innovative effort must be managed as an unfolding, dynamic program as ideas are developed and progressively reconfigured. One implication of this observation is that a series of decisions must be made as to whether a program will continue and how it will continue with the cost and complexity of the program increasing as an initial idea proceeds to fielding. Moreover, different criteria must be applied at different stages as ideas move to fielding – for example, scanning efforts, initial exploratory efforts, should be appraised in terms of learning potential, prototypes should be appraised in terms of deployment feasibility, and initial products should be appraised in terms of market potential (Mumford, Bedell-Avers, & Hunter, 2008). Thus, different standards must be applied at different points in managing an innovative effort.

A complex program of work involving chains of big, and small, innovations is noteworthy for another reason. In complex efforts we cannot with assurance say exactly how things will turn out. Thus, innovative efforts require ongoing program management, hands-on program management, where progress and pitfalls are constantly reviewed. Accordingly, innovative firms are characterized by meetings, both informal meeting among those vested in a certain part of the work and formal meetings where progress to date and problems encountered are explicitly addressed. Put differently, innovative efforts are characterized by the weekly review meeting and intense, active communication among those involved in the innovative effort (Perry, 1993).
Of course, complex systems of enterprise require active, ongoing monitoring and feedback. Indeed, innovative firms seek to create and value feedback concerning the work being executed – often monitoring feedback from multiple sources, including the profession, competitors, customers, and regulators. In complex programs, however, feedback is not always positive. Crises do occur, a point made in a qualitative study by Drazin, Glynn, and Kazanjian (1999). They observed the process, and meetings, surrounding the development of a new aircraft. They found that crises not only routinely emerged but that some crises clearly were also threats to the success of the project. Focused, intense, action was often required to address these emergent crises – crises that sometimes could only be resolved through creative thinking and a new chain of innovative work.

These observations are noteworthy with respect to the people actually doing the creative work. Our stereotypic image of the creative person is a relaxed person freely exploring the implications of their unique ideas. No one behaves this way when they are confronting a crisis. Instead, what one sees is an intense focus and a persistent drive to resolve the problem at hand. Indeed, Furnham (2020) has found that obsession and persistence are two characteristics one most commonly sees in those working on innovative projects. This obsessive persistence, however, is also accompanied by substantial expertise (Ericsson & Charness, 1999), a desire for autonomy (Liu, Chen, & Yao, 2011), and a critical, often self-critical, approach to the work (Gibson & Mumford, 2013). The problem here, of course, is critical; autonomous experts obsessed with their own technical problem and persistently trying to resolve this problem are not the most tractable workforce – a workforce likely to see a crisis in different ways, appraise feedback from a unique perspective, and likely to be unwilling to stick to the plan, either the project plan or the plans formulated for addressing a project crisis.

1.5 Why Leadership?

Our foregoing observations are noteworthy because they point to why leadership is so crucial to successful innovation. On the one hand, firms need innovation to grow, profit, and survive. However, innovation is needed, and valued, in a complex, technically turbulent environment. In complex, technically turbulent operating environments, especially when competition is intense and competitors are taking their own approach to a problem, it is unclear how the firm should proceed in its attempts to innovate. And, this lack of clarity calls for effective leadership of innovative efforts.

With respect to the firm, however, leaders cannot assume full, uncompromising support. Innovative efforts are costly, and the risk of failure is high.
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Appraisals of cost and risk may result in even the most promising ideas being dropped. Not only will objective evaluations of cost and risk act to undermine innovative efforts, the nature of the firm, its embedded processes, peoples’ investments in the correct way of doing things, and the lack of a clear path to an assured product, all may act to lead firms to reject innovative efforts even though risk and costs seem objectively low. Under these conditions, innovative projects are likely to move forward only when they have champions — champions who are leaders with respect to the innovative effort (Markham & Smith, 2017).

These champions, leaders of innovative efforts, however, are presented with a task of unusual complexity. Not only must they assure the willingness of the firm to support the innovative effort, they must also manage a program of work — a program that will involve not only multiple technical innovations but also multiple process innovations — some big and some small. And, in this program requisite innovations must be structured into an integrated chain of innovations where the weakest link may act to undermine an otherwise promising venture.

As the leader seeks to develop and manage a chain of innovations, a complex set of interactions will act to condition the success of innovative efforts. Leaders must reach out to other vested interests in the firm. Leaders must help others grapple with the implications of an innovation. Leaders must encourage viable collaborations and ongoing cross talk, both within and outside the firm, to build strong innovations. The work arising from these collaborations must be appropriately evaluated. And, crises arising from the work must be addressed. Put differently, the work, sometimes technical, sometimes, social we are asking the leaders of innovative efforts to do is truly daunting.

To make matters even more complex, the people they are asked to lead are themselves uniquely demanding. They are critical, autonomous, obsessive, and persistent. This is not a group of people who can be guaranteed to go along with a plan, and they may not be a group who will get along with each other especially well. Somehow, the leader must get the best out of these people, channeling their critical, obsessive persistence into the innovative effort at hand — an effort that may or may not work out.

Our foregoing observations, in fact, lay out the key goals we will cover in this Element. First, we will examine how those asked to lead innovative efforts should lead the work. Second, we will examine how those asked to lead innovative efforts should lead the people doing the work. Third, we will examine how those asked to lead innovative efforts should lead the firm in its search for viable innovations. Before turning to leading the work, the team, and the firm, we will examine what we know about the nature of creative work and
the type of people who are willing to undertake the creative work that provides the basis for innovation in firms.

2 Creativity and Creative People

Although firms see the risk in pursuing innovations, profitability, growth, and survival all act to encourage innovation in many forms. What should be recognized here, however, is that innovations do not arise in a vacuum. Innovations ultimately come from people’s creative thinking. Thus, to ensure innovation, firms must encourage creative thinking by at least some of the firm’s workers. Understanding creative thinking, and the contextual conditions, or the environment, which encourages creative thought, provides the foundation for any effort intended to encourage innovation (Mumford & Hunter, 2005). More centrally, leaders, in a search for innovation, must manage workers in such a way as to encourage creative thinking. Accordingly, in this section, we will consider what we know about creative thinking (cognition), the nature of creative people (personality), and what leads people to invest in creative work (motivation).

2.1 What Is Creativity?

When one uses the word creativity, images, stereotype images, are called to mind of the crazy artist, Lady Gaga, or the disheveled scientist, Albert Einstein. Certainly, works in the arts and sciences often require creativity (Feist & Gorman, 1998). When seeking to understand exactly what is meant by the term creativity, however, it is best to put these stereotypes aside (Mumford, 2000).

Initial definitions of creativity were externally referenced. Thus, creativity was held to be reflected in accomplishments, real-world accomplishments, deemed by others to be creative, such as Nobel Prizes, Oscars, or patent awards (Simonton, 1984). Of course, awards of this sort depend on others’ evaluations of the work accomplishments (McClelland, 1961). Thus, the question arises as to exactly what underlies others’ appraisals of work as creative.

Some initial answers to this question have been provided in studies by Besemer and O’Quin (1998) and Christiaans (2002). In these studies, expert judges were presented with an array of creative products – for example, furniture designs. They were asked to rate these products on a variety of attributes, and these attribute ratings were factored to identify the dimensions reflecting key attributes of creative products. Three dimensions consistently emerged: quality, originality, and elegance. The products reflecting these attributes are what is meant by the term creative.