

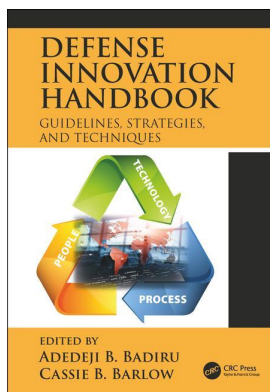
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Is your organization ready for innovation?

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chapter ten

Is your organization ready for innovation?

Alfred E. Thal, Jr. and David E. Shahady

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“None of the most important weapons transforming warfare in the 20th century – the airplane, tank, radar, jet engine, helicopter, electronic computer, not even the atomic bomb – owed its initial development to a doctrinal requirement or request of the military.”

The opening quote from Chambers (1999) suggests that the defense community has been at the forefront of innovation over the past century. Despite their success though, many organizations in the defense community struggle to explain specifically what they do to facilitate and implement innovation. To some, “being innovative” is interpreted as a means to empower employees to make decisions and solve problems at the lowest level possible. To others, “being innovative” is viewed as having open work spaces that lead to increased collaboration. However, innovation requires a much deeper understanding if it’s to be successful. Beyond acknowledging the importance of innovation and inspiring the workforce though, what can leaders do to ensure their organizations are ready for innovation? To help answer that question, we think a good place to start is to review the organization’s processes and dynamic capabilities. In many ways, these two concepts represent the DNA

of the organization—and whether the organization is structured to facilitate innovation. We will then introduce a conceptual model that leaders can use to foster disruptive innovation. These three concepts—processes, dynamic capabilities, and the conceptual model—are equally applicable to organizations in both the public and private sectors.

Background

From the first powered flight by the Wright brothers in 1903 and the use of airplanes in the Army Air Corps to modern-day advances in military airpower, it's often said that innovation is a part of the Air Force culture. General Henry "Hap" Arnold alluded to this in 1945 when he suggested that "... *any air force which does not keep its doctrines ahead of its equipment, and its vision far into the future, can only delude the nation into a false sense of security.*" Innovation has subsequently been highly touted by many of the Air Force's past and present leaders as being critical to the future success of the service. Furthermore, the vision statements for many Air Force organizations also acknowledge the importance of innovation. In fact, the Air Force's current vision statement is: The World's Greatest Air Force—Powered by Airmen, Fueled by Innovation.

Despite the importance placed on innovation though, two recent studies exploring the use of experimentation in innovation reported some sobering results. In the first study, the United States Air Force Scientific Advisory Board (SAB) concluded that the Air Force is very good at sustaining innovation but has "largely lost its ability to foster disruptive innovation" (United States Scientific Advisory Board, 2006). The SAB also concluded that Air Force organizations have not created an environment conducive to innovation. In the second study, the Air Force Studies Board (AFSB) expressed similar findings. Some of their key observations included a lack of space, time, and funding for experimentation-driven innovation, a fear of failure, a lack of appropriate processes, and a culture that is not supportive of innovation (AFSB, 2016). The results from both studies seem to indicate a stagnant environment in which the Air Force has lost momentum when it comes to technological innovation and is at risk of becoming irrelevant in the future battlespace.

Organizational processes

As W. Edwards Deming is fond of saying, "If you can't describe what you're doing as a process, then you don't know what you're doing." Let's put this into proper context for this chapter—if organizations are unable to describe their innovation efforts as a process, they're probably struggling with being innovative. This is consistent with Drucker (2002), who states that innovation is "capable of being presented as a discipline, capable of being learned, capable of being practiced." In other words, to make innovation more successful, it helps to view it as a process—a process which can be managed.

Processes are prevalent in organizations; they can be found in the way organizations operate, in their structures and cultures, and in the mindset of senior leadership (O'Reilly and Tushman, 2007). For those who may not have given it much thought, most organizations contain three general types of processes. Primary processes, also referred to as business processes, tend to be cross-functional. They often reflect the unique competencies of the organization and provide direct value to the customer; therefore, they are often considered mission essential. Support processes, on the other hand, usually do not provide direct value to the customer; instead, they are fairly standard and help sustain the organization. Common examples include management of information technology, infrastructure, capacity, and human resources. Finally, management processes provide direction

and governance to ensure that the organization operates effectively and efficiently. They are generally conducted by senior leaders to develop and deploy strategy, manage the organizational structure, and establish organizational performance goals.

Regardless of its type, any process is “an organized group of related activities that work together to transform one or more kinds of input into outputs that are of value to the customer” (Hammer and Champy, 2001). Processes are thus designed to achieve a specific goal—a goal which, in turn, provides value to customers (either internal or external). This implies that processes are not random or ad hoc. Furthermore, every process in an organization should be viewed as either contributing to an organization’s success or adding to its bureaucratic inefficiency—the key is being able to identify those processes that are a detriment to the organization and taking action to change them. When talking about processes and bureaucracy, an old adage often found in fortune cookies comes to mind: “People will do tomorrow what they did today because that is what they did yesterday.” Ed de Bono refers to this as the “continuity of time sequence.” Trapped by the sequence of our experiences, processes have a habit of developing almost arbitrarily yet becoming permanent.

It’s human nature—and it explains a lot. It explains why many of today’s practices are a reflection of “that’s the way we’ve always done it.” It explains how redundant processes develop and add to an organization’s overhead. It shows how bureaucracy grows incrementally over time. Finally, it explains why few organizations run the way they should. The problem usually isn’t about competence or effort—more often than not, the processes are the problem. Consider the following excerpt from Morison (1966).

A time-motion expert ... watched one of the gun crews of five men at practice in the field for some time. Puzzled by certain aspects of the procedures, he took some slow-motion pictures ... A moment before the firing, two members of the gun crew ceased all activity and came to attention for a three-second interval extending throughout the discharge of the gun. He summoned an old colonel of artillery, showed him the pictures, and pointed out this strange behavior. What, he asked the colonel, did it mean. The colonel, too, was puzzled. He asked to see the pictures again. “Ah,” he said when the performance was over, “I have it. They are holding their horses.”

The earlier description relates to horse artillery units supporting the cavalry. However, as technology advanced and the process of firing artillery guns changed, part of the previous procedure remained intact. An argument can certainly be made regarding the importance of upholding tradition, especially in military organizations. In many other cases though, does the tradition provide value? Or is it simply a carryover from the past because that’s the way it’s always been done?

If we extend this line of reasoning to processes in general, how many processes in our organizations are simply carryovers from the past? To give this some critical thought, it might be helpful to evaluate the organization’s core competencies. When organizations excel at an activity, they can easily become over-committed to it. If the organization holds on to them too tightly, those core competencies and their accompanying processes can easily become core rigidities (Leonard-Barton, 1992). In our own organizations, how many similar examples exist? How many processes do we have that were built in a different era and possibly for different purposes but continue to be blindly followed? Breaking away from these processes and the past requires conscious effort—it requires the will to question the existing processes and the inherent assumptions on which those processes were based.

As we review our organization's activities and processes, an important concept to consider is the value chain, which represents the primary and limited support processes that provide value to the customer (Porter, 1985). While organizations may have hundreds of work processes, they usually have very few business processes. As such, value-creating business processes begin and end with the external customer, tend to be large in scope, and commonly span multiple organizational components. Since this group of processes represents the core competencies of the organization, this is where performance improvement work is often focused. Furthermore, these processes must be aligned and integrated to enable effective performance of the organization.

With this brief introduction to processes, the question for most organizations is whether innovation is considered a core competency. If it is, does the organization treat innovation as a process that can be managed? And do other processes within the organization align with and complement the innovation process? An approach organizations might take to address these questions is to review their capabilities.

Organizational capabilities

When examining the success of organizations, a fundamental question that often arises is, "Why does a particular organization or group of organizations outperform other similar organizations?" To answer the question, two schools of thought have developed: the industry-based view and the resource-based view. The industry-based view assumes that success has something to do with the industry in which the organization operates; therefore, strategies are based on an external analysis (such as Porter's 5 Force model). On the other hand, the resource-based view assumes that success has something to do with the assets (or resources) the organization owns and controls; therefore, strategies are based on an internal analysis. Since empirical evidence suggests that organizational differences account for more variation in performance than industry differences (Rumelt, 1984), the resource-based view (RBV) has been increasingly referenced in the strategy literature. Although the RBV framework was initially developed to understand how businesses achieve and sustain competitive advantage (Prahalad and Hamel, 1990; Barney, 1991), its inward focus also makes it appealing to public sector organizations (Matthews and Shulman, 2005; Pablo et al., 2007).

Eisenhardt and Martin (2000) suggest that assets—physical, human, and organizational resources—are the foundation of the RBV approach. Furthermore, the "bundling" of these assets to perform specific business processes is often referred to as a capability. Organizational capabilities are thus the various routines (or patterns) and processes that transform inputs (i.e., resources) into outputs (i.e., goods and services that provide value to the customer). Routines represent sequences of actions for performing tasks in an organization. Institutionalized through technologies, formal procedures, and informal conventions or habits, they reflect "the way we do things around here."

Organizational capabilities can be characterized as either ordinary or dynamic as shown in [Figure 10.1](#). Ordinary capabilities represent the routines and standard operating procedures within the organization. They tend to support the day-to-day operations of the organization and change little over time; in some cases, they are often referred to as "best practices." Dynamic capabilities are the real reason for an organization's long-term success; they represent a set of abilities that enable an organization to quickly build capability and affect change. Organizations with dynamic capabilities are thus better positioned to exploit opportunities by adapting organizational structures and routines. According to Teece (2006), strong ordinary capabilities are necessary but not sufficient for long-term

<u>Ordinary Capabilities</u>	<u>Dynamic Capabilities</u>
<ul style="list-style-type: none"> • Technical efficiency in basic business functions • Operational, administrative, and governance • Relatively easy; imitable 	<ul style="list-style-type: none"> • Strategic “fit” over the long run (evolutionary fitness) • Sensing, seizing, shaping, and transforming • Difficult; inimitable
<i>Doing things “right”</i>	<i>Doing the “right” things</i>

Figure 10.1 Organizational capabilities. (Adapted from Teece, D., *Res. Policy*, 35, 1131–1146, 2006. With permission.)

success; they can be acquired (or “bought”) from other organizations or through investments in training. However, strong dynamic capabilities are necessary and sufficient for long-term success; they cannot be bought and must be built. From an innovation perspective, this is a critical point—the ability to build and improve effective routines is often considered a necessary ingredient for successful innovation.

Teece et al. (1997) define dynamic capabilities as an organization’s “ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments.” The term “dynamic” is meant to indicate an organization’s capacity to establish new competencies in response to environmental conditions and the ability to reconfigure their assets and develop new routines (Lee and Kelley, 2008; Eisenhardt and Martin, 2000), while the term “capabilities” is meant to imply the importance of strategic management. Taken together, dynamic capabilities serve as the source of an organization’s competitive advantage. Additionally, they are often considered a necessary component of the innovation process (Lee and Kelley, 2008). To be specific, Lawson and Samson (2001) suggest three primary reasons dynamic capabilities align with innovation efforts: (1) the lack of a technology focus recognizes the importance of other resources; (2) the RBV basis makes it applicable to product, process, system, and business model innovation; and (3) asset heterogeneity reflects the expectation that there is no one generic formula. From a dynamic capability perspective, Tidd and Bessant (2009) describe the core abilities in managing innovation shown in [Table 10.1](#).

Teece et al. (1997) describe organizational processes as routines of current practice serving three roles: coordination/integration, learning, and reconfiguration. These routines are used to integrate and exploit competencies. However, what the organization can accomplish with its dynamic capabilities is constrained by its asset positions and shaped by evolutionary and co-evolutionary paths (Teece et al., 1997). An organization’s position reflects specific competencies in both tangible and intangible assets; these competencies may consist of technology capabilities, complementary assets, external relationships, etc. Paths represent options available to organizations based on core competencies, technology trajectories, and emerging opportunities. They tell us that the availability of current strategic choices is a reflection of past strategic choices (Teece et al., 1997). In other words, it is typically difficult for most organizations to ignore what has been done in the past and

Table 10.1 Managing innovation

Basic ability	Contributing routines
Recognizing	Searching the environment for technical and economic clues to trigger the process of change
Aligning	Ensuring a good fit between the overall business strategy and the proposed change—not innovating because it is fashionable or as a knee-jerk response to a competitor
Acquiring	Recognizing the limitations of the company's own technology base and being able to connect to external sources of knowledge, information, equipment, etc. Transferring technology from various outside sources and connecting it to the relevant internal points in the organization
Generating	Having the ability to create some aspects of technology in-house—through R&D, internal engineering groups, etc.
Choosing	Exploring and selecting the most suitable response to the environmental triggers which fit the strategy and the internal resource base/external technology network
Executing	Managing development projects for new products or processes from initial idea through to final launch Monitoring and controlling such projects
Implementing	Managing the introduction of change—technical and otherwise—in the organization to ensure acceptance and effective use of innovation
Learning	Having the ability to evaluate and reflect upon the innovation process and identify lessons for improvement in the management routines
Developing the organization	Embedding effective routines in place—in structures, processes, underlying behaviors, etc.

Source: Tidd, J. and Bessant, J., *Managing Innovation: Integrating Technological, Market, and Organizational Change*, John Wiley & Sons, Chichester, UK, 2009.

develop new ideas. Specifically in a research and development (R&D) environment, Cohen and Levinthal (1990) argue that an organization's innovative capability is a function of its prior related knowledge; without prior experience, the organization would not be in a position to recognize value and exploit it.

O'Reilly and Tushman (2007) suggest that capabilities are the result of senior leader actions to facilitate and ensure learning, integration, reconfiguration, and transformation; these processes thus dictate the paths (i.e., strategic choices) organizations take. They typically refer to this as the "sensing and seizing" of new opportunities to emphasize the key role of strategic management. Other researchers also include the role of "transforming" when referring to dynamic capabilities. As organizational leaders ponder their role, and the actions they take, to facilitate innovation through dynamic capabilities, a model may prove to be useful.

Disruptive innovation model

Numerous studies have been conducted regarding the importance of innovation. For example, the Council on Competitiveness (2005) concluded that, "Innovation will be the single most important factor in determining America's success through the twenty-first Century." In 2006, the American Management Association (AMA) commissioned a study on the emergence of innovation in global industries. The study concluded that

“innovation is going to get considerably more important over the next decade;” therefore, it is essential for companies to eliminate the barriers of innovation and increase their innovative culture (American Management Association and Human Resource Institute, 2006). IBM Global Business Services conducted an innovation study focused on public and private sector senior leadership. According to the study, CEOs expected fundamental changes for their organizations and saw opportunities to be seized through innovation (IBM, 2006). The study concluded that business model innovation and external collaboration are extremely important, as well as the role of senior leadership, in fostering an innovative climate. A study by the Boston Consulting Group found that the leading innovative organizations were characterized by risk taking and investment in the long-term (*BusinessWeek*, 2007; McGregor, 2007). The study also found that gimmick-driven campaigns were not the deciding factor—companies became innovative through hard work.

Innovative organizations are revolutionary in that they aggressively take markets from competitors (Hamel, 2002). Furthermore, innovation helps good organizations become great organizations and equips strong companies to become long-lasting entities (Collins, 2001). Additionally, resilient groups embrace disruptive change (Hamel and Valikangas, 2003), and competitive organizations use breakthrough ideas to destroy the opposition (Foster, 1986). However, the difficult challenge for most groups is creating an environment to foster breakthrough innovation while marginalizing practices that stifle creativity. While many business scholars have articulated innovation as a key for survival, deriving a formula for success has proven to be a difficult challenge. Throughout the literature though, there is evidence that motivation, focus, barriers, and culture play a crucial role in the emergence of breakthrough and game-changing ideas. By examining these key elements with regard to innovation, a base model for the emergence of disruptive innovation can be formulated. After presenting the model, implications for the defense industry will be briefly discussed.

Motivations for pursuing innovation

The primary reason companies pursue innovation is to gain and/or maintain competitive advantage. Foster (1986) explained that competitive advantage can only be achieved by going on the attack and that companies can lose their markets almost overnight to faster-developing technologies. Based on recent research and literature, several consistent themes appear among both industry professionals and corporate CEOs. As illustrated in [Table 10.2](#), the leading reasons for pursuing innovation are to increase profitability, respond to customer demand, and improve efficiency.

Increasing Profits: An increase in overall revenue and profit margins continues to be one of the primary motivations for companies to pursue innovation. The world’s most innovative companies traditionally see greater revenue growth and margin growth compared to their less innovate counterparts (*BusinessWeek*, 2007). However, companies are finding it takes time to see profit growth and are often abandoning innovation investments for more short-term gains. Most decisions being made regarding innovation, and particularly the development of dynamic capabilities, would benefit from a long-term perspective.

Responding to Customer Demand: In today’s marketplace, innovation is often seen as a primary means to acquire and hold onto customers. Peters (1997) explained this concept best: “If the other guy’s getting better, then you’d better get better faster than the other guy’s getting better, or you’re getting worse.” However, it is important to understand

Table 10.2 Reasons for pursuing innovation within industry organizations

The Quest for innovation (AMA, 2006)		Expanding the innovation horizon (IBM, 2006)	
Reasons	Rank	Reasons	Rank
To respond to customer demands	1	Profitable growth	1
To increase operational efficiency	2	Preempt business threats and create them	2
To increase revenues or profit margins	3	Drive needed efficiency	3
To develop new products and services	4	Develop multiple channels with different approaches for different customers	4
To increase market share	5		
To better use new technologies	6		

the level of customer interaction envisioned—while working closely with the customer provides great insight into their needs, it can also hinder the recognition of emerging needs and technologies (Francis and Bessant, 2005). Therefore, a high level of customer interaction seems to be more appropriate for sustaining/incremental innovation efforts, while disruptive/radical innovation typically requires less customer involvement.

Improving Efficiency: As shown in Table 10.3, companies need to reduce cycle-times and improve operational efficiency to survive. Hammer and Champy (2001) explain that because of customer power and customer choice, simply relying on acceptable process performance is no longer sufficient; furthermore, they state that conventional business remedies do not address the source of the problem, which is non-value added work resulting from fragmented processes.

Focus of innovation resources

While the need to focus resources on innovation is widely espoused, the optimal balance of investment is widely debated in the literature. Short-term investments necessitate close attention to detail, midterm investments demand capital and a willingness to take risks, and long-term investments require imagination and technological daring (Hayes and Abernathy, 1980). Innovation strategies by companies today are best described by looking at investments by functional area, innovation magnitude, and innovation type. The studies and literature indicate trends toward customer focus, reliance on business model innovation, and an emerging push toward new breakthrough products/services.

Table 10.3 Cycle-Time reductions in industry

Industry	Past	Recent	Goal
Automobile	84 months	24 months	<18 months
Commercial Aircraft	8–10 years	5 years	2.5 years
Commercial Spacecraft	8 years	18 months	12 months
Consumer Electronic	2 years	6 months	<6 months

Source: Defense Science Board, 2006 Summer Study on the 21st Century Strategic Technology Vectors: Volume IV Accelerating the Transition of Technologies into US Capabilities, Defense Science Board, Washington, DC, 2007.

Table 10.4 Innovation within industry organizations

Functional areas of innovation		Focus areas of innovation	
Functional areas	Percent of responses	Areas	Percent of responses
R&D	27	Customer experience	15.2
Marketing	17.2	Service	11.6
Information Technology	12.2	Core processes	12.4
Sales	9.7	Product performance	12.2
Customer Service	8.9	Enabling processes	11.8
Manufacturing	6.5	Business models	10.6
Supply Chain	5.4	Brand	8.4
Planning	5.1	Networks and alliances	8.1
Human Resources	3.9	Product systems	4.7
Finance	2.4	Channel	3.6

Source: American Management Association and Human Resource Institute, *The Quest for Innovation: A Global Study of Innovation Management 2006–2016*, American Management Association, New York, 2006.

Customer Focused Innovation: According to the AMA study (2006) results outlined in Table 10.4, more than 25% of the innovation resources in participating companies were focused on supporting customer experience and service. In addition, the study found that while innovation occurs across various functional areas, the areas directly related to customer relationships are receiving the highest degree of focus. Marketing, sales, customer service, and supply chain functions accounted for over 41% of the functional areas of innovation.

Emphasis on Business Model Innovation: Companies are finding with greater certainty that business processes and organizational innovation are important. The IBM (2006) study found that “four out of every ten companies were afraid that changes in a business competitor’s business model would upset the competitive dynamics of the entire industry.” It’s no wonder then that the CEOs of outperformers are placing nearly twice as much focus on business model innovation than the CEOs of underperformers.

Product/Service Migration toward Disruption: While competition has pushed companies to consider process innovation, the most popular type of innovation focus continues to be in the area of products/services. The recent industry shift is toward new products/services with “fewer companies focusing on incremental innovation or making minor changes to existing products” (*BusinessWeek*, 2007). This further solidifies the importance of understanding the emergence of disruptive innovation.

Barriers of innovation

Innovation can be a difficult and daunting challenge—one of the reasons for this is that most innovation experts agree that barriers hampering innovation are abundant. Many companies invest considerable resources into fostering ideas only to have their innovation efforts squelched by internal and external barriers (Kelley and Littman, 2001). Table 10.5 summarizes the most common barriers found in companies today. Although the semantics of obstacles varies from study to study, several common themes are consistent throughout the research: unsupportive culture, insufficient resources, lack of strategic vision, and poorly developed processes.

Table 10.5 Study findings in barriers of innovation

The quest for innovation (AMA, 2006)	Expanding the innovation horizon (IBM, 2006)	The world's most innovative companies (BusinessWeek, 2007)
<ul style="list-style-type: none"> • Insufficient resources • Lack of formal strategy for innovation • Lack of clear goals and priorities • Unsupportive organizational structures • Short-Term mindset 	<p><i>Internal</i></p> <ul style="list-style-type: none"> • Unsupportive culture and climate • Limited funding for investment • Workforce issues • Process immaturity • Inflexible physical and IT infrastructure • Insufficient access to information <p><i>External</i></p> <ul style="list-style-type: none"> • Government and other legal restrictions • Economic uncertainty • Inadequate enabling technologies • Workforce issues arising externally 	<ul style="list-style-type: none"> • Lengthy development times • Lack of coordination • Risk-averse culture • Limited customer insight • Poor idea selection • Inadequate measurement tools • Lack of ideas • Marketing or communication failure

Unsupportive Culture: The research findings summarized in Table 10.5 found unsupportive organizational cultures to be significant obstacles to innovation growth. This is consistent with Kelley and Littman's (2001) observation that company mindset is one of the biggest barriers to innovation. Risk-adversity, inflexibility, communication failures, workforce issues, and lack of ideas are all common symptoms of a poor innovative culture. Overcoming these barriers can best be addressed by cultivating a positive innovative culture. The characteristics of innovative culture are addressed in more detail later in the chapter.

Insufficient Resources: Innovation is not merely about financial investments—it also involves investments in people, facilities, markets, training, and technology. Many organizations are falling into the “performance” trap where the company is doing well and fails to explore other opportunities because of the time, money, and personnel required (AMA, 2006). Other organizations are opting to sacrifice long-term stability for short-term gains. With reductions in discretionary dollars and pressures from stockholders, many CEOs are forced to divert R&D resources to low-risk investments with guaranteed returns (IBM, 2006). According to the *BusinessWeek* (2007) assessment, “More than half of all CEOs, chairmen, and presidents of companies were happy with how they'd spent on growth initiatives. CFOs, not surprisingly, were among the least satisfied: A full 63% were unhappy with their results.” This mindset clearly defines the difficulties faced by innovators attempting to gain access to needed resources.

Lack of Strategic Vision: Although it is debated in the literature whether companies can “direct” innovation, it is commonly acknowledged that innovation strategy plays a role in fostering new concepts. Based on the AMA (2006) research highlighted in Table 10.6, most companies fall dramatically short in developing a well understood strategy for innovation and a shared vision on how to execute a plan for innovation.

Poorly Developed Processes: Long development times, insufficient access to information, poor idea selection, ineffective organizational structures, and communication failures are all indicative of poorly developed processes. Hammer (1996) contends that

Table 10.6 Industry lack of innovation strategy

People in my company...	Percent of respondents
Have a shared definition of what innovation is.	41.3
Regularly review the progress of innovation.	22.4
Have a shared agenda to execute the innovation strategy.	12.3
Have a well-understood strategy for innovation.	12.1
Have well-defined roles and responsibilities.	11.3

Source: American Management Association and Human Resource Institute, *The Quest for Innovation: A Global Study of Innovation Management 2006–2016*, American Management Association, New York, 2006.

“it is not uncommon to find less than 10 percent of the activities in a process to be value-ending, with the rest mostly non-value-adding overhead.” Process improvement is based on a commitment to optimize value through a process view of accomplishing work. It is not surprising that companies with inefficient processes struggle with innovation given that it takes creative and radical thinking to develop effective processes.

Characteristics of innovative culture

Organizational culture is defined as “a system of shared meaning held by members that distinguishes the organization from other organizations” (Robbins and Judge, 2007). An innovative culture is therefore a shared organizational environment designed to foster innovation. Many companies even specialize in teaching organizations to become more innovative. IDEO, ranked as the 28th most innovative company in the world (*BusinessWeek*, 2007), is considered a premiere leader in the development of the breakthrough spirit. With the recent emphasis being placed on innovation throughout the business world, it is not surprising that hundreds of articles and publications have been written on the characteristics of an innovative culture. Several common threads appear within the leading studies, summarized in [Table 10.7](#), that help define the key characteristics: strong customer focus, collaboration, efficient processes, creative people, inspiring leadership, risk-taking, and motivation/reward systems.

Strong Customer Focus: The research suggests that organizations who place their existing and future customers at the forefront tend to be more innovative. Strong customer focus does not just mean delivering what customers ask for but rather “capturing

Table 10.7 Characteristics of innovative culture

The quest for innovation (AMA, 2006)	Expanding the innovation horizon (IBM, 2006)	The world’s most innovative companies (BusinessWeek, 2007)
<ul style="list-style-type: none"> • Customer focus • Teamwork and collaboration with others • Appropriate resources • Organizational communication • Ability to select the right ideas for research • Ability to identify creative people 	<ul style="list-style-type: none"> • Orchestration from the top • Collegial culture with individual rewards • Consistent business and technology integration 	<ul style="list-style-type: none"> • Right organizational structures • Right processes • Right people • Inspired leadership

- their ideas or actually allowing them to innovate on their own behalf” (AMA, 2006). According to Kelley and Littman (2001), co-founder of IDEO, true understanding comes not by talking to customers, but by watching them and becoming immersed in their environment. As a result of this strong customer focus, organizations are in a better position to implement disruptive product and process innovations that transform the marketplace and decimate the competition. Demonstrating this point, Christensen and Raynor (2003) reviewed the extensive market analysis conducted by a quick-service restaurant chain with regard to milkshake sales. The group examined not just what the customers wanted, but why they wanted it, when they wanted it, who they were with, and what they would be doing if they were not there buying a milkshake. They essentially focused on the job the customer was trying to get done.
- Collaboration:* External and internal collaboration is a common characteristic found in studies on innovation. According to Hargadon (2003), most significant innovations come from collaborative groups of people and not brilliant lone individuals. Collaborative innovation can be defined using the organizational Garbage Can Model (Cohen et al., 1972). The theory articulates that many solutions to problems can often be found by sifting through garbage in which ideas, or the ideas of others, have been tossed out as being irrelevant. Similarly, innovative cultures are best characterized by broad and often unrelated people that simply interact to make breakthroughs happen. Organizations that collaborate to a large extent typically perform better than the competition and receive strong benefits from the innovate spirit that is generated.
- Efficient Processes:* Efficient processes are streamlined and provide the appropriate level of performance to the organization. In addition, efficient processes undergo an endless cycle of improvement in which performance is measured, benchmarks are established, gaps are identified, and modifications are implemented (Hammer, 1996). According to the AMA (2006) assessment, innovative cultures are strongly tied to how efficiently organizations can capitalize on ideas. Innovative organizations know how to balance resource investments, select the right ideas, mobilize the right resources, and measure results. The level of disruptive innovative is directly related to an organization’s ability to get funding and manpower required to cultivate new idea proposals (Christensen, 1997).
- Creative People:* Creative people, a key element in creating an innovative culture, solve problems by examining the world from different perspectives (Glover and Smethurst, 2003). Innovators are able to look beyond the status quo and visualize the realm of the possible while not allowing risk and adversity to hamper their progress. Henry Ford reportedly once said, “Failure is the only opportunity to begin again, this time more intelligently.” Not everyone is naturally creative and many companies like IDEO have developed a series of innovation roles that allow people to contribute to the innovative culture. Although business scholars believe that innovation comes from groups of creative people, breakthrough teams are composed of individual characters and diverse personalities deliberately recruited to generate energy and ideas (Kelley and Littman, 2001).
- Inspiring Leadership:* Collins (2001) found that successful leaders, those who blend extreme personal humility with intense professional will, were the catalyst in building great companies. Supportive leadership has been shown to be an equally important characteristic in building an innovative culture. The extent to which the leader reflects on organizational objectives, strategies, and processes, and implements changes accordingly, is directly related to the organizational climate for innovation. In organizations with more reflective leaders, employees rated the innovative climate higher, organizational practices were more non-traditional, and there was a greater amount of change (Kazama et al., 2002).

Risk-Taking: “Innovation demands adherence to two fundamental principles: a willingness to accept risk and a willingness to wait for the return on investment” (Council on Competitiveness, 2005). While most scholars agree that innovation is a risky venture, only 20% of global companies actually recognize and reward intelligent risk-taking (AMA, 2006). Innovative cultures are made stronger by embracing failure as an option and taking the time to experiment. IDEO describes this innovation characteristic with the slogan, “Fail often to succeed sooner” (Kelley and Littman, 2001). Encouraging risk-taking helps create an environment where employees are willing to take chances with radical ideas.

Motivation and Reward Systems: Rewards for innovative behavior were a common characteristic cited in several publications on innovative culture in industry. Most companies use non-financial rewards as a means to promote innovation (AMA, 2006). Companies that “reward individual [innovation] contributions achieved 2 percent higher operating margins on average and grew nearly 3 percent faster than those who did not” (IBM, 2006). Motivation and reward systems are closely tied with organizational willingness to accept risk.

How you encourage and reward innovative activities will ultimately determine whether your employees undertake them. Innovation starts with employees willing to take risks. Employees will be apprehensive of these activities if they perceive the upside to be limited and the downside to be significant. A truly innovative culture needs to make employees feel secure enough to believe that failure itself will not affect their position within the firm. (Deloitte, 2003)

Putting it all together

Christensen and Raynor (2003) propose that building an organization capable of disruptive growth requires a careful balance of resources, processes, and values. Combining these thoughts with previous studies of organizational innovation provides a model for fostering disruptive innovation. The model proposes the following: an increase in the right motivation, plus an increase in the right focus of innovation resources, plus a decrease in the barriers of innovation, plus an increase in the characteristics of innovative culture, will foster an increase in the emergence of disruptive innovation. This model, illustrated in [Figure 10.2](#), is not intended to be an equation for guaranteed success but rather a conceptual formula to ensure that critical elements in the emergence of disruptive innovation are considered. While the interpretations, applications, and considerations will be domain dependent, the basic model is a universal framework for innovation improvement. Understanding the model is not sufficient though—to link it back to the previous discussion, fostering innovation also requires a full understanding of the organization’s processes and its capabilities.

Defense implications

The model presented in [Figure 10.2](#), along with the concepts of processes and dynamic capabilities, are applicable to all organizations in both the public and private sectors. To show the applicability to the defense community, each element of the model is briefly discussed in this section of the chapter.

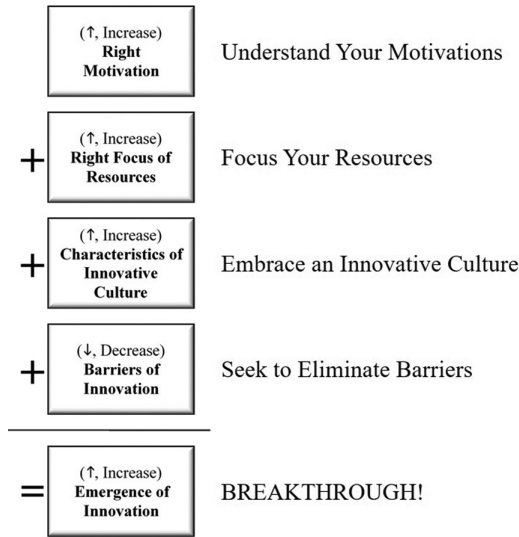


Figure 10.2 Model for fostering disruptive innovation.

Motivations for pursuing innovation

Within the defense community, the reasons for pursuing innovation may be quite different and caution must be exercised. For example, defense organizations could be motivated by a desire to be viewed as state-of-the-art and capable of using new technologies more effectively. From a dynamic capabilities perspective, this could reflect a perceived need to enhance the organization's assets and improve its technological positioning. However, it could also be an indication of focusing too much on incorporating the newest technologies to create a "wow" factor. It could also indicate a reliance on technology, and perhaps a focus on invention instead of innovation, to meet the customers' needs. Depending on the situation, a better approach may be to focus on the job the customer is performing and strive to help the customer perform that job better (e.g., more quickly, more effectively, less costly, etc.).

Relying on policies to encourage innovation may not be very effective. Tidd (1993) found that policies often do not support technology strategies; instead, organizations tend to either follow industry trends or act in an ad hoc manner in response to a near-term need. This type of reactive approach may be due to existing learning mechanisms (or the absence thereof); therefore, defense organizations interested in innovation might consider examining their organizational processes to ensure appropriate structures and policies are in place to develop congruent strategies. Recognizing the impact of past strategic choices, coupled with critical thought about the impact of current decisions on future opportunities, could also be helpful. Since Chesbrough and Rosenbloom (2002) consider the business model to be a mediator between technology and value, the defense community might consider placing more emphasis on the business model aspect of innovation and developing appropriate value propositions. Finally, processes should be in place to facilitate cross-functional teamwork and integration, as well as to introduce employees to new technologies and make them aware of their potential uses and benefits; this learning process thus affects the evolutionary path of the organization.

The key factor is whether processes are in place to address the motivations for pursuing innovation. To facilitate this desire, it is important that organizations consider all

components of the dynamics capabilities framework and develop commensurate strategies. With a narrow focus instead of a broader perspective, organizations may be overlooking opportunities to improve their dynamic capabilities and be more innovative.

Focus of innovation efforts

The functional and focus areas of innovation were shown in [Table 10.3](#). The low percentages shown in the table could indicate an overall weak application of innovation efforts; however, it could also reflect a lack of focus. When this happens, Francis and Bessant (2005) suggest that innovation efforts often develop without any coherent strategy and are often inefficient and sometimes contradictory. They also suggest that systematic analysis and comparative benchmarking might help facilitate more alignment between incongruent innovation efforts. A more structured approach to the development of organizational processes could also be helpful.

Networks and alliances are a key source of innovation (von Hippel, 1988) in which the primary reason for collaborating is to access either complementary technologies to support innovation activities or new markets (Tidd, 1993; Greis et al., 1995). However, too much focus on collaborations (i.e., networks and alliances) could reflect a reliance on external entities to drive innovation efforts instead of developing organic capabilities. Additionally, collaborations can affect an organization's evolutionary path by potentially shaping, sometimes positively and sometimes negatively, future strategic choices (Teece, 2006). Therefore, defense organizations are encouraged to develop a healthy strategy towards the use of collaborations.

When it comes to the customer experience, business models and brand areas are important components. Since business models help convey the organization's value proposition (Chesbrough and Rosenbloom, 2002), the choice of business model will influence the organization's processes, positions, and paths (Francis and Bessant, 2005). Therefore, more emphasis on innovative business models could potentially provide new benefits for defense organizations. Although branding may not be very applicable in the defense community, it may be helpful in establishing effective communication channels with customers to provide a better understanding of what innovation can do for them.

Barriers to innovation

Consistent with the resource-based view of the organization and other research (e.g., Blumentritt and Danis, 2006), defense organizations often indicate that insufficient resources is a primary barrier. However, Liao et al. (2009) found that the primary constraint hindering innovation is the lack of integrative capabilities (e.g., routines for integrating external knowledge and identifying opportunities). What this tells us is that organizations tend to lack processes to perform the coordination/integration, learning, and reconfiguration roles Teece et al. (1997) claim are necessary to develop new competencies quickly.

Furthermore, a lack of guidance from the organization's leadership may suggest that innovation is accomplished in an ad hoc manner. Employees may feel they are getting adequate support from their immediate supervisors but not receiving clear guidance from the organization's senior leaders. The defense community may thus benefit from examining strategies and guidance since the ability of senior managers to "sense and seize" opportunities while overcoming organizational inertia and path dependencies is at the core of dynamic capabilities (O'Reilly and Tushman, 2007). This is especially important since organizational constraints are often "hidden" in everyday activities and processes.

An often overlooked constraint is the organization's history and the path-dependent nature of capabilities created by the organization's routines (Rindova and Taylor, 2002). As previously mentioned, these core capabilities can easily become core rigidities (Leonard-Barton, 1992).

Finally, a "fear of failure" culture is a potential innovation barrier. Employees may not relate individual attitudes to barriers; however, when viewing culture as a barrier, they may be thinking of the organization's processes, policies, and procedures. This may be why factors related to organizational culture—threat of new ideas, lack of rewards, and short-term mindset—are often rated higher than the "fear of failure" barrier. In some ways then, culture may be viewed in terms of bureaucracy, which Francis and Bessant (2005) characterize as unfriendly to innovation.

Characteristics of an innovative culture

Of primary concern to the defense community may be the freedom to innovate, which may be because of the bureaucratic and structured nature of most government organizations. This is consistent with the SAB's (2006) finding that the Air Force relies too much on technology demonstrations instead of experimentation. To be truly disruptive, Christensen and Raynor (2003) suggest the use of discovery-driven planning, to include experimentation and learning. An innovative culture also requires appropriate organizational processes and leadership ability to reconfigure assets and "sense and seize" opportunities. This may be lacking in government organizations, thus making the culture not as conducive as it could be in terms of facilitating innovation. Additionally, defense leaders may want to ensure there is a clear understanding, shared definition, and strategy for innovation in their organizations.

Industry considers the best way to establish an innovative culture is to focus on the customer. Although the defense community may consider customer focus to be important, it may struggle with the degree of "connectedness" to the customer and efforts to develop an appropriate value proposition and business model. Another important factor for industry is effective organizational communication, which requires effort and supporting processes. Therefore, poor communication may contribute to it being seen as a barrier to innovation. It may also imply more of a team approach to developing innovative solutions as compared to the typical "stovepipes" in more bureaucratic organizations.

Senior leader involvement

Although defense organizations may consider innovation to be extremely important, they may find that it is not integrated very well into the overall organizational strategy. Blumentritt and Danis (2006) have suggested that "strategic orientation may be a powerful explanatory variable that accounts for important differences in how innovation is managed." In fact, de Jong and Marsili (2006) found that there is a correlation between the presence of a documented innovation strategy and the level of innovative activity in an organization. Similarly, O'Reilly and Tushman (2007) recommend that leaders articulate a vision and strategic intent, along with identifying specific complementary organizational processes. Furthermore, Lawson and Sampson (2001) found that innovation often requires visionary leadership; coordination between innovation, business, and technology strategies; and a commitment to results. Therefore, the defense community may want to consider using strategy to facilitate the integration of innovation. They may also find it helpful to develop new value propositions and business models.

Final thoughts

Managing innovation creates a dilemma for organizations. A loose organizational structure is often perceived as flexible and thus preferred if one wants to foster innovation, creativity, and adaptability. However, a formal structure and key management controls are required to coordinate and communicate innovation efforts. The key is to have a broadly structured framework within which employees have the freedom to make decisions about the best approach to take for a specific effort. At a minimum, each organization should have a tailored version of the innovation funnel. The intent of the funnel is to generate ideas, narrow the list of ideas to those that are most promising, and then implement the ideas that are selected to increase the value provided to the customer.

If an organization wants to become more innovative, the following principles are offered for consideration.

1. Create a strategic vision that establishes innovation as a priority.
2. Inspire the workforce by clearly identifying the organization's challenges and discussing how innovation will help address those challenges. Keep in mind that innovation is not required in every organization.
3. Evaluate the organization's dynamic capabilities and determine the changes required to align them with the strategic vision. Successful innovation depends on two key factors—resources and capabilities. Does the organization have the appropriate resources? Does the organization have the appropriate dynamic capabilities?
4. Review the organization's existing processes and create/change processes as required. This includes the innovation process itself, as well as complementary processes within the organization. Determine how innovation will be integrated with other processes in the organization.
5. There's an old adage in organizations—"you get what you measure." Therefore, spend some time developing an effective set of metrics to measure innovation and communicate the results.
6. Innovation is accomplished through people. Therefore, provide training to the workforce in terms of product and/or process innovation tools, managerial tools, and general problem-solving skills.
7. Recognize innovative behavior and reward innovative results.
8. Promote experimentation and prototyping as a way to develop a "fail early and often" mindset.

Although innovation is rooted in curiosity and discovery, it's not free-wheeling and void of structure—it's driven by a system of principles and practices which support and encourage people to solve problems. Therefore, and as previously mentioned, innovation should be considered a process—a process which can be managed. It's ultimately a management and leadership question involving choices to be made about resource allocation and coordination. With the right choices and the proper approach to developing dynamic capabilities, the military can position itself to fulfill the following vision expressed by Gen "Hap" Arnold at the end of World War II.

"The next war may be fought by airplanes with no men in them at all...Take everything you've learned about aviation in war, throw it out of the window, and let's go to work on tomorrow's aviation. It will be different from anything the world has ever seen."

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