

TRANSFORMING DoD ORGANIZATIONS THROUGH THE  
IDENTIFICATION AND UTILIZATION OF CREATIVE CAPACITY

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### **Abstract**

The Department of Defense has been called to transform the way it fights, thinks and operates to more effectively counter the changing threats to the United States. Private organizations have long been faced with a similar need to be flexible to meet the dynamic market that they serve. The Office of Force Transformation has been tasked to facilitate the mandated transformation of the DoD. Based on literature on slack resources, slack may be a necessary tool for proper transformation to a more innovative and effective military.

The multiple case study methodology was utilized to gather private firms' best practices to utilizing excess human resources for innovation, (creative capacity), and instilling the entrepreneurial mindset. Analysis of these practices resulted in the formation of a creative capacity implementation methodology and model. With these tools, DoD and other large organizations will be able to more effectively implement creative capacity to achieve process and product improvements, and ultimately, enhanced capabilities and efficiencies.

### **Introduction**

Organizational slack or slack resources are defined as a cushion of excess resources that can be used in a discretionary manner (Bourgeois, 1981). Research has found that the use of organizational slack enables organizations to better adapt to changing operational environments. Companies utilizing slack are more flexible, efficient, and successful. This research effort deals with excess human resources, or

human resource slack. For the purpose of this study, slack human resources will often be referred to as innovative capacity or creative capacity and defined as excess human resources used for the purpose of innovation.

For private firms to be competitive, it is crucial that they are efficient, adaptive, and informed. Unnecessary costs cut into the bottom line, impacting a firm's ability to invest in the future, either in process improvements or product improvements. Inadequate resources may cause firms to be late in their decisions, often missing first-mover advantages or worse, missing the changing market all together. Recent economic downturns have forced managers to cut the fat from organizations, attempting to improve short-term profit margins and ultimately, company survivability. But those cuts also often eliminated organizational resources that gave companies the ability to be flexible and innovative (Lawson, 2001).

The reasons to avoid haphazard cuts in personnel do not apply only to the private sector. While efforts to protect and efficiently utilize tax revenue by public organizations are well intentioned, and there is no question that non-productive members of the organization should be removed, in some cases creative capacity is removed along with the unnecessary organizational fat.

The first hurdle to be traversed is the method by which organizational performance is measured. The standard financial measures of industry performance such as profit and growth are not usually applicable to government organizations. As a result, the first step toward instituting an entrepreneurial mindset in these organizations is reconceptualizing the profit formula. Whereas revenue less cost results in profit for private industry, available resources less costs yields *resources remaining for other*

*activities* in the government sector. It should be the focus of government leaders to increase the resource yield through the influence of entrepreneurial thinking, including the identification and protection of creative capacity in organizations.

The Department of Defense (DoD) serves as a good example of a large government organization that may find benefit in the use of creative capacity. Today's operational environment for the DoD is vastly different from any ever seen before. Enemies of the United States are no longer just countries with standing armies, marching in uniforms and carrying flags. There is also a new threat of terrorism on domestic soil as well as the threat of nuclear weapons controlled by small extremist countries and rogue forces. To cope with the changing and diverse threats to the U.S., top Defense officials are calling for an innovative military with a new way of thinking and fighting (Rumsfeld, 2002).

Current research on organizational innovation and adaptation has indicated that organizations without the necessary tools in place to change with the operational environment fail. One of the necessary tools is organizational slack. While the DoD has made transformation a priority, research suggests that these efforts will be severely hindered by the lack of slack resources within defense organizations. Organizations without excess resources change slowly and are reactive to the dynamic operating environment. The competition, or enemy, is changing rapidly to exploit the weaknesses of the US and its allies. Without slack resources to adapt and change, private firms go out of business; public firms lose money, or in the case of DoD, lose wars.

To determine how large organizations identify, protect, and utilize creative capacity, data was collected from multiple organizations identified by previous research

as being highly innovative. The organizations having similar characteristics to large government organizations were selected for further study. Open-ended interviews were conducted with personnel knowledgeable about the innovative processes to determine the use of slack human resources. The data collected served to answer the questions:

1. How do firms use excess human resources to pursue innovation?
2. How do firms pursue innovation when adequate human resources are not available?

### **Review of Literature**

There has been an ongoing debate of the role slack plays in the flexibility and adaptation of organizations (Bourgeois, 1981). One position supported by the literature is that slack resources enable innovation and change, enhancing a firm's ability to respond to shifts in the business environment, increasing long-term performance (Carter, 1971; Cheng and Kesner, 1997; Cyert and March, 1963; Mohr, 1969). Slack resources are necessary to instill the entrepreneurial mindset within organizations: seeking new products through research and development and finding the right management fit to achieve the organization's purpose in the market (McGrath and MacMillan, 2000). Without the necessary resources, operations shift to a more reactive, survival mode. Along with this relaxed corporate environment, units have been found to cooperate at a higher rate, achieving better overall organizational performance.

The alternative position is that slack equates to inefficiency and acts as a buffer between an organization's ability to observe and respond to environmental changes (Cheng and Kesner, 1997; Litschert and Bonham, 1978; Thompson, 1967; Yasi-

Ardekani, 1986). According to this view, with slack resources, there is no incentive to make the best choices or be proactive to the changing business environment. This “slack-as-a-buffer” argument believes slack reduces a firm’s aggressiveness in responding to environmental shifts (Cheng and Kesner, 1997).

The impact of slack on an organization is affected by the conditions under which it exists and is employed. Research has found that slack can be: 1) available (not yet committed); 2) recoverable (absorbed but recoverable); and 3) potential (resources that can be generated from the environment) (Bourgeois and Singh, 1983; Cheng and Kesner, 1997; Sharfman, Wolf, Case and Tansik, 1988). Indications are that each of these types of slack affects a given situation differently.

Greenley and Oktemgil (1998) posited that slack affects a company’s adaptability to the environment, flexibility to market demands, and overall performance. The relationship between slack and company performance appears to be contingent on factors such as the amount and location of slack utilization, as well as the specifics of the organization such as size, market type and uncertainty, and overall company goals.

### *Slack and Innovation*

Research has found that the level of slack resources correlated to organizational innovation (Judge et al, 1997). Organizations using slack resources have time to learn and improve, as well as a no-punishment culture. This buffer of time, or slack time, also allows decision makers the ability to think through options to increase the likelihood of making the correct choice (Lawson, 2001). These organizations have the ability to operate according to the environment; hierarchical and disciplined structure during emergencies as well as team-based during times of innovation (Lawson, 2001). Slack

resources in innovative organizations provide room to innovate and room to fail. When slack resources are used as a buffer, organizations are less worried about ideas failing during innovation and experimentation. However, organizations that have leaned down in search of operating efficiency have made the cost of unsuccessful ideas unacceptable. As a result, the organization is forced to adopt the wait-and-see or follow-the-leader strategies.

Another view of the relationship between slack and innovation is that slack is self-servicing and results in decreased innovation and experimentation. Jensen (1986) posits that managers will use the excess resources for their own personal interests, as well as approve options that are far-fetched and destined to fail (Cheng and Kesner, 1997). Some findings seem to indicate that managers in a slack-rich environment neglect the best interests of the firm (Geiger and Cashen, 2002). For instance, management may institute sub-optimal organizational structures since the excess resources (slack) are available to cover the costs of the poor fit between organizational design and the environment in which it is operating (Yasai-Ardekani, 1986; Litschert and Bonham, 1978).

#### *Slack Human Resources*

Many firms have cultures or even formal policies that allow for employees to spend less than 100% of their workdays accomplishing assigned tasks. For some firms, such as 3M, employees are encouraged to pursue their own innovative ideas that may eventually be profitable for the company (Gundling, 2000). This policy has proven effective, establishing 3M as a innovation leader and resulting in products such as Post-It

Notes. Other companies, such as Kone Corporation, retain skilled labor during periods of low demand to ensure they are able to capitalize on boom markets.

*Creation and Defense of Slack Human Resources*

Slack resources can be created by either increasing the amount of the resource or decreasing the demands for that resource. Creating human capital may be accomplished by hiring additional personnel, outsourcing positions, or filling slots with contingency workers (Hitt and Reed, 2000). Outsourcing and the use of contingency workers enable an organization to realize the benefits of a leaner force, such as lower costs and higher efficiency, as well as the increased responsiveness to environmental shifts without the additional fixed costs of full-time employees.

Organizations are constantly monitored by their stakeholders who desire the greatest possible return on investment. Because excess resources directly affect firm financial performance, they will be under scrutiny to provide a solid return for the organization.

A review of the extant literature indicates that human resource slack is a function of the available human resource capacity and the existing requirements for those resources (see Figure 1). Creative capacity then is a function of human resource slack and the motivation level of members of the organization to innovate (see Figure 2).

Figure 1. Human Slack Equation

Human Resource Capacity	-	Existing Requirements	=	Human Resource Slack
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Figure 2. Creative Capacity Equation

$$\begin{array}{l} \text{Human} \\ \text{Resource} \\ \text{Slack} \end{array} \times \text{Motivation} = \text{Creative Capacity}$$

### **Methodology**

Investigating creative capacity and its consequences requires the holistic approach of a case study (Feagin et al, 1991). This research was designed to view the use of creative capacity and the results in a real-life context. Questions were formulated based on current literature on slack resources and innovation. Once it was determined where each organization is implementing creative capacity, further questions were asked to determine the specifics of the creative capacity use, such as organizational design and corporate culture. The multiple case study methodology used in this research gives the necessary flexibility to more adequately uncover the phenomenon in its real-world setting and allows for comparisons between cases.

The analytic strategy of this research was to determine the use of creative capacity in private firms and identify best practices. The best practices provide large organizations with information on how private innovative organizations are succeeding by using creative capacity to adapt and transform to a dynamic environment.

Through the available literature and the opinions of entrepreneurship/innovation experts within the academic community, a list of firms was created. The list was narrowed to firms that would maximize the applicability of the findings to the Department of Defense using the following criteria: (1) the formally expressed desire by

the firm to pursue entrepreneurship and innovation in the firm's processes and production, (2) the number of employees, (3) the number of operating locations, and (4) the age of the firm. These criteria differentiate the firms that would most closely resemble DoD organizations. The specific details are presented in Table 1.

It should be noted that the similarities between these organizations ends at the battlefield, where DoD's mission is to fight and win wars. However, the similarities to the tremendous non-war fighting support apparatus of DoD is relevant to this study.

#### *Firm's Desire to Pursue Entrepreneurship and Innovation*

Firms desiring innovation must be willing to invest time and effort to implement the entrepreneurial mindset. Since this effort focuses on innovative organizations and their use of creative capacity, it was necessary to differentiate between organizations that are actively being innovative and entrepreneurial and those that rely on other business practices. Firm vision statements, and annual reports were examined to determine the desire for innovation.

#### *Number of Employees*

Current literature suggests that a company's size affects its ability to change (Conceicao et al, 2002; Tuggle, 2002; Reilly and DiAngelo, 1984). Because of this, only firms with at least 20,000 employees were included so that the results would be applicable to the DoD.

#### *Number of Operating Locations*

DoD organizations have installations throughout the world, creating problems with cultures, logistics, and operating practices. To gather data credible for comparison

in a DoD context, it was necessary to look at only the firms that have multiple operating locations.

Company Age

New companies have a more intense focus on survival while older firms have a larger interest in the status quo (Hitt and Bartkus, 1997). With this in mind, only firms that have been in business for at least 10 years were used in this effort to ensure that the research findings would be applicable to DoD organizations.

Firm's Position

Using current industry indexes, the positions of the firms were determined to ensure that the study only included those firms that did not experience a negative effect from being more entrepreneurial and innovative.

**Table 1. Firm Selection Criteria**

	<b>Expressed Desire<sub>1</sub></b>	<b>Firm's Industry Position<sub>2</sub></b>	<b>Rate of Innovation<sub>3</sub></b>	<b>Number of Employees<sub>4</sub></b>	<b>Age of Firm (years)<sub>5</sub></b>	<b>Operating Locations<sub>6</sub></b>
<b>3M</b>	McGrath	4	McGrath <sub>f</sub>	71,669	100	60
<b>AT&amp;T</b>	McGrath	3	McGrath	117,800	126	200
<b>Canon</b>	McGrath	190 <sub>a</sub>	McGrath	93,620	66	203 <sub>k</sub>
<b>Dow</b>	Enbar	2	Enbar	52,689	106	170
<b>Duke/Fluor Daniel</b>	McGrath	3 <sub>b</sub>	McGrath	74,000 <sub>g</sub>	14	37
<b>GE Capital</b>	Hamel	1	Hamel	315,000 <sub>h</sub>	111	110
<b>Intel</b>	McGrath	1	McGrath	83,400	35	50
<b>Kone</b>	McGrath	n/a <sub>c</sub>	McGrath	22,949	93	40
<b>Mobile</b>	McGrath	1 <sub>d</sub>	McGrath	97,900 <sub>i</sub>	121	36
<b>NCR</b>	McGrath	8	McGrath	30,445	119	73
<b>Shell</b>	Hamel	8 <sub>e</sub>	Hamel	91,000 <sub>j</sub>	111	60
<b>Xerox</b>	Adams	6	Adams	78,900	97	60

1. Scholar/source who indicated firm's expressed desire to be entrepreneurial (see references for full citation).  
 2. According to Fortune Magazine's Fortune 500 2002 rankings. Industries within which the firms are rated are listed in order

as follows: miscellaneous, telecommunications, (industry not specified), chemicals, energy, diversified financials, semiconductors and other electronic components, escalator, petroleum refining, computers and office equipment, petroleum refining, computers and office equipment.

3. Scholar/source who indicated the firm's rate of innovation to be higher than their peers.

4. Hoover's online ([www.hoovers.com](http://www.hoovers.com)) number of employees for 2001.

5. This figure indicates when the firm was founded except Duke Energy, which is a merger date. The firm was founded in 1924.

6. Noted by the number of countries in which the firm currently operates. These figures are estimates since each of the firms is constantly increasing their number of locations whether as an individual effort or as a joint effort. This information was gathered from the firm's respective websites.

a. This ranking reflects Fortune Magazine's 2002 Global 500. Although Hoover's online noted that Canon U.S.A., Inc. controls over 20% of the U.S. copier market.

b. Ranking applies to Duke Energy although Fluor is ranked number one in the engineering and construction industry.

c. Fortune Magazine does not rank companies within the escalator industry although Kone's official web page claims that the firm is "One of the world's leading escalator companies" ([www.kone.com](http://www.kone.com)).

d. Ranking reflects Exxon Mobil.

e. Royal Dutch/Shell Group's ranking reflects Fortune Magazine's 2002 Global 500.

f. Innovation is so important to 3M that the firm's quest to achieve a high rate of innovation is part of the firm's mission statement ([www.3m.com](http://www.3m.com)).

g. Total reflects a combination of information about Duke Energy found on Fortune Magazine's website and information listed on Fluor's official website.

h. This number reflects employees for the entire GE Company in 2002.

i. Mobil's number of employees reflects the entire Exxon Mobil Corporation.

j. Shell's number of employees reflects the entire Royal Dutch/Shell Group of companies.

k. Reflects firm's number of "Group Companies" according the firm website.

## **Results**

Content analysis and pattern matching of the comparative case studies resulted in findings that support various theories and findings of the previous research.

### **Strategic Adaptation, Flexibility, and Company Performance**

The firms were asked to explain the reasons they have creative capacity and to describe the primary outcome of having that capacity. The firms indicated that the extra resources were intended to enable them to maintain core competencies, capitalize on new opportunities, accelerate work to gain first-mover advantage, prepare for the future, and above all, improve company profitability. These findings seem to indicate that firms are using creative capacity to cope with many of the challenges of a dynamic business environment.

Examples such as 3M's development of Post-It Notes, which was born from an employee's work during personal time, highlight the possible benefits and profitability to organizations. GE prepares for the future with an Audit Staff, made up of experts in finance, information technology, and risk management, which develops future leaders for the firm. Kone on the other hand, staffs and trains elevator installers during boom periods, but "when the bottom falls out of the (cyclical) market, you have all these people with skills that you know you may need in three, four or five years. Therefore, you try to put them into parts of the services business, modernization business, where you can keep them going until you need them" (Kone, 2002). Duke/Flour Daniel refers to human resource capacity awaiting use, such as in a down market, as "bench strength" (Duke/Flour Daniel, 2002). While the purpose of this research effort was to look at excess human resources used to innovate, and not to meet changing market demands, this finding is important to the body of slack research nonetheless. For Xerox, competition has increased greatly, forcing a focus on new technologies and first mover advantages.

In experience, the firms relayed that the creative capacity had fulfilled its desired purpose. Firms pointed to their success in meeting peak demands, making profits

through product and process innovations, and moving quickly to capitalize on opportunities. For example, Kone's "bench strength", or skilled elevator installers that remain with the company even when the cyclical market demand is down, has enabled the firm to work to capacity during boom periods without competing for the necessary skilled labor or investing to train unskilled labor. Another example is Xerox, whose experts in corporate governance provide guidance in negotiation and finance that enable the company to move quickly on mergers and acquisitions, sometimes valued in the billions of dollars, rather than getting bogged down in the contracting and clearance processes for expert consultants. For 3M, the results of creative capacity were simple: "The whole company" (3M, 2002).

#### *The Amount and Allocation*

Many of the firms stated that they were constantly trying to determine the amount of creative capacity to use. Shell Gamechanger went as far as to say that if they knew, they'd keep it a secret so as to gain a competitive advantage. Mobil said, "That is almost impossible to answer. You have an idea...and hopefully you are close" (Mobil, 2002). But the emergent pattern was that the amount of creative capacity was dependent on the industry and business function, the current market condition, the firm's market position, and the competition. Intel posited that the answers depend on "the complexity of the product we are building, the volume of the product we are building, [and] the high capital cost of what we are doing" (Intel, 2002). According to Kone, people in research and development should be dedicated to innovation, but people in their elevator installation units are "probably not spending too much of their time being very innovative at all" (Kone, 2002). Duke/Flour Daniel commented that some of their business units need to be

“very efficient” (Duke/Flour Daniel, 2002). Some firms stated that their markets were driven by price and service advantages, not functional innovations.

Kone and Duke/Flour Daniel contrasted the main pattern concerning the relationship between the amount of creative capacity and the market condition. Most companies were similar to AT&T and Canon USA in that creative capacity diminished during down economies to help make the company “lean and mean” (Canon USA, 2002). “If [personnel] are not assigned to projects, they are overhead, and you have to cover them with dollars, or what drops to the bottom line is less, and you in effect co-balance what you are trying to accomplish” (Duke/Flour Daniel, 2002). Kone and Duke/Flour Daniel both said that during downturn economies, their creative capacity increases because the markets they serve are cyclical, making it impractical and even expensive to lay off workers during the low points. These firms recognize that care must be taken in supporting creative capacity, or their “bench strength”, so as to not cost the company more than the expected benefits.

Some of the strategic leaders indicated that the amount of creative capacity was dependent on the goals of the firm, specifically concerning market position and the competition. For example, 3M has increased its efforts in the laboratory to produce new products because the company’s growth has slowed. Another example, Shell Gamechanger, was born out of a need to regain position as a market leader in innovation as well as differentiate Shell from the largely homogenous petrochemicals market. Canon USA desires to be number one in the camera and semiconductors markets, so has focused energy and resources to develop products through research and development. One firm commented on recent troubles, “We are not in the business as usual mode.

[We] have had [our] share of financial difficulties...so we are constantly challenged to find better ways to do things. Sometimes you have to think of an entirely new way of doing something...when the gap to where you want to be is so big.” Xerox found that it is important to embrace the details of each market to properly pursue a venture. “If you are going to start up a firm in Silicon Valley, you want to set up those firms, the incentives, the structure, to be competitive with Silicon Valley startups. They are going to attract different people. You want to be relevant to the kinds of business they are in” (Xerox, 2002).

Most firms were still trying to determine the best measures of creative capacity. Some firms said they had measures of innovation such as profit from new products, number of patents, and revenue per R&D dollar. For example, 3M has historically set goals such as gaining 40% of sales from new products in 4 years. Canon USA, responsible for US marketing and sales of the products produced in Japan, relies on utilization factors, desiring to be as close to efficient as possible without affecting the work. All of the interviewed firms indicated that the process of determining the amount of creative capacity, like most other firm resources, was constant and rigorous.

Projects may be constantly evaluated, formally and informally, to estimate their future value, with the resources going first to those most promising for organizational profit. “[Managers] may take somebody who is normally assigned to a given product line, and pull them off and do something else because [they] need more done on this other thing” (Intel, 2002). Shell uses stage gates to prioritize and filter projects. “[We] might take 100 ideas to produce one commercial revenue stream. [The eliminated ideas] will generally be excluded because either technically it doesn’t work, economically you

can't get the margins out of this, or it is not a strategic fit" (Shell, 2002). AT&T used the analogy of planting flowers: You don't want weeds, or bad projects, to grow too big, if at all. The organization needs to have the capability to cull the flowers to ensure the most promising receive the resources necessary for them to grow to their full potential. This pattern seems to indicate that the process of measuring creative capacity is difficult and inexact, but still fits well with other resource and project monitoring activities.

#### *The Allocation of Creative Capacity*

There was little consistency in the case study analysis regarding the allocation of creative capacity within the firm, which supports the importance of the contingent nature of the environment in which the firm it operates. Firms with R&D units typically viewed innovation as an R&D task (a full time job) and not as creative capacity. Many strategic leaders implied that some business units don't require as much creative capacity as others. Intel offered that it is necessary to analyze each situation to ensure the application of creative capacity, and entrepreneurship in general, are applicable to the circumstances and situation. Kone's view is that personnel should feel entrepreneurial in their part of the business, "whether it's cleaning the floors in the factory or being in charge of the sales team for the whole country. I have never heard anybody say that that kind of spirit hurts anywhere" (Kone, 2002). Some of these firms have fostered this entrepreneurial spirit through formal or informal structures that encourage innovation in addition to the full time work, such as 3M, Shell Gamechanger, Dow, and Intel. Formal structures include 3M, which features a 15% rule that acts as a "permission slip" for employees to spend that portion of their time on their own ideas and Shell Gamechanger which facilitates and funds innovative ideas from employees, from 5-50% of their time.

Informal structures include Intel, which has a culture that promotes employees to “beg, borrow, and steal” resources below the radar from other programs in pursuit of new ideas as long as the effort doesn’t disrupt current projects, and AT&T which admits that “in any large corporation you could have a ‘skunk works’ develop...to keep [a project] warm” (AT&T, 2002). Other firms, such as Xerox and GE, have excess human resources to guide and expedite efforts, not necessarily innovate. This guidance and expediting comes through policy and goal formation, expert consultation, and additional manpower. Xerox views the personnel in research and development as the innovators, but maintains a group of business experts to expedite acquisitions and GE has a management development program that can be used as a pool of personnel for high priority projects.

*Creation, Defense, and Culture of Creative Capacity*

Many of the interviews uncovered the firm’s culture of innovation. GE stated flatly, “culture is very important” (GE, 2002). Formal or informal, many organizational cultures encourage innovation by all employees, not just those in R&D type units. Dow cautioned that innovation concentrated in R&D may ignore non-technology innovations and the value they create (Dow, 2002). Shell Gamechanger will facilitate an innovative idea, regardless of who it comes from.

Many firms indicated that economic conditions had forced them to cut the fat and become as lean as possible. However, most of the strategic leaders implied that even in thin times, innovation must still occur. A pattern emerged that an organizational understanding of the cost of innovation was necessary to defend creative capacity. Intel feels that “if you aren’t failing, then you aren’t trying hard enough” (Intel, 2002). 3M feels that failures aren’t really failures because you always learn something that will help

the company in the future. Even in the informal innovation, management may look the other way as long as the primary projects are getting done and are on schedule. The emergent pattern was that firms feel that the results speak for themselves, sheltering the entrepreneurial and innovative process from stakeholder scrutiny. Shell Gamechanger said that defending creative capacity was still a struggle since the system has only been in place since 1995, but that the stakeholders were beginning to understand the entrepreneurial mindset (Shell, 2002). Canon USA stated that they were probably under less intense scrutiny because of their success during recent recessions, especially in comparison to their competitors (Canon USA, 2002).

There were many methods of obtaining creative capacity. Many of the firms relayed that additional resources may be hired when the workload outpaces the existing capacity. Some firms, like NCR, hire additional employees when necessary to enable the firm to take on new initiatives. DOW commented that certain activities are always better if they can be contracted out. Canon USA agreed, finding it advantageous to hire an outside firm to produce an online training program for salespeople and maintenance technicians across the country. For Kone, however, the level of training required of elevator installers, the cyclical market, and the business environment of Finland, requires that they retain as many technicians as possible, even during economic downturns. Some firms, like 3M, who have the flexibility to contract out, try instead to never go outside, relying on reprioritization to free the necessary personnel. GE also maintains internal creative capacity in its Audit Staff, which also serves to bolster the firm's entrepreneurial culture. The Audit Staff serves to breed the future leaders of the firm, propagating the mindset necessary for innovation. Kone and Canon USA faced a challenge that appears

unique among the interviewed firms: location. Kone, based in Finland, was forced to compete with fellow Finnish company Nokia for talent. As a result, Kone couldn't get enough good people. Canon USA, located right outside New York City, "really cannot pull as diverse a group of highly trained people as if we were located in Manhattan . . . where you have the railroads and other mass transit" (Canon USA, 2002). These responses again confirm that most decisions of creative capacity depend on many factors, including the nature of the job, the firm's desired culture, and even the firm's operating location.

### *Challenges to Creative Capacity*

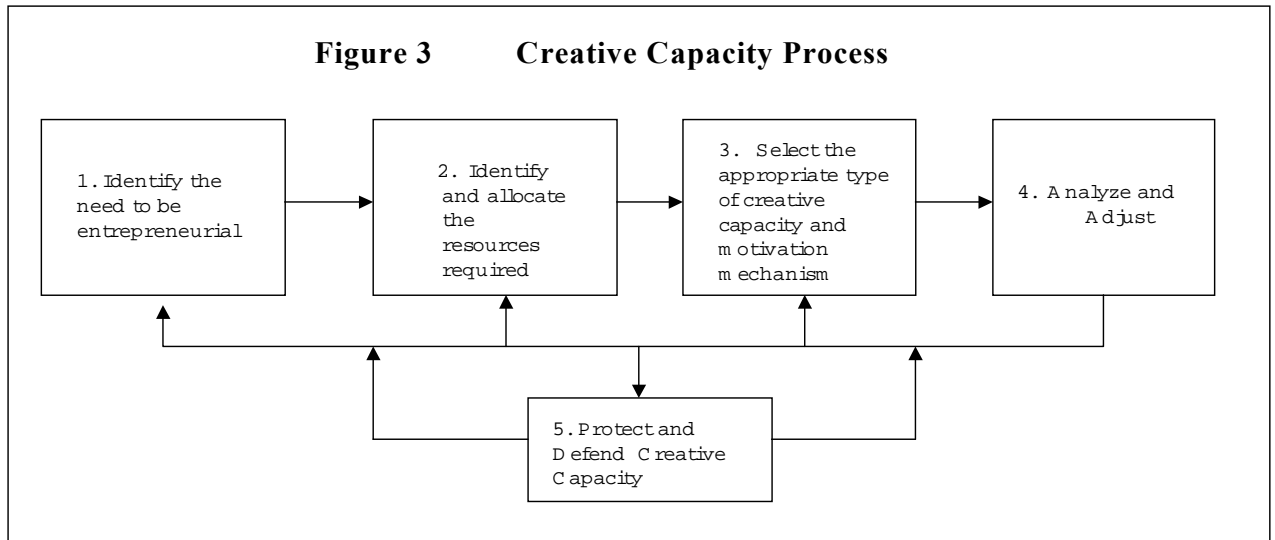
AT&T quickly rattled off the main challenges they have faced to implementing entrepreneurship and creative capacity. "How can you create a process that allows for quick ideas to flourish in an organization that is used to, and depends upon, large, well-defined, maybe slower moving processes? There is a barrier of the general expectation that everything must follow the process" (AT&T, 2002). In addition to the process barriers, AT&T expressed problems with funding. "Where do you get the money for this thing? [I]f the typical way of obtaining money in a corporation for a project is to do a business case, do this, do that, everyone competes for the money, a small, ill-defined, or not as well defined process will always find itself not being able to compete against the bigger projects, so the little tree always gets shaded out by the bigger ones" (AT&T, 2002). Duke/Flour Daniel echoed this barrier: "You have to give [new ideas] a fair chance" (Duke/Flour Daniel, 2002). These barriers are summed up by Xerox, "Eternal cultures can defeat dramatic departures from the norm" (Xerox, 2002).

“Sometimes the barrier is simply ‘We can’t take on anymore risks at the moment’” (Duke/Flour Daniel, 2002). Xerox also talked of risk. “New ventures, spin-offs, can attract external investment. It helps Xerox balance the risk and return” (Xerox, 2002). It is likely that risk management is an inherent part of the reprioritization that many of the firms talked about, companies focusing resources on the projects that are most likely to produce the greatest results.

During the interviews, several firms spoke of challenges to creative capacity and entrepreneurship when operating on a global scale. Several strategic leaders relayed that the economic conditions, the amount of available workforce, and perception of entrepreneurship may be different throughout the world. “It is viewed differently in Europe than it is here, and is viewed differently in Asia than here, and is viewed differently between different sectors and it is viewed differently at different times in the economic cycle” (Shell, 2002). While this problem is significant, it appears similar to other cross-cultural challenges that have been faced by global organizations for years.

#### Conceptual Model Development

Through an analysis of the data, a conceptual model of creative capacity implementation emerged. The model is presented in Figure 3.



The identified process that emerged from the case study analysis and a brief description of each step is presented below.

1. Identify the need to be entrepreneurial
2. Identify the resources necessary to become more entrepreneurial
3. Implement creative capacity
4. Analyze the results of creative capacity use and modify as necessary
5. Defend the use of creative capacity when necessary

*1. Identify a Need to be Entrepreneurial*

Central to the use of creative capacity is a firm's desire to be innovative and entrepreneurial. One of the firms said it best: "entrepreneurship is necessary when "the gap to where you want to be is so big". Firms are using creative capacity to survive in a highly competitive and dynamic business environment. Business as usual is no longer proving to ensure success for many of these firms. Many of the interviewed firms spoke of a situation that forced the company to make drastic changes to the way it approached business.

Business leaders must be willing to abandon old ways of doing business and old thought processes. Organizations need to realize that working harder at existing processes and products may not be the answer. Leadership must embrace and support out-of-the-box thinking, encouraging employees to be entrepreneurial.

## *2. Resources: What Will it Take to Get There?*

The organizations shared the sentiment that people are its greatest resource, noting that they are the source of innovation, and thus, firm profit. Similarly, firms have recognized that employees can be counted on to do the right thing and rally behind the important organizational efforts. Many firms pointed to successes of personnel innovation and the profits which have resulted.

Determining the resources necessary is more of an art than a science. Managers will be forced to work with best guesses and flexible requirements. It is imperative that organizations seeking to be entrepreneurial avoid unnecessary delays trying to obtain perfect information. As Colin Powell said, "today, excessive delays in the name of information-gathering breeds 'analysis paralysis'. Procrastination in the name of reducing risk actually increases risk" (Harari, 2002).

### *3. Go: Implementation of Creative Capacity*

There was no silver bullet identified for the use of creative capacity. However, it became obvious that the firms were succeeding in entrepreneurship and creative capacity use by using good business sense. The firms have had incredible success from the entrepreneurial culture within the organization. Firms have found that the best way to evaluate creative capacity use is to try it.

Organizations must be willing to use the available information, then act on it. As more information becomes available, managers will adjust the course of action accordingly. Through this process of directed discovery, firms will successfully navigate the sea of unknowns and increase profitability.

### *4. Analysis of the Results and Modification of Creative Capacity*

Firms indicated that there is a feedback loop for creative capacity use. Organizations measure creative capacity similar to the way they measure any resource-how it affects bottom line profitability. Firms constantly monitor return on investment in creative capacity and adjust resource allocation to achieve the highest return.

Some efforts will prove extremely profitable, while others may not. By using newly available information and lessons learned, organizations will be able to zero in on the activities that enable them to better achieve their goals.

### *5. Defense of Creative Capacity*

Especially during poor economies, company stakeholders look for ways to cut costs and increase profits. Many of the firms stated that they were being forced to become lean and mean, but it seemed that the leanness included necessary creative capacity. This is likely the result of each firm's history and success in innovation and

may not be the case in a firm implementing creative capacity for the first time. In the end, the firms commented that the best they could do was point to the value the creative capacity had added to the firm in the past. In addition to this, most of the interviewed firms had utilized creative capacity for long enough that the culture allowed and encouraged it, so no defense of creative capacity itself was necessary.

Initially, management must adopt a mindset that creative capacity is necessary for successful business operations. While it may be dangerous for the mindset to become “defend creative capacity at all costs,” the experiences of the interviewed firms show that creative capacity creates value for the company, even in poor economic conditions.

### **Creative Capacity and the Department of Defense**

Department of Defense organizations might benefit from the use of creative capacity in several ways. Some DoD organizations, such as those devoted to research and development, already have creative capacity in areas such as research laboratories. However, other organizations have been manned for efficient operations, leaving no time for personnel to innovate.

A good first step for many DoD organizations and leaders may be to reprioritize on a greater scale. The human resource slack equation depicted in figure 1 can be effected in two ways: increase human resource capacity or decrease existing requirements. If leadership and management within DoD organizations are given the authority and flexibility to decide what tasks are most important and what tasks can be delayed or even eliminated, human resource slack may be created. The adage of “do

more with less” is finding less and less support, and in light of the views of the data gathered for this effort, the strategic leaders agree.

The model allows DoD organizations to follow a process of identifying the need to be entrepreneurial, and the subsequent steps toward identifying creative capacity. From there, leadership can determine the next steps in implementing creative capacity within those organizations that present the biggest “gap” between current operations and needed operations, and promise the biggest possible gains.

In support functions, such as contracting and acquisition, the current push by Defense leadership is to improve processes. It would probably be too costly to grant personnel within these functions personal freedom creative capacity, or a segment of their time to pursue innovation. However, DoD leadership may determine that the results of this type of creative capacity are not sufficient to close the gap. If this is the case, a different type of creative capacity may be necessary, such as that granted by Shell’s Gamechanger. This creative capacity, enabled by motivation, may begin as that of time or people efficient where personnel start innovations on their own time but then submit it to a facilitating process. If DoD organizations already have a facilitating process in place but are not cultivating innovative ideas, the problem may lie in the motivation of employees.

### **Limitations**

This research effort was designed to cull the best practices of creative capacity use by innovative firms. Therefore, the firms interviewed were all successful in implementing the entrepreneurial mindset and utilizing creative capacity. Future

research may need to observe firms that have attempted to become entrepreneurial through creative capacity implementation and failed.

A second limitation of this research was the limited number of interviews within each firm. To achieve a more complete view of each firm's culture, it will be necessary to interview personnel from different levels of the firm. In this study, the strategic leadership conveyed optimism and success, but it may be possible that leaders in other departments, such as finance, view creative capacity differently.

This research effort appears to have been influenced by the current economic conditions. Many of the strategic leaders commented on the economy and implied that it was forcing the firm to change operations. While the data appears to show that the firms understand that creative capacity may be even more important during these times, it may be that firms are actually cutting excess resources more drastically than was expressed.

Finally, we attempted to study large private firms with similar characteristics to large government organizations. While we feel that the similarities between the organizations provide a good starting point for analysis of the process for implementing creative capacity, given the contingent nature of the process, one should also take into account the differences that exist between the organizations studied and the target government organizations such as DoD.

### **Recommendations for Future Study**

Motivation was found to be the biggest and most necessary element of creative capacity. Research should be done to determine where motivation exists to an extent that personnel are willing to spend personal time to pursue innovation. From that effort, it is

likely that more studies will be necessary to determine DoD actions to ensure that motivation exists where it is needed.

Another promising topic for further research is an effort to determine best practices. Once DoD has determined where increased innovation is necessary, efforts should be conducted to look at how successfully entrepreneurial firms have overcome similar problems in similar fields.

Perhaps the most necessary future research for creative capacity implementation within the DoD is trial and error. The firms that participated in this effort continually stated that they identified what needed to be done, then worked to get there utilizing the necessary creative capacity. Through constant monitoring, the use and amount of creative capacity was adjusted to better meet the objectives. DoD will also need to depart on the path of directed discovery, implementing creative capacity where it appears to be most beneficial, then adjusting as further information becomes available.

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Lt Col Reed is currently assigned to Headquarters Air Force at the Pentagon. His primary responsibility is to develop and implement processes that leverage the Air Force's multi-billion dollar purchasing power while improving customer support. He is the team lead for identifying, organizing, training, and advising all Air Force-level commodity councils. He is the Air Staff focal point for Information Technology, Force Protection, Medical Service, and PSCM commodity councils. He works closely with the Air Force Office of Small Business Advocacy to ensure small business concerns are addressed in commodity council strategy, and that an enterprise-wide small business strategy is in place for each commodity group. He is also responsible for identifying new commodity council opportunities, identifying centers of excellence to host the commodity councils, and working the staffing issues to ensure the human resources are in place for the commodity council organization.

He has published in the Journal of Public Procurement, Management Communication Quarterly, Air Force Journal of Logistics, Journal of International Business Studies, and others. He has authored or co-authored 3 book chapters, and 5 national symposia. He has presented papers at 16 national and international conferences, including Strategic Management Society, Academy of Management, and International Public Procurement conferences.

Lt Col Reed has developed and taught 10 different undergraduate and graduate level courses on acquisition, management, and entrepreneurship at the University of Dayton, American University (Washington DC), and the Air Force Institute of Technology. He has served as the primary advisor for 27 graduate students on their theses research, which involved in-depth research in acquisition, contracting and entrepreneurial thinking in a wide variety of areas.

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