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**INCORPORATING ORGANIZATIONAL CULTURE INTO A DECISION  
FRAMEWORK FOR IDENTIFYING AND SELECTING KNOWLEDGE  
MANAGEMENT PROJECTS**

THESIS

Jeffrey A. Phillips, 1<sup>st</sup> Lieutenant, USAF

AFIT/GIR/ENV/03-13

**DEPARTMENT OF THE AIR FORCE  
AIR UNIVERSITY**

**AIR FORCE INSTITUTE OF TECHNOLOGY**

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**Wright-Patterson Air Force Base, Ohio**

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AFIT/GIR/ENV/03-13

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FRAMEWORK FOR IDENTIFYING AND SELECTING KNOWLEDGE  
MANAGEMENT PROJECTS**

THESIS

Presented to the Faculty  
Department of Systems and Engineering Management  
Graduate School of Engineering and Management  
Air Force Institute of Technology  
Air University  
Air Education and Training Command  
In Partial Fulfillment of the Requirements for the  
Degree of Master of Science in Information Resource Management

Jeffrey A. Phillips  
1<sup>st</sup> Lieutenant, USAF

March 2003

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Jeffrey A. Phillips, BS  
1<sup>st</sup> Lieutenant, USAF

Approved:

\_\_\_\_\_  
//SIGNED//  
Alan R. Heminger, PhD (Advisor)  
Associate Professor, Information Resource Management  
Department of Systems and Engineering Management

05 Mar 03

Date

\_\_\_\_\_  
//SIGNED//  
Summer Bartczak, Lt Col, USAF (Reader)  
Department of Systems and Engineering Management

05 Mar 03

Date

\_\_\_\_\_  
//SIGNED//  
Bradley Ayres, Lt Col, USAF (Reader)  
Department of Systems and Engineering Management

05 Mar 03

Date

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Jeff Phillips

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Abstract

Knowledge management is an emerging business practice throughout commercial industry and is becoming more recognized as a valuable concept in the Department of Defense and the Federal government. In March 2001, Captain William Bower completed a research effort that proposed a framework model for guiding the identification and selection of knowledge management initiatives within the Air Force. The members of the Delphi committee that participated in the original research to develop the decision framework recommended that organizational culture be more emphasized. Therefore, this research effort evaluated the decision framework proposed by Captain Bower and adapted the framework by including organizational culture. To incorporate organizational culture into the framework, this research identified cultural factors that can be assessed to determine whether or not a given organizational culture is ready to implement knowledge management initiatives. An additional step was then added to the original decision framework; this step is focused on determining whether or not an organizations culture is knowledge friendly.

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MANAGEMENT PROJECTS

**I. INTRODUCTION**

**Overview**

Knowledge management (KM), a field of study also known as knowledge sharing or knowledge transfer, is an emerging business practice in corporations around the world (McCampbell, Clare, & Gitters, 1999). The study of knowledge management evolved from the need for companies to manage knowledge resources more effectively in a highly competitive and global economy. Successful companies are those that have consistently created new knowledge, disseminated it widely throughout the organization, and quickly embodied it in new technologies and products (McCampbell et al, 1999).

As knowledge management is proving to be a useful business concept throughout commercial industry, it is becoming more recognized as a valuable concept in the Department of Defense (DoD) and the federal government.

“Army Knowledge Management will allow the Army to leverage its knowledge as an enterprise.”

Lt Col Jane F. Maliszewski  
Director of Strategic Outreach  
Army Chief Information Office

The Army now requires every soldier, reservist, and civilian to have an Army Knowledge Online (AKO) account (Grant, 2001). The following is the AKO vision:

To transform the institutional Army into an information age networked organization that leverages its intellectual capital to better organize, train, equip, and maintain a strategic land combat force.

Army Knowledge Online is a web-based tool being used by the Army to

implement their knowledge management initiatives. AKO is a portal that can be used to tailor information to specific groups of Army individuals; it resides on both the classified and unclassified networks, so the presentation of secure information is not an issue. The portal will enable users to build online communities, view messages from senior leaders, and obtain information to make effective decisions. The AKO project began in the mid 1990's and has grown into a tool that supports every member of the Army. Figure 1 illustrates how the Army has used AKO to institute the concept of knowledge management across the entire Army organization.

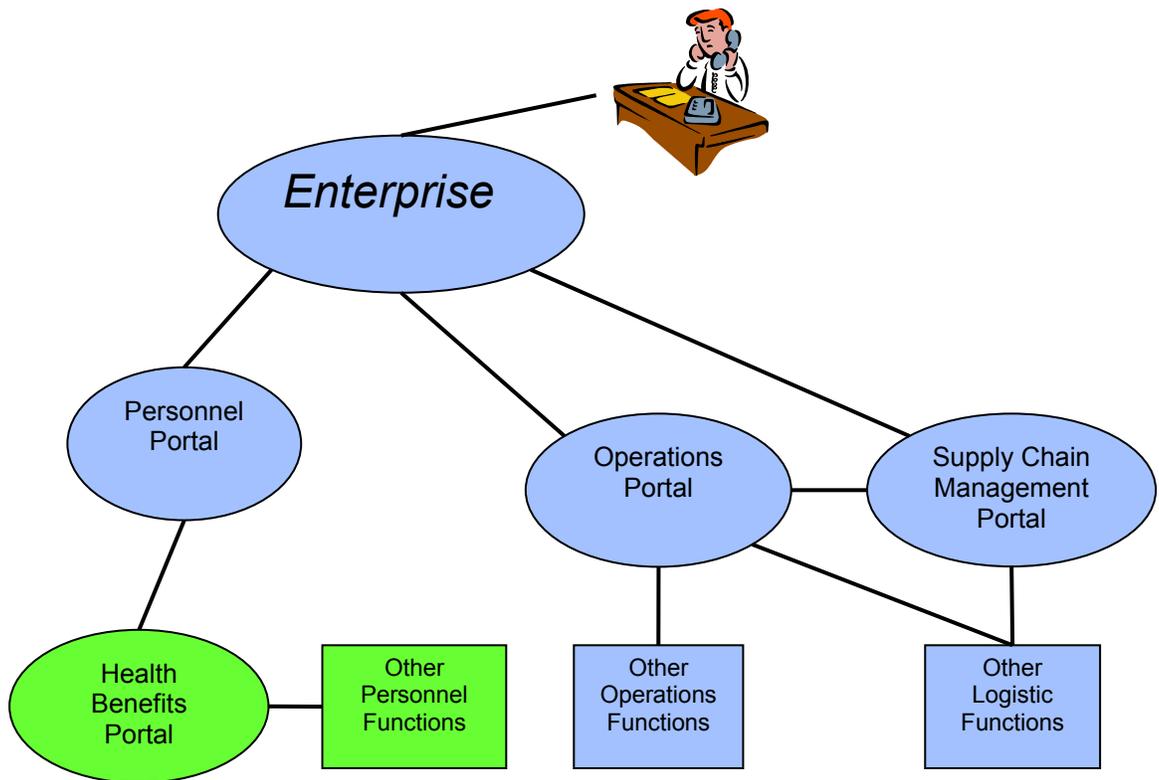


Figure 1: Army Knowledge Online Enterprise Model (AKO Executive Brief)

The Department of the Navy (DON) has included knowledge management initiatives in the DON Information Management/Information Technology strategic plan for several years. The DON uses the following as their definition of knowledge management:

KM is a process for optimizing the effective application of intellectual capital to achieve organizational objectives (DON IM/IT Strategic Plan 2001).

The Department of the Navy was concerned with the potential return on investment from their KM initiatives, and in August of 2001 the Navy's Chief Information Officer led an effort to develop metrics to evaluate those initiatives (DON IM/IT Strategic Plan 2001). The contention was that the progress of KM projects should be continually measured in order to allow managers the insight to be able to adapt their organizations. Understanding the contribution knowledge assets make to performance will help an organization ensure that knowledge is used to support and stimulate innovation, sustain learning, improve performance, and enhance customer value (Duffy, July 2000). The result of the DON effort to develop metrics was a 73 page document titled *Metrics Guide for Knowledge Management Initiatives*. This guide is now used as a means of measuring the contribution of KM initiatives for the Department of the Navy.

These examples from the Army and the Navy merely demonstrate the important role that knowledge management is beginning to play in the DoD. The Air Force is also making efforts to incorporate knowledge management into its standard business practices. In March 2001, Captain William Bower completed a research effort that proposed a decision framework for guiding the identification and selection of knowledge

management initiatives within the Air Force. Several KM experts that participated in the research recommended incorporating organizational culture into the decision framework.

As with any business initiative, there are critical success factors that contribute to a successful implementation; the same is the case with knowledge management.

Organizational culture has been recognized as a critical success factor for knowledge management initiatives. In the traditional business world, knowledge has been viewed as power. In general, those who have had the knowledge have also had the power. The main premise of knowledge management is the sharing of knowledge. “Perhaps the most significant hurdle to effective knowledge management is organizational culture. Shaping culture is central in a firm’s ability to manage its knowledge more effectively” (Gold, Malhotra, & Segars., 2001). Since this is a major transformation from the “traditional” way of doing business, a change has to take place within the culture of organizations looking to implement knowledge management. Traditionally, employees have had a tendency to hoard knowledge and have demonstrated an unwillingness to share their experiences as a means of preserving their job and importance to the organization. This mindset needs to change in order for knowledge management to be successful. Knowledge management, when properly understood and implemented within an organization, spans people, technologies, and processes across the entire extended enterprise. It becomes a way of life and is ingrained in the way of doing business (Duffy, 2000). Having an organizational culture that is knowledge friendly or conducive to the implementation of knowledge management initiatives is a critical success factor in implementing those initiatives.

## Problem Statement

The decision framework created by Captain Bower is based on a six-step process displayed in Table 1 below. The process was developed for use by managers during the identification and development of knowledge management initiatives and projects. The model is focused on identifying the factors, which can positively affect the successful implementation of knowledge management related projects (Bower, 2001).

**Table 1: Existing 6-Step KM Project Selection Decision Process Framework (Bower, 2001)**

| <b>6-STEP KM PROJECT SELECTION DECISION PROCESS FRAMEWORK</b> |   |
|---|---|
| 1.  | Analyze Corporate Strategic Objectives Using SWOT (Strengths, Weaknesses, Opportunities, Threats) Methodology                     |
| 2.  | Identify & Analyze Potential Knowledge Management Opportunities   |
| 3.  | Identify & Address Potential Knowledge Management Projects  |
| 4.  | Identify & Address Knowledge Management Project Variables Affecting Project Implementation & Success                              |
| 5.  | Identify & Address Success Factors For Project Variables Affecting the Successful Implementation of Knowledge Management Projects |
| 6.  | Finalize Knowledge Management Project Selection   |

Each step of the decision process presents key factors affecting the decision for that step. Based on the decision made at each step, organizations will either continue through the decision framework until KM project selection is finalized, or pursue alternate strategies other than KM initiatives. The initial decision framework was evaluated by a Delphi group. Several of the Delphi members recommended that the model should incorporate organizational culture into the decision-making process. This research effort identified attributes that can be used to assess organizational culture and

determine whether or not the culture is knowledge friendly. Incorporating organizational culture into the decision framework for identifying and selecting knowledge management projects should enhance the decision-making ability of the managers and planners using the model. A thorough review of the initial model will be presented in Chapter 2.

### **Research Questions**

1. Does each cultural factor identified, during this research, contribute positively or negatively to having a knowledge friendly culture?
2. What cultural factors, of those identified, should be used to assess organizational culture during the identification and selection of knowledge management projects?

### **Scope**

This research effort amends a previously accepted framework for identifying and selecting knowledge management initiatives; the proposed changes are based on recommendations from the Delphi group used to assess the initial model. The current research will focus on incorporating organizational culture into the existing decision framework for identifying and selecting knowledge management initiatives and projects within the Air Force. Incorporating organizational culture into an established framework should improve the ability of managers and planners to identify opportunities to exploit knowledge initiatives to the benefit of their organization. The scope of this research will include the analysis of existing knowledge management practices in the DoD and commercial industry as well as a review of current organizational culture theory. This

research effort will also attempt to identify cultural attributes that can be used to assess an organizational culture and determine whether or not it is knowledge friendly.

### **Research Approach**

This research effort uses a methodology that includes modifying an existing decision framework used for identifying and selecting knowledge management projects. The modifications to the framework are based on a literature review in the areas of knowledge, knowledge management, knowledge management in practice and organizational culture.

### **Advantage to the Air Force**

The modified decision framework provides the Air Force with an improved model for planning and selecting knowledge management initiatives. The model provides a means for Air Force organizations to assess organizational culture in regards to being considered knowledge friendly.

## **II. LITERATURE REVIEW**

### **Introduction**

This research effort focuses on identifying factors to assess the organizational culture of an organization and determine whether or not it is conducive to implementing knowledge management initiatives. The cultural factors that are identified through the literature will be evaluated by a Delphi group and shaped into a model that can be incorporated into the existing decision framework for identifying and selecting knowledge management projects. The success or failures of implementing knowledge management initiatives can hinge on the organization having a suitable culture; the culture should be conducive to KM practices (Shaw and Tuggle, 2003). This literature review provides an overview of current literature in the areas of knowledge, knowledge management, and organizational culture.

### **Defining Knowledge**

“It is widely claimed by a number of business and academic gurus that in order for organizations to have a lasting competitive advantage, they will have to be knowledge driven” (Holsapple & Joshi, 2002:47). Knowledge, as defined by the Merriam-Webster Dictionary, “is the fact or condition of knowing something with familiarity gained through experience or association” (Merriam-Webster, 2002). Knowledge has numerous meanings in addition to the dictionary definition: “succinctly, knowledge is information in the aware mind of a person” (Heminger, 2002). Knowledge depends on information, but it is information that has been enriched and developed into concepts that aid the

decision-making process. Knowledge is difficult to create and replicate. An individual uses certain skills and experiences, which are often in short supply, to transform information into knowledge (Duffy, 2000).

### **Knowledge vs. Information**

Knowledge could be considered information in conjunction with experience, context, interpretation, and reflection (Davenport, DeLong, & Beers, 1998). It is critical to carefully differentiate between knowledge and information when implementing knowledge management initiatives. Some researchers believe that there is a natural progression from data to information to knowledge. De Long and Fahey define data as raw or unabridged descriptions, information, or patterns that individuals find in data and knowledge as the product of human reflection and experience (De Long & Fahey, 2000). There are an abundance of information management tools available that provide a solution to almost any information-related problem; however, information and knowledge cannot be treated as the same entity, as they are drastically different (McCampbell et al., 1999). Information is a resource that can be bought or generated in mass quantities. Information is easy to duplicate and pass along to another individual or group and can be very useful in the correct situation. This delineation between knowledge and information can critically impact an organization's bottom line. Failure to differentiate between knowledge and information has caused managers to sink billions of dollars into information technology ventures that have produced results that are seemingly meaningless. Managers need to realize that, unlike information, knowledge is embedded in people, it is part of the way they are. Knowledge creation and sharing occurs in the

process of social interaction. An organizational culture that fosters this social interaction contributes to the successful implementation of KM initiatives (McC Campbell et al., 1999).

### **Types of Knowledge**

Once knowledge and information have been differentiated, knowledge can be divided into two types. Knowledge can be either explicit or tacit. Explicit knowledge is clear-cut, easy to document and pass on, and leaves little vagueness or ambiguity (Horak, 2001). The real challenge is converting tacit knowledge into explicit knowledge so that it can be passed on. “Information becomes tacit knowledge when it is processed in the mind of an individual. Knowledge becomes explicit when it is communicated or articulated to others in an appropriate format” (Ruppel & Harrington, 2001:37). Tacit knowledge is acquired through experiences and is difficult to express with words or speech. Estimates show that between 50 and 90 percent of knowledge in an organization is tacit (Horak, 2001). Based on these definitions, explicit knowledge is more easily obtained and transferred than tacit knowledge. Therefore, tacit knowledge is more of a challenge to manage than explicit knowledge. Knowledge management is a concept that developed out of the realization that both types of knowledge are valuable. Like any valuable company resource, knowledge needs to be managed.

### **Defining Knowledge Management**

Because KM is a new and evolving concept, there is no one clear and concise definition for what knowledge management is. Knowledge management is defined by the Air Force as the practice of providing timely and accurate access to both explicit and

tacit knowledge (USAF Information Strategy, 2002). Although not comprehensive or exceedingly descriptive, this definition is a starting point for developing a thorough understanding of knowledge management. The study of knowledge management evolved from the need for companies to manage resources more effectively in the increasingly competitive and worldwide economy. Successful companies are those that have consistently created new knowledge, disseminated it widely, and quickly incorporated it into new technologies and products. Creating new knowledge, ensuring wide dissemination throughout the organization, and embodying the gathered knowledge in new ventures will aid organizations in the quest to obtain a competitive advantage (McC Campbell et al., 1999).

### **Drivers for Knowledge Management**

The bottom line is that companies are moving towards implementing knowledge management practices in order to enhance the reputation of their organization to appeal to consumers and investors and ultimately increase profits. Companies are implementing knowledge management to meet the challenge of a variety of market forces. Some of the forces driving the implementation of knowledge management are the globalization of businesses and the realization of the value of human capital.

Globalization has created the need for organizations to ensure subsidiaries and divisions have the ability to share their knowledge bases across large geographical gaps. Knowledge management can prevent international companies from experiencing common inefficiencies such as duplication of effort, lack of standardization, and difficulty with dissemination. Realizing the value of human capital is a less tangible, but

equally important, factor in the implementation of knowledge management; human capital refers to the knowledge contained within individual employees (Kanter, 1999). An example of an organizational investment in human capital would be reimbursing employees for educational expenses. In return, the company expects to receive benefits on human capital investments in the form of improved employee loyalty, knowledge, skills, and innovative capability (Prusak, 2001). The awareness of the value added to organizations through investments in human capital has led organizations to examine the benefits of investing in and harnessing the knowledge of a corporation as a whole.

Successful implementation of knowledge management can provide firms with a competitive advantage (Earl, 1999; Kanter, 1999). In order for knowledge management to be successfully implemented, the organization must provide the following: an accepting organizational culture, applicable technology in the form of knowledge management information systems, supporting upper management, and sustained use of corporate resources. These provisions show that knowledge management may require organizations to change fundamental operational norms (Davis, 1998).

### **Knowledge Management in the DoD and Air Force**

The Department of Defense, like any other organization, can use knowledge management to capture knowledge and use it to improve business processes (OASD/C3I, 2000). A report from the Directorate of e-Business & Knowledge Management identified two major DoD business initiatives that can benefit from KM. First, KM initiatives can work in conjunction with provisions outlined in the Clinger-Cohen Act to enhance the performance of “people, processes, and technology” in the DoD. Knowledge

management can also help the DoD realize successful and wide-ranging e-business opportunities (OASD/C3I, 2000). The Air Force is working towards realizing the benefits of implementing KM as recognized by other services in the DoD. Captain Bower's decision framework was one step toward the USAF realizing these benefits.

### **An Existing Decision Framework for KM Implementation**

Captain Bower's original research resulted in a decision framework used to guide the identification and selection of knowledge management projects. The framework is geared toward implementing KM in Air Force organizations. The existing framework is a six-step decision process that begins with an analysis of an organization's strategic objectives using Strengths, Weaknesses, Opportunities, and Threats (SWOT) methodology. If it is determined in step 1 that KM can provide a strategic advantage, the decision framework proceeds to step 2 where potential KM opportunities and limitations are identified. At the conclusion of step 2, the organization decides whether or not to pursue knowledge management opportunities. Step 3 identifies potential KM projects, then step 4 identifies variables associated with each identified project. In step 5, success factors associated with each variable are identified and step 6 is a finalization of the project selection (Bower, 2001).

The original research and development of the decision framework did not consider how cultural factors of an organization would affect the implementation of knowledge management initiatives. Several Delphi group members that assessed the original framework proposed a greater focus on organizational culture aspects of knowledge management. Recommendations for future research were to incorporate

cultural factors into the existing framework (Bower, 2001). This research effort attempts to do so.

### **Organizational Culture and Knowledge Management**

The concept of organizational culture dates back to early sociological studies of the 1940's and 1950's. However, the study of organizational culture from a business perspective has become more prominent recently (O'Reilly, Chatman, & Caldwell, 1991). Organizational culture is a shared set of beliefs among members of a group that establish acceptable behavior by individuals within the group. New members of the group absorb the values through organizational policies, procedures, stories and ceremonies (Lawson & Ventriss, 1992).

*Culture is a pattern of basic assumptions—invented, discovered, or developed by a given group as it learns to cope with the problems of external adaptation and internal integration—that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems (Schein, 1985).*

The nature of an organization's culture can significantly influence the level of the organization's performance and the success or failure of initiatives and business ventures in the organization, including the implementation of knowledge management practices.

“Building a successful culture takes time, attempting it will be worth your while, ignoring it will be fatal” (Joyner, 2001).

## **Assessing Organizational Culture**

Cultural awareness is important in order to facilitate changes in the behavior of members of the organization. This awareness can be achieved through a systematic study of the culture (Lawson & Ventriss, 1992). Cultures can be categorized as strong or weak. The more members of the organization that share common values, the stronger the culture will be. A stronger culture will exact more influence on the behavior of individuals and groups (Gibson, Ivancevich, Donnelly, & Konopaske, 2003).

*Culture is a very strong factor in organizational life – difficult to define, but extremely important to consider. How deeply entrenched a culture is, and the number, complexity, and visibility of subcultures that underpin the enterprise's operation, will influence the length of time it will take, as well as the number and type of resources required, to effect the change (Duffy, 2000).*

There is on-going controversy among researchers about the qualitative and quantitative assessment of cultures. To assess an organization's culture, it is important to identify a range of factors that can be used to characterize the culture. It can be said that a certain type of culture exists if there is consensus among employees that certain cultural factors are present (O'Reilly, et al., 1991). O'Reilly and others developed a cultural assessment tool called the Organizational Culture Profile (OCP).

### **Organizational Culture Profile Assessment Tool**

The tool was created to evaluate person-culture fit, but measures the extent to which certain cultural factors characterize an organization. In developing the OCP, the researchers identified elements and underlying values of organizations that could be used to define organizational culture. To determine the culture of a particular organization,

one must assess consensus among members of the organization as to the intensity and presence of certain cultural factors. If there is concurrence among members of the organization in regards to those factors, a definable organizational culture may exist. The outcome of developing the OCP was an organizational culture profile item set consisting of 54 factors that can be used to define an organization's culture (O'Reilly, et al., 1991). Some of these 54 factors were present in knowledge management literature and may contribute to assessing organizational culture from a KM perspective.

### **Addressing Cultural Barriers to KM**

Sometimes it is necessary to break down existing cultural barriers before attempting to implement knowledge management initiatives. "Creating a culture that encourages knowledge sharing across old boundaries is a major challenge that requires dedicated resources" (Lamb, Nicholas, & Reddish, 2001:269). The accepted behaviors of both individuals and groups, by members of the organization, are critical to developing and leveraging knowledge. Management intervention is often required to help shape those accepted behaviors (De Long & Fahey, 2000). The following are some of the managerial actions suggested by De Long & Fahey to aid in breaking down cultural barriers:

- Explore how the culture's priorities are likely to support or undermine the effective creation and sharing of knowledge
- Evaluate how the current culture will facilitate or undermine the redistribution of knowledge

- Consider how your KM strategy intends to change attitudes about the ownership of knowledge
- Identify behaviors that demonstrate knowledge-building activities critical to the organization
- Identify new behaviors that leaders must exhibit to demonstrate a cultural transformation to valuing collective knowledge
- Clarify which existing norms and practices may be barriers to desired behaviors
- Clearly state what practices need to change in order to reinforce collaborative knowledge use

Dutch Holland, Chairman and CEO of a Texas-based KM consulting firm, suggests 10 ways to entrench knowledge management into organizational culture. He claims that when “systematically and consistently” applied, a KM oriented culture will emerge in an organization. The following are the 10 steps, identified by Holland, which will aid in building the foundation for a KM centric culture (Holland, 1999):

- Reward knowledge-sharing behaviors
- Define and communicate knowledge performance
- Consider formal agreements on knowledge performance for key positions
- Make knowledge performance company policy
- Have managers systematically enforce and reinforce knowledge performance

- Identify key knowledge performance positions
- Incentivize key knowledge management actions
- Explicitly manage knowledge performance for each and every employee
- Publicly recognize good knowledge performance
- Take action on poor knowledge performance

An organizational culture that supports knowledge sharing can lead to more effective use of knowledge management (Ruppel & Harrington, 2001). Organizational culture has even been identified as a critical success factor to implementing knowledge management; some experts suggest that culture is the most difficult success factor to build, if it does not already exist (Ruppel & Harrington, 2001).

### **Organizational Change and Knowledge Management**

There are conflicting viewpoints among researchers on whether or not organizations should attempt a cultural transformation in order to successfully implement knowledge management. Horak argues that through a phased approach it is possible to develop a culture that is conducive to the success of knowledge management systems (Horak, 2001). The phased approach, proposed by Horak, to adapting an organization's culture is an eight-step process that includes assessment of the current organization, strategic planning for KM in the organization, creating the new organizational infrastructure, designing KM systems, training members of the organization, team building, implementation, and evaluation. In the development of the phased approach to transforming culture, there were ten human factors identified that affect the implementation of knowledge management initiatives; they are: leadership, culture

change, an attitude of we're different, fear, knowledge and skills, organizational integration, capture of tacit knowledge, ease of use, stakeholder involvement, and realization of benefits (Horak, 2001). Some of these human factors were identified in other KM literature and may contribute to this research effort.

Edgar Schein, an expert in organizational culture and change management, argues that culture should not be another item on the KM checklist (Schein, 2000). Each different organization will have a different culture, and there is no one defined cultural norm that will guarantee the success of KM projects. Cultures also change as organizations mature, and it may be necessary to consider using different business practices as these changes occur (Schein, 2000). Schein claims that being engrossed with culture may detract from the real reason a company is attempting to use knowledge management. It is more important for a company to focus on the business problem they are trying to solve with KM vs. focusing on a cultural transformation (Schein, 2000). It is important to note that Schein's view of culture in regards to KM is not shared by many knowledge management experts. Those involved with implementing KM in the workplace feel that culture is an issue that needs to be considered and that can significantly impact the success or failure of KM initiatives (Rupple & Harrington, 2001, Shaw & Tuggle, 2003, Joyner, 2001).

### **Organizational Culture and Implementing KM**

Regardless of whether or not organizations should attempt to change their current culture, experts do agree that culture does need to be considered and contributes to the

success or failure of KM initiatives (Harper & Utley, 2001; De Long & Fahey, 2000; Ruppel & Harrington, 2001).

#### *Shaw and Tuggle Cultural Assessment Model*

“The success of KM is predicated on organizations possessing a suitable corporate culture” (Shaw & Tuggle, 2003). Shaw and Tuggle created a model to determine whether or not a culture is ready for the implementation of knowledge management. The model consists of 13 different variables that contribute to the corporate culture (Shaw & Tuggle, 2003). Shaw and Tuggle used this model to evaluate four organizations that were attempting to institute knowledge management practices. They used their model and the 13 cultural factors to explain why two organizations succeeded and why the other two failed in their knowledge management endeavors. Those organizations that succeeded fostered a culture in line with the cultural attributes identified in the model. The organizations that failed demonstrated little appreciation for culture as a success factor in their new business practice (Shaw & Tuggle, 2003).

#### **Identifying KM Relevant Cultural Factors**

The remainder of this literature review will focus on identifying factors that can be used to assess organizational culture in order to determine whether or not the culture is favorable in regards to implementing knowledge management. The factors were identified through knowledge management and organizational culture literature. The O’Reilly et al., 1991 and Shaw and Tuggle, 2003 were the primary references for identifying cultural factors. Many of the factors identified in these journal articles

overlapped, and some additional references were used. Table 2 is a breakdown of the references used to identify the cultural factors for this research. The table is followed by a discussion of each cultural factor identified during this research effort.

**Table 2: Breakdown of References Used to Identify Cultural Factors**

|   | <b>O'Reilly et al.,<br/>1991</b> | <b>Shaw &amp; Tuggle,<br/>2003</b> | <b>Other Reference</b>  |
|---|----------------------------------|------------------------------------|---|
| <b>Communication</b>                        | X                                | X                                  | Holland, 1999<br>Thomas, et al., 2001   |
| <b>Team Orientation</b>                     | X                                | X                                  | Duffy, 2000   |
| <b>Trust</b>                                |                                  | X                                  | Thomas, et al., 2001<br>DeLong & Fahey, 2000  |
| <b>Conflict</b>                             | X                                |                                    | DeLong & Fahey, 2000<br>Davenport, et al., 1998   |
| <b>Rewards and Recognition</b>              | X                                | X                                  | Knapp & Yu, 1999<br>Holland, 1999   |
| <b>Motivation</b>                           | X                                |                                    | Holland, 1999<br>Aragon, 1993<br>Thomas, et al., 2001<br>Davenport, et al., 1998                    |
| <b>Participation</b>                        |                                  |                                    | DeLong & Fahey, 2000<br>De Tienne & Jackson, 2001<br>Miller, 1988                                   |
| <b>Leadership Support</b>                   |                                  |                                    | Gold, et al., 2001<br>McC Campbell, et al., 1999<br>Kanter, 1999<br>Bonner, 2000<br>Pemberton, 1997 |
| <b>Learning</b>                             |                                  |                                    | Davenport, et al., 1998<br>Thomas, et al., 2001   |
| <b>Innovation</b>                           | X                                | X                                  | McC Campbell, et al., 1999  |
| <b>Adaptability</b>                         | X                                | X                                  | Wilson, 2000  |
| <b>Tolerance for Risk</b>                   | X                                | X                                  | Holsapple & Joshi, 2002   |
| <b>Existing Strong and Positive Culture</b> |                                  | X                                  | Gibson et al., 2003<br>Aragon, 1993   |

Identification of these cultural factors will not prescribe a methodology for adapting a knowledge friendly culture. The objective of identifying the cultural variables is to make managers aware that they exist and should be considered when making decisions about whether or not to implement knowledge management. Identifying these cultural factors is similar to the work accomplished by Shaw and Tuggle. However, the factors that are identified will be evaluated from a DoD perspective, shaped into a model, and incorporated into the existing decision framework for identifying and selecting knowledge management projects.

### *Communication*

Communication is a process by which information is exchanged between individuals through a common system of symbols, signs, or behavior (Merriam Webster on-line, 2002). The role of communication in the success of knowledge management is two-fold. Initially, managers and senior leadership must communicate the importance of knowledge performance to the members of the organization (Holland, 1999). Beyond the initial commitment by management to knowledge initiatives, members of the organization must openly engage with and learn from one another (Thomas, Kellogg, & Erickson, 2001). The fact that information sharing is encouraged and actively happens in the organization is identified by several experts as a critical cultural factor in the success of KM (Shaw & Tuggle, 2003; O'Reilly et al., 1991). It is reasonable to believe that an increased level of communication and more active sharing of information will lend itself to a more conducive culture for implementing knowledge management projects.

### *Team Orientation*

As the culture of an organization begins to shift toward what could be considered conducive to implementing knowledge management, the sharing of knowledge will increase and the members of the organization will likely feel more like part of a team and should more readily accept knowledge management practices. “Knowledge-sharing is often most effective and causes the least tension when it involves people or groups with a common interest. There is growing evidence that communities of interest quickly recognize the benefits of sharing what they know” (Duffy, 2000).

Teams are a number of persons associated together in work or activity, attempting to achieve a common goal (Merriam Webster on-line, 2002). Team orientation in organizations is another factor that can be used to assess organizational culture. In the development of the OCP by O’Reilly, team orientation showed up in the profile item set and as one of eight key factors defined by at least three other items in the set. This demonstrates the importance of considering team orientation when assessing organizational culture (O’Reilly, et al., 1991). Organizations that value and encourage teamwork are more successful in implementing knowledge management, whereas organizations with a lack of team orientation tend to fail at KM (Shaw & Tuggle, 2003).

Encouragement of teamwork is one of the thirteen cultural factors presented by Shaw & Tuggle as being germane in the adoption of KM. Teamwork also lends itself to the successful implementation of information technology (IT) initiatives (Harper & Utley, 2001). Many KM initiatives rely on IT where knowledge is disseminated through databases, web pages, or collaborative work systems. This is further evidence to support the importance of teamwork in an organization in the embracing of KM. It can also be

assumed that the more teamwork is encouraged and takes places in an organization, the more conducive the culture will be to practicing KM.

### *Trust*

Trust is reliance on the character, ability, strength, or truth of someone or something (Merriam Webster online, 2002). During times of change, mutual trust among members of an organization enables progression toward achieving organizational goals (Thomas et al., 2001). Organizations that build their trust levels will experience a greater sharing of expertise and knowledge. “Low-trust cultures constrict knowledge flow” (DeLong & Fahey, 2000:119). Expressive communication is one way to increase trust levels in an organization. Therefore, knowledge management systems should support expressive communication as a means of building trust (Thomas et al., 2001). Organizations in which there is not widespread trust are more likely to fail in implementing KM projects. Trust contributes to having a culture that is conducive to the successful use of knowledge management (Shaw & Tuggle, 2003). Increased levels of trust in an organization should result in a culture that is more conducive to implementing KM initiatives.

### *Level of Conflict*

Conflict is the competitive or opposing action of incompatibles (Merriam Webster online, 2002). Level of conflict was identified during the development of the OCP as an item that can be used to define an organization’s culture (O’Reilly et al., 1991). There is debate among experts as to whether conflict aids or hinders progression toward

organizational goals. Chairman Andy Grove claims that intense debate as part of his company's culture has allowed his organization to adapt and is why Intel has been able to prosper in the volatile computer industry (DeLong & Fahey, 2000). On the other hand, individuals being competitive with one another may create a reluctance to share knowledge and could be considered a negative cultural aspect with respect to knowledge (Davenport et al., 1998). Low levels of conflict could lead to increased communication, more focused team orientation, and more sharing of knowledge. It is reasonable to assume that organizations with lower levels of conflict will have cultures more conducive to implementing knowledge management initiatives.

#### *Rewards and Recognition*

“Companies that align their reward strategy to their business strategy have superior results” (Knapp & Yu, 1999:21). Rewards and recognition for good performance was identified as an item that could be used to define culture; it also fell out as one of eight key factors defined by at least three other items in the set during the development of the OCP (O'Reilly, et al., 1991). Rewarding knowledge-sharing behaviors is acknowledged as a way to embed knowledge management into organizational culture. Rewards could include monetary compensation or promotion (Holland, 1999). Public recognition of exceptional knowledge performance is another way to entrench KM into the culture. This public recognition serves as a means of making the employee feel valued and as a channel to educate other employees of what is expected of them (Holland, 1999). Reward and recognition systems should promote initiative and innovation. Having a reward and recognition system contributes to having

an organizational culture where KM can be successful (Shaw & Tuggle, 2003). It is reasonable to assume that organizations that implement reward and recognition systems for knowledge performance are more likely to have a culture conducive to implementing KM initiatives.

### *Motivation*

To motivate is to stimulate or influence someone to perform in a certain way (Merriam Webster on-line, 2002). Being action oriented, being achievement oriented, and taking initiative are items from the OCP that all contribute to employee motivation and can be used to define culture (O'Reilly, 1991). Incentives for knowledge performance are one way to motivate employees and instill KM in the organizational culture (Holland, 1999). However, self-motivation is also important to culture and the implementation of KM initiatives. Employees committed to their work and the goals of the organization demonstrate high levels of ability and motivation. Pride in their work drives these employees, and there is not a need for continual praise and rewards (Aragon, 1993). Motivation has been identified as a major factor in the success or failure of group initiatives (Thomas et al., 2001). "The motivation to create, share, and use knowledge is an intangible critical success factor for virtually all knowledge management projects" (Davenport et al., 1998:14). It can be deduced that organizations in which employees demonstrate high levels of motivation will have cultures that are more favorable for implementing knowledge management.

### *Participation*

Participation is to have a part of, or to share in something (Merriam Webster online, 2002). “High levels of participation are expected in seeking out, debating, and synthesizing knowledge related to important business issues” (DeLong & Fahey, 2000:124). Some experts suggest making participation in knowledge related activities criteria in the evaluation and compensation system, with rewards and recognition made available for significant contributions (DeTienne & Jackson 2001). A research study on the subject of organizational participation published in 1988 presented two models: a collective model and an individual model (Miller, 1988). Both models were based on employee views of the organization and how those views affected their organizational participation. In the collective model, the organization is viewed as a united entity where all members of the "team" receive equal treatment and rewards based on their contributions to organization. The individual model is based on organizations where exceptional individual performance is necessary to maximize one's stature in the organization. The researcher found that both models accurately described the relationship between perception and behavior with regards to participation in the different types of organizations. An interesting point noted during the research was that the individual model was applicable to many U.S. organizations, whereas the collective model applied to many Japanese organizations (Miller, 1988). This study showed that organizational participation is very dependent on organizational culture and vice versa. The success of knowledge management projects and initiatives hinges on the culture created by the degree of participation from members of the organization. In a collective environment, the members of an organization may be more inclined to participate by

sharing knowledge and focusing on the success of the organization as a whole.

Therefore, it can be reasoned that the greater the degree of participation by members of the organization, the more complimentary the culture will be to implementing knowledge initiatives.

### *Leadership Support*

It is the responsibility of the leadership of an organization to create and instill a corporate vision that incorporates the fostering of a knowledge-friendly culture. “As noted by many scholars and practitioners, an important component of culture is corporate vision. A vision that permeates the organization can provide people a sense of purpose that transcends everyday activities. The overall vision is intended to generate a clear organizational purpose and prompt the necessary changes in the organization so that it can achieve its desired future goals” (Gold, et al., 2001). As organizations begin using knowledge management practices in day-to-day business, it is becoming necessary to appoint an influential individual to champion the knowledge management efforts. In order to accomplish this new initiative some firms have created a senior-level position to lead knowledge management initiatives, commonly referred to as the Chief Knowledge Officer (CKO) ((McCampbell et al., 1999; Kanter, 1999). Having a CKO as part of the leadership team “greatly enhances the successful implementation of on-going knowledge management initiatives and the ability to plan for the future of knowledge-related activities” (Bonner, 2000). The CKO must strive to develop a culture that recognizes the importance of knowledge management. Without this type of culture, the knowledge management program will not receive the continued organizational support it needs to

remain effective (Bonner, 2000). Michael Pemberton explains that part of the CKO's job should be "to break down the natural reluctance to share information within what were once competitive units in the organization and to foster an environment in which collaboration and teaming can thrive" (Pemberton, 1997). It can be assumed that the greater leadership support is for knowledge management, the more conducive the culture will be to implementing KM initiatives.

### *Learning Orientation*

Learning is to gain knowledge or understanding of, or skill in, by study, instruction, or experience (Merriam Webster online, 2002). "A culture with a positive orientation to knowledge is one that highly values learning on and off the job and one in which experience, expertise and rapid innovation supersede hierarchy" (Davenport et al., 1998:12). Organizational learning could be considered an individual disseminating what he or she knows to other members of the organization. The basic presentation of information does not result in learning; people need to interact with one another and remain actively involved for continual learning to take place (Thomas et al., 2001). This type of practice being entrenched in the culture of the organization may lead to dramatically improved organizational performance. Organizations that place a greater value on learning may have a culture that is more conducive to the implementation of KM initiatives.

### *Innovation*

The level of innovation in an organization is a factor that can be used to define the organization's culture (O'Reilly et al., 1991). Information technology is a great enabler for managing knowledge that is difficult to document. Software companies have created tools which make it possible for people and companies to build communities and take part in virtual teams to brainstorm, develop, present and deliver knowledge, share documents or applications, discuss and manage projects, and coordinate activities (McCampbell et al., 1999).

*New KM tools, technologies and capabilities continue to be developed. Increased sophistication will play a major role in furthering the growth of KM. Other technology advances include software called knowledge exchange platforms, which are used for buying and selling knowledge, software to manage corporate learning, knowledge workflow management software, and knowledge profiling technologies. These applications will advance structured and unstructured data access capabilities, enhance information retrieval, and improve subject matter expert identification (Duffy, 2001).*

An organization being technologically advanced contributes to having an organizational culture where knowledge management initiatives can be successful (Shaw & Tuggle, 2003). It is reasonable to assume that organizations that value technology and demonstrate high levels of innovation will have a culture that is more conducive to the implementation of KM.

### *Adaptability*

To adapt is to make fit, often by modification or change (Merriam Webster online, 2002). Adaptability is identified as an item that can be used to define

organizational culture (O'Reilly, et al., 1991). To remain successful and competitive, many organizations need to adapt when implementing new business initiatives.

Instituting knowledge management invites change and having an adaptive culture will aid in the success of using KM. In addition, having a well-instituted KM program can also determine success or failure for an organization during times of change. Having up-to-date knowledge is critical during these periods of transformation (Wilson, 2000). Change is a constant in most organizations; an organization being adaptive contributes to having a culture where KM projects will succeed (Shaw & Tuggle, 2003). It is reasonable to assume that the more adaptive an organization's culture is, the more conducive that culture is to implementing KM.

#### *Tolerance for risk*

Risk is to expose to hazard or danger (Merriam Webster online, 2002). Risk taking and tolerance are identified as two items that can be used to define an organization's culture (O'Reilly, et al., 1991). Risk taking in organizations could be considered experimentation by employees in order to solve problems. Risk taking sometimes leads to well-intentioned errors and failures. A positive attitude toward risk taking is crucial to success in new ventures. This positive attitude can be created by not punishing employees that take risks and fail (Holsapple & Joshi, 2002). Organizations that have a low tolerance for risk taking create a culture that inhibits the implementation of knowledge management. Those organizations that tolerate well-intentioned errors foster a culture where knowledge management can be successful (Shaw & Tuggle, 2003).

It can be assumed that the more tolerance for risk that an organization has, the more conducive that organization's culture will be to implementing KM.

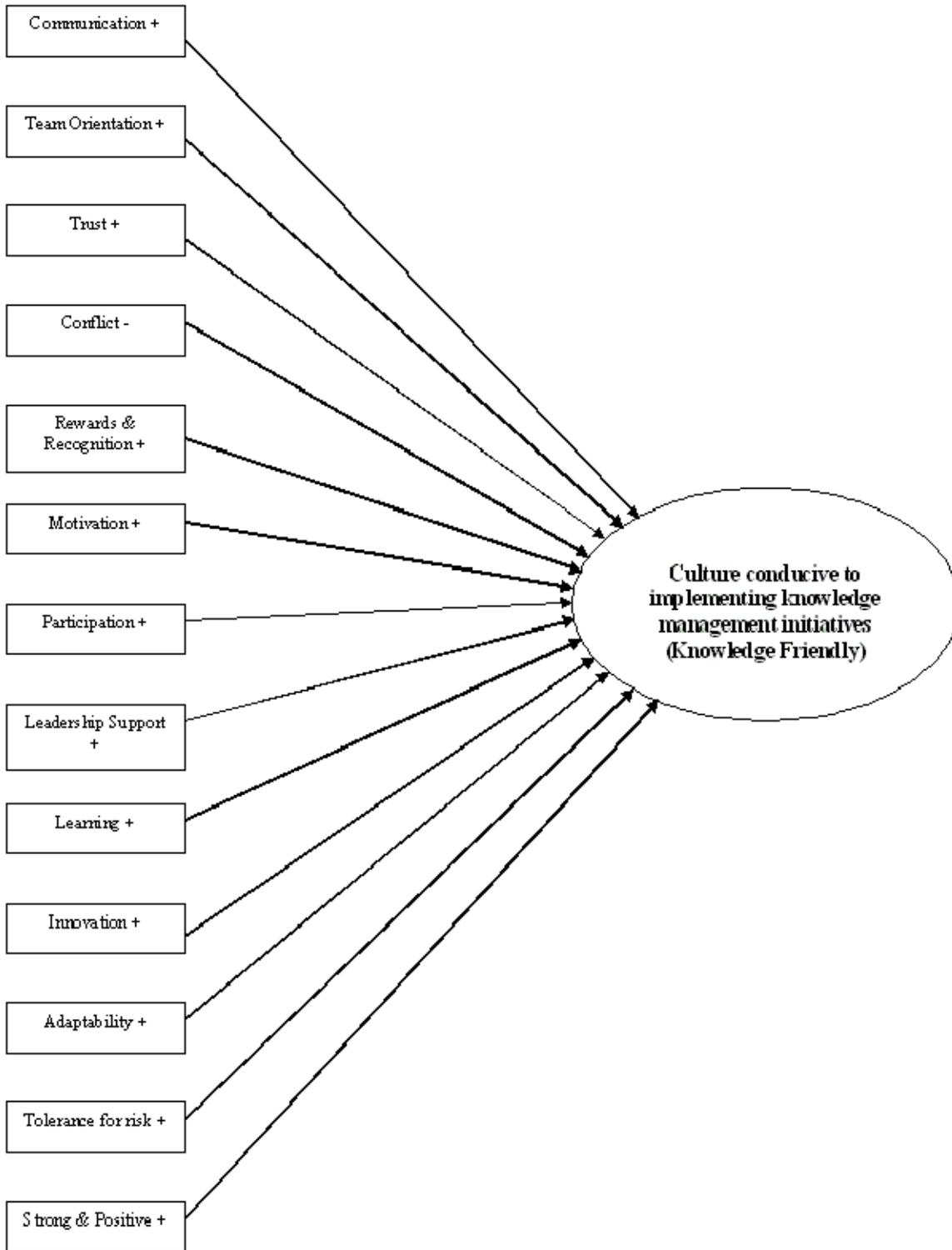
### *Existing Strong & Positive Culture*

As mentioned earlier, cultures can be categorized as strong or weak. Stronger cultures are those where most members of the organization share common values and strong cultures will exert more influence on members of the organization (Gibson, et al., 2003). Positive organizational cultures are those with employees that have high morale and are committed to organizational goals. Having a positive culture can result in enhanced organizational performance (Aragon, 1993). Having a culture that is strong and positive contributes to having an organizational culture where KM can be successful (Shaw & Tuggle, 2003). Developing a strong and positive culture may be one of the most difficult tasks faced by management (Aragon, 1993). However, the time spent creating a strong and positive culture should reap benefits in regards to implementing knowledge management. Organizational cultures that are strong and positive are more conducive to implementing knowledge management initiatives.

### **Summary**

In this ever-competitive business world, it will become increasingly important for organizations to begin considering their culture when implementing knowledge management initiatives. It is evident that organizational culture directly impacts an organization's ability to successfully implement knowledge management initiatives.

Figure 2 depicts the cultural factors proposed in this literature review and the proposed relationship they have in regards to having a culture conducive to implementing knowledge management. Figure 3 illustrates the proposed additional step to be incorporated into the decision framework based on the factors identified in this literature review. The proposed cultural factors and their relationship to having a knowledge friendly culture will be evaluated by a Delphi group consisting of Department of Defense personnel with knowledge management experience.



**Figure 2: Proposed Relevance of Cultural Factors to Knowledge Friendly Culture**

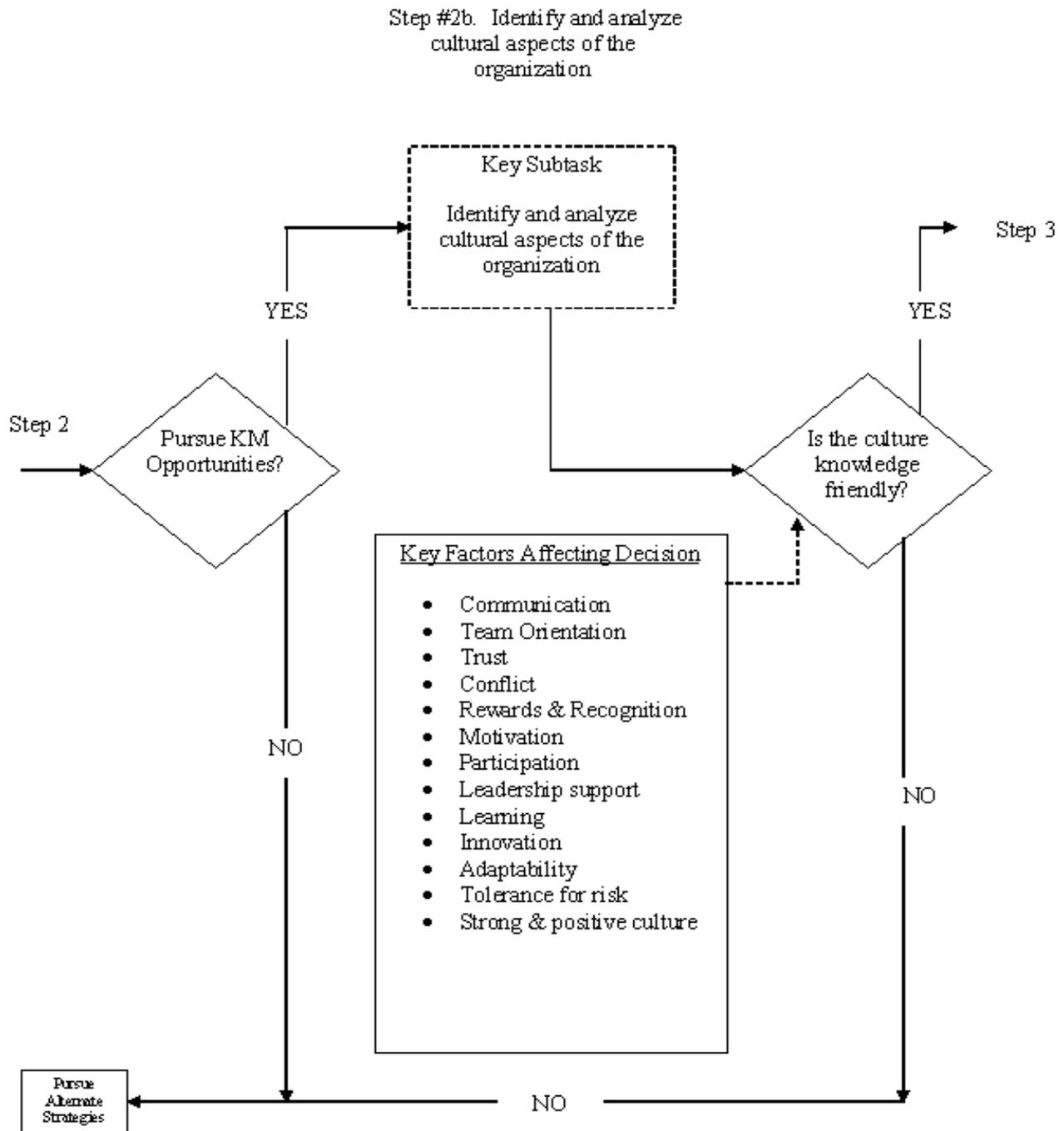


Figure 3: Proposed Step 2b of the Decision Framework

### **III. METHODOLOGY**

#### **Overview of Methodology**

The methodology used to conduct this research effort was a literature review combined with a Delphi study. The literature review was completed in chapter 2 of this thesis and resulted in a proposed step to be incorporated into the existing decision framework for identifying and selecting knowledge management projects. The additional step in the decision framework was then evaluated and tailored through interaction with a Delphi group made up of KM practitioners representing the United States Air Force and the United States Army (the Delphi forecasting method will be discussed later in this chapter). The end result of the research was an improved decision framework that can be used by practitioners to guide the selection of knowledge management projects.

#### **Overview of Delphi Forecasting Method**

*The objective of most Delphi applications is the reliable and creative exploration of ideas or the production of suitable information for decision making. The Delphi Method is based on a structured process for collecting and distilling knowledge from a group of experts by means of a series of questionnaires interspersed with controlled opinion feedback (Adler & Ziglio, 1996).*

The Delphi method was developed by members of the RAND Corporation in the early 1950's. The Delphi method requires a group of experts, related to the field of study, to respond to a series of questionnaires or surveys (Spinelli, 1983). Each round of

surveys may pose a series of Likert scale or open-ended questions to the group (MG Taylor Corporation, 2001). The surveys are geared toward achieving consensus among the group about a certain topic (Spinelli, 1983). The Delphi process could consist of up to four rounds of surveys or questionnaires. However, the process is complete once the group of experts achieves consensus (MG Taylor Corporation, 2001). There are four key features required for a successful Delphi research study: anonymity, iteration, controlled feedback, and statistical aggregation of the group response. Anonymity is achieved through the use of surveys and questionnaires, iteration occurs by having successive rounds of questionnaires, controlled feedback to the group is provided by the researcher between rounds, and statistics are expressed as a degree of consensus among the experts at the end of the process (Kerr, 2001).

### **Delphi Group Selection**

Selection of the expert panel, or the Delphi group, is critical to the success of the research effort. For this research effort, knowledge management practitioners from the United States Air Force and United States Army were identified through each service's knowledge management website and through personal contacts. There was also an effort made to identify KM experts from the Department of the Navy; however, information that identified specific individuals had been removed from the Navy's knowledge management website. This author also attempted to contact Delphi Group participants who contributed to the development of the initial decision framework. A total of 15 e-mails were sent to knowledge management experts soliciting participation in the Delphi Group. Seven e-mails were returned as undeliverable, indicating that the individual's

e-mail addresses had changed; the other eight individuals who were contacted all agreed to participate in the research by responding to a series of questionnaires. The demographic information of the Delphi group participants can be found on the Delphi group demographic information sheet (Appendix A). Of the eight Delphi group members, five were from the United States Army and three were from the United States Air Force. Table 3 shows the primary knowledge management related job responsibility of the Delphi group participants.

**Table 3: Breakdown of Delphi Participants by Primary KM Job**

| <u>Primary KM Responsibility</u>      | <u>Number of Delphi Participants</u> |
|---------------------------------------|--------------------------------------|
| Chief Knowledge Officer or Equivalent | 1                                    |
| Project Management                    | 2                                    |
| KM Policy Development                 | 3                                    |
| KM Policy Implementation              | 2                                    |

### **Round 1 Survey**

Prior to distributing the Round 1 survey to the Delphi group members, a pilot test was conducted. Six members of the AFIT IRM program volunteered to take the survey. All six individuals had taken the AFIT Knowledge Management class and had some understanding of knowledge management practices. The Round 1 survey was found to be clear and concise; some minor grammatical changes were recommended.

The Round 1 survey (Appendix B) was sent to each Delphi group participant via e-mail. The survey is a 6-page Microsoft Word document. The Delphi group members were asked to read the background information, the instructions, and to provide brief demographic information prior to taking the survey. The background information consisted of a brief overview of the existing decision framework and a brief explanation of the goal of this research effort, which is to improve the decision framework by incorporating organizational culture.

The Round 1 survey consisted of two sections. The first section contained 13 statements; each statement was used to evaluate 1 of the 13 cultural factors identified in the literature review. Delphi group members were asked to indicate the degree to which they agreed with each statement and how important they believed it was to consider each cultural factor. Responses were based on a closed-ended, 6-point Likert scale. Each statement was written in such a way that the level of agreement from the Delphi group members' responses would indicate whether or not the cultural factor being evaluated would make a positive or negative contribution toward having a knowledge-friendly organizational culture. The level of importance responses from the Delphi group members helped to determine whether or not each cultural factor should even be considered when assessing an organization's culture to determine whether or not it is knowledge friendly. The first section of the survey concluded with an open-ended question by asking Delphi group members for any additional comments about the survey or other cultural factors that they thought would be relevant when assessing culture.

The second section of the Round 1 survey asked the Delphi group members to rank order what they considered to be the top five most important cultural factors to

consider when assessing an organization’s culture to determine whether or not it is knowledge friendly. Points were assigned to each cultural factor based on the rankings received, the following point scale was used: rank of 1 = 5 pts, rank of 2 = 4 pts, rank of 3 = 3pts, rank of 4 = 2 pts, and rank of 5 = 1pt. The rank ordering will again help to determine which of the cultural factors are most important to consider. Upon completion, Delphi group members were asked to save their survey responses as a Microsoft Word document and return it to the researcher via e-mail.

Eight surveys were distributed; three completed surveys were received within two weeks of distribution. A reminder e-mail was sent to the remaining Delphi group members and three additional surveys were received within approximately two more weeks. Six out of the eight original surveys distributed were completed; the two remaining Delphi group members were considered dropped from the group. Table 4 shows the primary knowledge management related job responsibility of the remaining Delphi group participants.

**Table 4: Breakdown of Remaining Delphi Participants by Primary KM Job**

| <b><u>Primary KM Responsibility</u></b> | <b><u>Number of Delphi Participants</u></b> |
|---|---|
| Chief Knowledge Officer or Equivalent   | 0   |
| Project Management                      | 2   |
| KM Policy Development                   | 2   |
| KM Policy Implementation                | 2   |

The survey responses were analyzed to determine which cultural factors achieved consensus. An in-depth description of this analysis is described in Chapter IV. The results of the Round 1 survey analysis were used to modify the additional decision step to be included in the decision framework for identifying and selecting knowledge management projects.

### **Achieving Consensus**

Surveys and questionnaires in a Delphi study are geared toward achieving consensus among members of the group about the research topic. Successive surveys may be required to achieve consensus (Spinelli, 1983). For this research effort, consensus will be measured in the same manner it was during the development of the initial decision framework. The working definition of consensus will be the following:

Not more than 2 respondents fall outside +/- 1 standard deviation (SD) of the group mean (fractional SDs are rounded up to the nearest whole number, SD's less than 1 are rounded to 1). Also, no more than one response can have a conflicting overall opinion than the group response [i.e., all group responses but one fall within the 1-3 range (generally disagree) or the 4-6 range (generally agree)] (Adapted from Bower, 2001:80).

Both consensus and lack of consensus will be important to this research effort. Cultural factors that achieve consensus among members of the Delphi group in degree of importance will be included in the additional step of the decision framework. In addition, the top five cultural factors from the rank ordering section of the Round 1 survey will be included in the additional step of the decision framework. Cultural factors that do not achieve consensus among members of the Delphi group in degree of importance, or those

that are not ranked in the top five in the rank ordering section of the survey, will be excluded from the additional step of the decision framework. Consensus, among members of the Delphi group, in level of agreement for each given statement will either confirm or disprove whether or not the cultural factor being evaluated would make a positive or negative contribution toward having a knowledge-friendly organizational culture.

### **Round 2 Survey (Appendix C)**

Prior to distributing the Round 2 survey (Appendix C) to the Delphi group members, a pilot test was conducted. Three members of the AFIT IRM program volunteered to take the survey. The Round 2 survey was found to be clear and concise; some minor grammatical changes were recommended.

The Round 2 survey was sent to each Delphi group participant via e-mail. The survey is a 4-page Microsoft Word document. The Delphi group members were asked to read the instructions and review the additional step to be included in the decision framework. The Round 2 survey consisted of one section with three statements, one open-ended question, and the opportunity to make additional comments. Delphi group members were asked to indicate the degree to which they agreed with each statement based on a closed-ended 6-point Likert scale. The statements were used to determine if the Delphi group approved of the proposed step being incorporated into the decision framework. The open-ended question asked Delphi group members their thoughts on the cultural factors that did not achieve consensus in the Round 1 survey and were therefore removed from the additional step. Finally, the additional comments section of the Round

2 survey asked Delphi group members to annotate any additional cultural factors that may need to be considered or any comments they may have about the additional step.

Six surveys were distributed; two completed surveys were received within one week of distribution. A reminder e-mail was sent to the remaining Delphi group members. No additional responses were received in the next two weeks, so an additional reminder e-mail was sent out asking that all surveys be completed and returned by 1 February. No additional responses were received by 1 February.

All e-mails to Delphi group members were tracked using delivery and read receipts in Microsoft Outlook. Read receipts were received for all e-mails prior to the distribution of the Round 2 survey. No read receipts were received from the four Delphi group members that did not respond to the Round 2 survey. Based on discussions with the thesis advisor for this research effort, it is assumed the remaining Delphi group members were either deployed due to the possible conflict in the Middle East or tasked with additional responsibilities that prevented them from completing the Round 2 Survey. The primary KM job responsibilities of the two Delphi group members that replied to the Round 2 survey are KM Policy Development and KM Project Management.

## **IV. FINDINGS & ANALYSIS**

### **Overview**

All data received from the Round 1 and Round 2 surveys was summarized using Microsoft Excel and will be presented in the Summary of Results section of this chapter. Comments from the open-ended questions in the surveys will also be presented.

### **Summary of Results for Round 1 Survey**

Table 5 summarizes the responses to each statement in the Round 1 survey. Table 6 displays the results of the rank-ordering portion of the Round 1 survey. No statistical analysis of correlation was accomplished between these two sections of the survey. However, there seemed to be some degree of association between the rank ordering of each cultural factor and the mean scores for each cultural factor in the Likert scale portion of the Round 1 survey. Discussion and analysis of each cultural factor will be presented immediately following these tables.

Table 5: Summary of Responses from Round 1 Survey

| Statement   | Agreement Mean | Agreement Std. Dev. | Consensus Achieved? | Importance Mean | Importance Std. Dev. | Consensus Achieved? |
|---|----------------|---------------------|---------------------|-----------------|----------------------|---------------------|
| 1. Increased levels of <u>communication</u> in an organization result in a culture that is more conducive to implementing knowledge management initiatives.   | 5.8            | 1                   | Y                   | 6               | 1                    | Y                   |
| 2. Increased focus on <u>team orientation</u> in an organization will result in a culture that is more conducive to implementing knowledge management initiatives.  | 5.3            | 1                   | Y                   | 5.2             | 1                    | Y                   |
| 3. Increased levels of <u>trust</u> in an organization will result in a culture that is more conducive to implementing knowledge management initiatives.  | 5.8            | 1                   | Y                   | 5.2             | 2                    | Y                   |
| 4. Low levels of <u>conflict</u> in an organization will result in a culture that is more conducive to implementing knowledge management initiatives.   | 4.8            | 2                   | N                   | 5.2             | 2                    | Y                   |
| 5. Organizations that have <u>rewards and recognition</u> programs for participating in knowledge related activities will have a culture that is more conducive to implementing knowledge management initiatives. | 4              | 1                   | Y                   | 3.6             | 1                    | N                   |
| 6. Increased levels of <u>motivation</u> in an organization will result in a culture that is more conducive to implementing knowledge management initiatives.   | 4.6            | 2                   | N                   | 4.2             | 2                    | N                   |
| 7. Increased levels of <u>participation</u> in an organization will result in a culture that is more conducive to implementing knowledge management initiatives.  | 4.2            | 1                   | Y                   | 4               | 1                    | N                   |
| 8. Increased levels of <u>leadership support</u> in an organization will result in a culture that is more conducive to implementing knowledge management initiatives.   | 5.5            | 1                   | Y                   | 4.6             | 2                    | Y                   |
| 9. Increased levels of <u>learning</u> in an organization will result in a culture that is more conducive to implementing knowledge management initiatives.   | 5              | 2                   | Y                   | 5.5             | 1                    | Y                   |

| Statement  | Agreement Mean | Agreement Std. Dev | Consensus Achieved? | Importance Mean | Importance Std. Dev | Consensus Achieved? |
|--|----------------|--------------------|---------------------|-----------------|---------------------|---------------------|
| 10. Increased levels of <u>innovation</u> in an organization will result in a culture that is more conducive to implementing knowledge management initiatives.                     | 3.8            | 2                  | N                   | 3.8             | 1                   | N                   |
| 11. Increased levels of <u>adaptability</u> in an organization will result in a culture that is more conducive to implementing knowledge management initiatives.                   | 4.2            | 2                  | Y                   | 4.7             | 2                   | Y                   |
| 12. Increased levels of <u>risk tolerance</u> in an organization will result in a culture that is more conducive to implementing knowledge management initiatives.                 | 4.3            | 2                  | Y                   | 4.7             | 2                   | Y                   |
| 13. An existing <u>strong and positive</u> culture in an organization will contribute to having a culture that is more conducive to implementing knowledge management initiatives. | 4.8            | 2                  | Y                   | 5               | 2                   | Y                   |

**Table 6: Summary of Rank Ordering from Round 1 Survey**

| <b>Cultural Factor</b>               | <b>Points</b> | <b>Rank</b> |
|--------------------------------------|---------------|-------------|
| Communication                        | 22            | 1           |
| Trust                                | 20            | 2           |
| Leadership Support                   | 11            | 3           |
| Learning                             | 7             | 4           |
| Level of Conflict                    | 6             | 5           |
| Tolerance for Risk                   | 5             | T-6         |
| Existing Strong and Positive Culture | 5             | T-6         |
| Team Orientation                     | 5             | T-6         |
| Motivation                           | 4             | 9           |
| Adaptability                         | 3             | 10          |
| Participation                        | 2             | 11          |
| Innovation                           | 0             | T-12        |
| Rewards and Recognition              | 0             | T-12        |

*(points were assigned based on the following – rank of 1 = 5 pts, rank of 2 = 4 pts, rank of 3 = 3pts, rank of 4 = 2 pts, and rank of 5 = 1pt)*

*Communication*

Members of the Delphi group achieved consensus on both agreement with the statement and on the importance of considering communication when assessing organizational culture. Agreement with the proposed statement indicates that increased levels of communication in an organization contribute to having a culture that is more

conducive to implementing KM initiatives. Consensus on the importance of considering communication indicates that communication should be included as a key factor affecting the decision of whether or not the culture is knowledge friendly. Communication was ranked as the most important factor to consider when assessing organizational culture from a KM perspective and achieved the highest mean score for importance. Communication is included in step #2b of the decision framework.

#### *Team Orientation*

Members of the Delphi group achieved consensus on both agreement with the statement and on the importance of considering team orientation when assessing organizational culture. Agreement with the proposed statement indicates that increased levels of team orientation in an organization contribute to having a culture that is more conducive to implementing KM initiatives. Consensus on the importance of considering team orientation indicates that team orientation should be included as a key factor affecting the decision of whether or not the culture is knowledge friendly. Additionally, team orientation was ranked as tied for 6<sup>th</sup> during the rank-ordering portion of the Round 1 survey and achieved a relatively high mean score for importance in the Likert scale portion of the survey. Team orientation is included in step #2b of the decision framework.

### *Trust*

Members of the Delphi group achieved consensus on both agreement with the statement and on the importance of considering trust when assessing organizational culture. Agreement with the proposed statement indicates that increased levels of trust contribute to having a culture that is more conducive to implementing KM initiatives. Consensus on the importance of considering trust indicates that trust should be included as a key factor affecting the decision of whether or not the culture is knowledge friendly. Trust was ranked as the 2<sup>nd</sup> most important factor to consider when assessing organizational culture from a KM perspective and achieved a high mean score for importance in the Likert scale portion of the survey. Trust is included in step #2b of the decision framework.

### *Level of Conflict*

Consensus, regarding the cultural factor of level of conflict, was achieved by members of the Delphi group on importance in considering conflict when assessing organizational culture. However, consensus was not achieved on agreement with the proposed statement.

Non-consensus on agreement with the statement indicates conflicting views on whether or not conflict contributes positively or negatively towards having a culture that is conducive to implementing KM initiatives. Contradictory views about conflict are fully supported by the literature and are discussed in Chapter 2 of this thesis. It is possible that consensus was not achieved on agreement with the proposed statement because there are so many types of conflict. There is conflict that is good and bad in the

work place. However, this research only addressed conflict in general terms as competitiveness among employees. This broad view of conflict could have led the Delphi group to draw their own conclusions about what type of conflict was being addressed. This could have resulted in the conflicting views on whether or not conflict contributes positively or negatively to having a knowledge friendly culture.

Consensus on the importance of considering level of conflict indicates that conflict should be included as a key factor affecting the decision of whether or not the culture is knowledge friendly. Conflict was ranked as the 5<sup>th</sup> most important factor to consider when assessing organizational culture from a KM perspective and achieved a high mean score for importance in the Likert scale portion of the survey. Conflict is included in step #2b of the decision framework.

#### *Rewards and Recognition*

Consensus, regarding the cultural factor of rewards and recognition, was achieved by members of the Delphi group on agreement with the proposed statement. However, consensus was not achieved on importance of considering rewards and recognition when assessing organizational culture. Agreement with the proposed statement suggests that increased rewards and recognition in an organization contribute to having a culture that is more conducive to implementing KM initiatives. Non-consensus on the importance of considering rewards and recognition indicates that this factor should not be included as a key factor affecting the decision of whether or not the culture is knowledge friendly. Rewards and recognition was ranked as tied for the least important factor to consider when assessing organizational culture from a KM perspective, and received a relatively

low mean score for importance in the Likert scale portion of the survey. Rewards and recognition has been excluded from step #2b of the decision framework.

### *Motivation*

There was non-consensus among the members of the Delphi group regarding the cultural factor of motivation on both agreement with the proposed statement and importance of considering motivation when assessing organizational culture. Non-consensus on agreement with the statement indicates differing views on whether or not level of motivation in members of the organization contributes positively or negatively towards having a culture that is conducive to implementing KM initiatives. Non-consensus on the importance of considering motivation indicates that this factor should not be included as a key factor affecting the decision of whether or not the culture is knowledge friendly. Level of motivation was ranked as the 9<sup>th</sup> most important factor to consider when assessing organizational culture from a KM perspective. Level of motivation received a moderate mean score for importance in the Likert scale portion of the survey, but there were two conflicting responses to the overall group response. The criteria for achieving consensus states there should be no more than one conflicting response to the group response; therefore, motivation has been excluded from step #2b of the decision framework.

### *Participation*

Consensus, regarding the cultural factor of participation, was achieved by members of the Delphi group on agreement with the proposed statement. However,

consensus was not achieved on importance in considering participation when assessing organizational culture. Agreement with the proposed statement implies that increased participation by members of an organization contributes to having a culture that is more conducive to implementing KM initiatives. Non-consensus on the importance of considering participation indicates that this factor should not be included as a key factor affecting the decision of whether or not the culture is knowledge friendly. Participation was ranked as the 2<sup>nd</sup> to least important factor to consider when assessing organizational culture from a KM perspective, and participation received a relatively low mean score for importance in the Likert scale portion of the survey. Participation has been excluded from step #2b of the decision framework.

#### *Leadership Support*

Members of the Delphi group achieved consensus on both agreement with the statement and on the importance of considering leadership support when assessing organizational culture. Agreement with the proposed statement indicates that increased levels of leadership support for KM initiatives in an organization contribute to having a culture that is more conducive to practicing KM. Consensus on the importance of considering leadership support indicates that leadership support for KM initiatives should be included as a key factor affecting the decision of whether or not the culture is knowledge friendly. Leadership support was ranked as the 3<sup>rd</sup> most important factor to consider when assessing organizational culture from a KM perspective and achieved a relatively high mean score for importance in the Likert scale portion of the survey. Leadership support is included in step #2b of the decision framework.

### *Learning Orientation*

Members of the Delphi group achieved consensus on both agreement with the statement and on the importance of considering learning orientation when assessing organizational culture. Agreement with the proposed statement suggests that increased learning orientation in an organization contributes to having a culture that is more conducive to implementing KM initiatives. Consensus on the importance of considering learning orientation indicates that learning orientation should be included as a key factor affecting the decision of whether or not the culture being assessed is knowledge friendly. Learning orientation was ranked as the 4<sup>th</sup> most important factor to consider when assessing organizational culture from a KM perspective and achieved a high mean score for importance in the Likert scale portion of the survey. Learning orientation is included in step #2b of the decision framework.

### *Innovation*

There was non-consensus among the members of the Delphi group regarding the cultural factor of innovation, on both agreement with the proposed statement and importance of considering innovation when assessing organizational culture. Non-consensus on agreement with the statement indicates inconsistent views on whether or not innovation in the organization contributes positively or negatively towards having a culture that is conducive to implementing KM initiatives. Non-consensus on the importance of considering level of innovation indicates that this factor should not be included as a key factor affecting the decision of whether or not the culture is knowledge

friendly. Level of innovation was ranked as tied for the least important factor to consider when assessing organizational culture from a KM perspective. Level of innovation received a relatively low mean score for importance in the Likert scale portion of the survey, and there were three conflicting responses to the overall group response for both agreement and importance. Innovation has been excluded from step #2b of the decision framework.

### *Adaptability*

Members of the Delphi group achieved consensus on both agreement with the statement and on the importance of considering adaptability when assessing organizational culture. Agreement with the proposed statement indicates that increased levels of adaptability in an organization contribute to having a culture that is more conducive to implementing KM initiatives. Consensus on the importance of considering adaptability indicates that adaptability should be included as a key factor affecting the decision of whether or not the culture is knowledge friendly. Adaptability was ranked as the 10<sup>th</sup> most important factor to consider when assessing organizational culture from a KM perspective, but achieved a relatively high mean score for importance in the Likert scale portion of the survey. Adaptability is included in step #2b of the decision framework.

### *Tolerance for Risk*

Members of the Delphi group achieved consensus on both agreement with the statement and on the importance of considering tolerance for risk when assessing

organizational culture. Agreement with the proposed statement suggests that increased tolerance for risk in an organization contributes to having a culture that is more conducive to implementing KM initiatives. Consensus on the importance of considering tolerance for risk indicates that tolerance for risk should be included as a key factor affecting the decision of whether or not the culture being assessed is knowledge friendly. Tolerance for risk was ranked as tied for the 6<sup>th</sup> most important factor to consider when assessing organizational culture from a KM perspective and achieved a relatively high mean score for importance in the Likert scale portion of the survey. Tolerance for risk is included in step #2b of the decision framework.

#### *Existing Strong and Positive Culture*

Members of the Delphi group achieved consensus on both agreement with the statement and on the importance of considering the presence of an existing strong and positive culture when assessing organizational culture. Agreement with the proposed statement indicates that having an existing strong and positive culture in an organization contributes to having a culture that is more conducive to implementing KM initiatives. Consensus on the importance of considering the existence of strong and positive culture indicates that the presence of an existing strong and positive culture should be included as a key factor affecting the decision of whether or not the culture is knowledge friendly. Presence of an existing strong and positive culture was ranked as tied for the 6<sup>th</sup> most important factor to consider when assessing organizational culture from a KM perspective and achieved a high mean score for importance in the Likert scale portion of

the survey. Presence of an existing strong and positive culture is included in step #2b of the decision framework.

### **Additional Comments from the Round 1 Survey**

The following comments were annotated in the open-ended question portion of the Round 1 Survey. A brief discussion of possible impact or influence follows each comment.

*“Innovation, learning and participation create a more fertile environment for KM initiatives if you have an existing strong and positive culture.”*

This comment would indicate that if a strong and positive culture already exists within an organization that innovation, learning and participation may have a greater influence on whether or not the culture is knowledge friendly. This could lead a manager making a decision about whether or not to implement KM, to evaluate whether or not a strong and positive culture exists prior to evaluating other cultural factors.

*“Leadership support is important if you want to do something that requires significant investment. There are examples of wildly successful grassroots KM initiatives where folks identified and met pronounced knowledge needs without expending gobs of money, and therefore, without leadership support.”*

This comment indicates that leadership support is more important if money is needed to accomplish KM initiatives. Money could be a driving factor for KM if the acquisition of technology is involved. The comment also points out that KM can be successful without leadership support and without a lot of monetary investment.

*“Rewards and recognition are very dependent on the culture – in academic institutions where name recognition is vital or sectors where salesmanship/commissions are important, then rewards and recognition are important. In mission-focused organizations rewards and recognition become less important.”*

*“Most people have an inner motivation to be good at what they do (pride); rewards and recognition are only for the occasional money-grubbing egotists (From Round 2 Survey).”*

These comments could be an explanation of why rewards and recognition did not achieve consensus on importance in the Round 1 survey. Since the cultural factors were evaluated by DoD KM experts and the DoD is a very mission focused organization, rewards and recognition may be less important in the DoD.

*“Some very highly-motivated organizations with high teamwork internally are the worst at KM across a larger organizational perspective (knowledge is power) --- thus, those factors have to be looked at in terms of within small teams, within larger workgroups, and within/across huge enterprises like the Army. An example would be special operations organizations, unbelievable teamwork, but the nature of the job builds a culture not to share outside the minimum that is thought to be necessary. This sometimes leads them into problems operationally because they may not use all external resources correctly due to an obsessive desire for secrecy.”*

This comment suggests that KM may be more successful in smaller vs. larger groups or organizations. It may be possible that cultural factors relevant to the adoption of KM, such as communication, trust, adaptability, and tolerance for risk are more likely to be present and thriving in smaller more cohesive units. This indicates that the size of the organization or group involved with the KM initiative may be an additional consideration when assessing the culture.

*“In my opinion the biggest problem we face is that Army MACOMs still want to do their own thing now rather than participate in the Army-wide effort via the AKO solution. And, they do it with their preferred COTS package, regardless of architectural fit for the larger overall enterprise. Each MACOM still has its own budget and won't return any of it to HQ-Army to get what they want delivered via the AKO solution. This is a huge cultural problem in the Army that we need to overcome. The leadership at the MACOMs are “fully supportive” of the Chief of Staff Army, AKO, AKM and the Army Transformation - just don't ask them to send any money or do anything other than what they want to do - Leadership lip service isn't transformation.”*

This comment lends additional support to the previous comment. It may be difficult for the Army as a large organization to painlessly institute KM initiatives.

### **Summary of Results for the Round 2 Survey**

The purpose of the Round 2 survey was to determine if the Delphi group approved of the proposed step being incorporated into the decision framework and if there were any additional cultural factors that may need to be considered when assessing organizational culture. Because the majority of the Delphi group did not respond to the Round 2 survey, there was no data to be analyzed and no conclusions could be made about the approval of the proposed step being incorporated into the decision framework.

The following are comments from the Delphi group members that did respond to the Round 2 survey, a brief discussion follows each comment:

*“Many of our organizations, as a whole, probably do not display many of these characteristics; but, I wonder how you go about changing the culture if you do not try to implement KM. Our cultural assessment determined there were many factors that indicated the culture was not oriented to KM. Yet we have gone forward and I believe have had some success and even had an impact on the culture in a small way. We were successful by finding leaders who were supportive and who have worked to change their organizational mindset to be more conducive to implementing KM.”*

*“Army is doing its AKM transformation even though many places in the Army lack trust, tolerance of risk, communication and teamwork, but we’re going to get there and our AKO portal will be a big part of that. The days of the stereotypical non-trusting, secretive Army employee are becoming a thing of the past.”*

These comments re-emphasize the importance in remembering that this, like any other decision framework, is a tool used to guide the selection of knowledge management projects. The decision is still left up to the manager using the tool. If it is determined that the culture is not knowledge friendly, yet all the other aspects of the decision process

point toward implementing KM, the manager may still decide to implement KM, and may be successful in doing so.

### **Summary**

The data from the Round 1 survey was used to modify the proposed Relevance of Cultural Factors to Knowledge Friendly Culture model and to modify the proposed step 2b of the Decision Framework for Identifying and Selecting Knowledge Management projects. These modifications will be presented and discussed in Chapter 5 of this thesis.

## V. CONCLUSIONS & RECOMMENDATIONS

### Conclusions

The conclusions from this research will answer the research questions posed in Chapter 1 of this thesis. There were two research questions and therefore, two conclusions that were made for each cultural factor identified. The conclusions are whether or not each cultural factor made a positive or negative contribution to having a knowledge friendly culture, and whether or not each cultural factor should be included in Step 2b of the decision framework.

The first research question posed in this thesis is:

**Does each cultural factor identified contribute positively or negatively to having a knowledge friendly culture?**

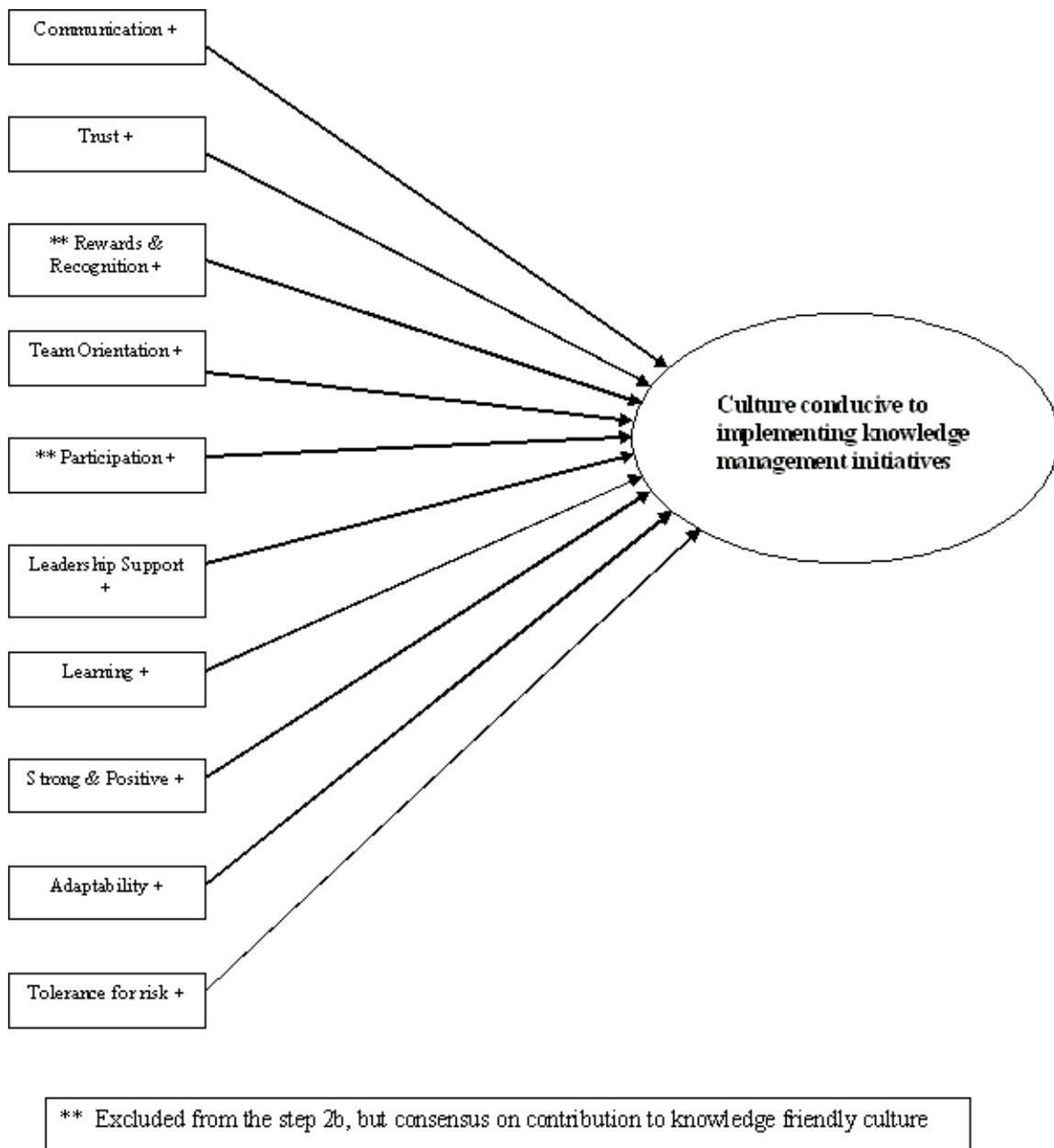
Communication, team orientation, trust, rewards & recognition, participation, leadership support, learning, adaptability, tolerance for risk, and an existing strong and positive culture all contribute positively to having a culture that is conducive to implementing knowledge management initiatives. An increased presence of each of these factors in an organization may indicate that the organization has a culture that is knowledge friendly. The remaining cultural factors - conflict, motivation, and innovation - did not achieve consensus as to whether or not they positively or negatively contributed to having a knowledge friendly culture. This indicates that there are mixed opinions among DoD knowledge management experts as to how an increased or decreased presence of each of these factors would affect organizational culture from a KM perspective. Organizations looking to create an organizational culture where KM can

prosper may want to focus on fostering the nine cultural factors that were found to positively contribute to having a knowledge friendly culture. Figure 4 depicts the modified Relevance of Cultural Factors to Knowledge Friendly Culture model.

The second research question posed in this thesis is:

**What cultural factors, of those identified, should be used to assess organizational culture during the identification and selection of knowledge management projects?**

Communication, team orientation, trust, conflict, leadership support, learning, adaptability, tolerance for risk, and an existing strong and positive culture were all deemed as factors that are important to consider when assessing organizational culture to determine if the culture is knowledge friendly. Each of these nine factors was included in step 2b of the decision framework as a key factor affecting the decision of whether or not the culture is knowledge friendly. The cultural factors that were not included in step 2b are motivation, rewards & recognition, participation and innovation. There was not consensus among DoD knowledge management experts as to the importance of considering these factors when assessing the culture. Figure 5 depicts the modified step 2b of the decision framework.



**Figure 4: Modified Relevance of Cultural Factors to Knowledge Friendly Culture**

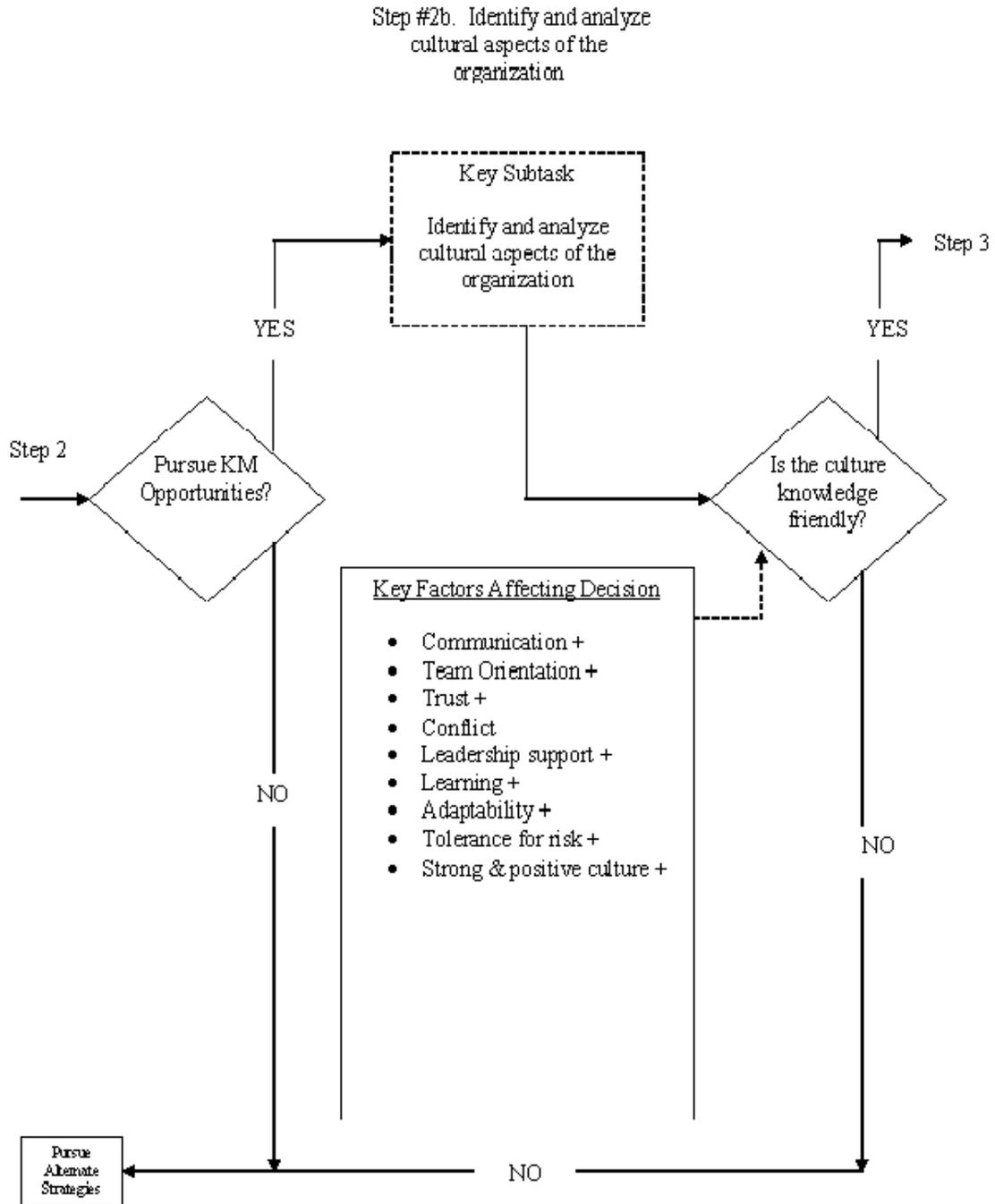


Figure 5: Step 2b of the Decision Framework for Identifying and Selecting KM Projects

## **Incorporating Step 2b into the Existing Decision Framework**

The purpose of this research was to incorporate organizational culture into an existing decision framework for identifying and selecting knowledge management projects. Now that step 2b has been developed and refined, it is important to consider where it fits into the existing framework. In this researcher's opinion, Step 2b best fits into the existing framework after the decision to pursue KM opportunities and prior to identifying a specific KM project. If the organization is not going to pursue KM, then there is no need to assess the culture. If the decision is made to pursue KM, the next logical step should be to assess the culture. The output from step 2b is the determination of whether or not the culture is knowledge friendly. If the culture is deemed to be knowledge friendly, per the decision framework, the organization should proceed to step 3 and identify a specific knowledge management project. If it is determined in step 2b that the culture is not knowledge friendly, per the decision framework, the organization should decide to pursue alternate business strategies. The entire decision framework, with step 2b included, can be found at Appendix D.

## **Limitations**

There are limitations in both the practical application of the decision framework and in the completion of this research. Limitations exist in the application of the decision framework because knowledge management is still a relatively new business practice in the Air Force. For example, the decision framework indicates that if a culture is not knowledge friendly, the organization should pursue alternate business strategies. A member of the Delphi group for this research effort made the following comment:

“Our cultural assessment determined there were many factors that indicated the culture was not oriented to KM. Yet we have gone forward, and I believe have had some success and even had an impact on the culture in a small way. We were successful by finding leaders who were supportive and who have worked to change their organizational mindset to be more conducive to implementing KM.”

This comment is a prime example that no decision regarding the implementation of KM is as straight forward as a simple yes or no answer. It is the responsibility of the knowledge management practitioners using the decision framework to view it as the tool it is and adapt it to best meet the needs of their particular organization. When applied properly and with discretion, the decision framework can be very effective in guiding an organization through the implementation of a KM initiative.

Another limitation in the completion of this research was the limited response of the Delphi group to the Round 2 Survey. The increased strain on members of the military due to the on-going war on terrorism and the pending conflict with Iraq may have contributed to the limited participation and response.

### **Recommendations for Future Research**

This research effort was the first modification to the decision framework that was initially developed only two years ago. Upon completion of that initial framework, the following six modifications were recommended (Bower, 2001):

- Organizational culture needs to be emphasized.
- In selling any new idea (your KM project) you always have to design for successful support issues and design around (or to overcome) failure criteria.
- There should be flexibility built into the order in which the decisions occur.
- When selecting a knowledge management team, it is important to select the right people, identifying key personnel within the organization who may be uniquely suited to help the project. A knowledge management team should not consist of exclusively IT folks or volunteers.
- Need to define who the customers are.

- You mention “budget constraints,” but I would like to see a more explicit cost-to-benefit consideration factor.

The need to emphasize organizational culture has been addressed by this research effort, but there are several recommended modifications yet to be researched. In addition to those listed above, the Delphi group that participated in the current research effort posed the following questions that have the potential to be addressed and incorporated into the decision framework:

- Many of our organizations as a whole do not have knowledge friendly cultures. How do you go about changing the culture to make it knowledge friendly?
- Is the culture different in small groups vs. large groups, and does this affect the decision-making process?

## **Summary**

Because the cultural factors identified during this research were evaluated by members of the DoD, it is possible that this research is only relevant to the DoD community. Assessment of organizational culture may not be accomplished in the same manner in a military environment as it does in the private sector. As there is continued growth in the use of knowledge management in the Air Force and the DoD, the decision framework will need to evolve to meet the needs of knowledge practitioners.

**APPENDIX A - DELPHI GROUP DEMOGRAPHIC INFORMATION**

| <b><u>Name</u></b>  | <b><u>Organization</u></b> | <b><u>E-mail address</u></b>   |
|---------------------|----------------------------|--|
| Mr. Wayne Taylor    | AF-CIO/RM                  | <a href="mailto:Wayne.Taylor2@pentagon.af.mil">Wayne.Taylor2@pentagon.af.mil</a> |
| Mr. Randy Adkins    | HQ AFMC/DRW                | <a href="mailto:Randy.Adkins@wpafb.af.mil">Randy.Adkins@wpafb.af.mil</a>         |
| Mr. Charles Cather  | HQ-Army, SAIS-EIK<br>(AKM) | <a href="mailto:Charles.Cather@US.army.mil">Charles.Cather@US.army.mil</a>       |
| Lt Col Derek Harris | CIO/G-6__SAIS-EIO          | <a href="mailto:Derek.Harris@US.army.mil">Derek.Harris@US.army.mil</a>           |
| Mr. Rick Morris     | CIO/G-6                    | <a href="mailto:Rick.Morris@US.army.mil">Rick.Morris@US.army.mil</a>             |
| Lt Col Rod Wade     | CIO/G-6__SAIS-EIO          | <a href="mailto:Roderick.Wade@US.army.mil">Roderick.Wade@US.army.mil</a>         |
| Lt Col David Biros  | AF-CIO                     | <a href="mailto:David.Biros@pentagon.af.mil">David.Biros@pentagon.af.mil</a>     |
| Ms. Laura Petrosian | SAIC Army Contractor       | <a href="mailto:Laura.Petrosian@US.army.mil">Laura.Petrosian@US.army.mil</a>     |

## APPENDIX B – ROUND 1 QUESTIONNAIRE

### SURVEY INSTRUCTIONS

1. Please read the following instructions before filling out this questionnaire. This questionnaire consists of open-ended and scaled questions.
2. The rating system for the scaled questions ranges from a low of 1 to a high of 6. Please type the selection you feel best reflects your opinion in the appropriate column to the right of the question. **Please refer to the attached framework when selecting your response.**
3. Each of the open-ended questions has space provided for your reply. If there is insufficient room, continue to type and I will take care of any formatting problems when I receive the forms [each section is separated by hard (inserted) page breaks, so it is possible that additional pages could be added].
4. Specific responses of each respondent will be treated anonymously. However, each participant's name, organization, and contact information will be included in a list of contributors unless he/she desires to be excluded. **Please indicate below if you do not wish to be included.**

I **do/do not** wish to be included on the list of contributors.

Please fill out "Participant Information" section below.

Please save completed questionnaire as an MS Word document and e-mail (forward) back to me at [jeffrey.phillips@afit.edu](mailto:jeffrey.phillips@afit.edu).

### PARTICIPANT INFORMATION

Participant Name \_\_\_\_\_

Participant Organization/Office Symbol \_\_\_\_\_

**Background information:**

In March 2001, Captain William Bower completed a research study that proposed a decision framework for selecting and identifying knowledge management (KM) projects. The framework is used by organizations to decide whether or not to implement KM initiatives. The following is the original 6-step process based on the original decision framework:

**6-STEP KM PROJECT SELECTION DECISION PROCESS**

1. Analyze Corporate Strategic Objectives Using SWOT (Strengths, Weaknesses, Opportunities, Threats) Methodology
2. Identify Potential Knowledge Management Opportunities and Limitations
3. Identify Potential Knowledge Management Efforts
4. Identify KM Project Variables Affecting Project Implementation and Success
5. Identify Success Factors for Project Variables
6. Finalize KM Project Selection

The original decision framework was evaluated by a Delphi group and it was recommended that organizational culture be incorporated into the decision framework. Step 2b was added to incorporate organizational culture into the process. The following is the proposed 7-step process:

1. Analyze Corporate Strategic Objectives Using SWOT (Strengths, Weaknesses, Opportunities, Threats) Methodology
2. Identify Potential Knowledge Management Opportunities and Limitations
- 2b. Identify and Analyze Cultural Aspects of the Organization**
3. Identify Potential Knowledge Management Efforts
4. Identify KM Project Variables Affecting Project Implementation and Success
5. Identify Success Factors for Project Variables
6. Finalize KM Project Selection

The intent of this survey is to assess the importance of considering certain cultural factors when deciding whether or not to implement knowledge management initiatives.







Please rank order the top 5 most important cultural factors to consider when assessing an organizational culture to determine whether or not it is conducive to implementing knowledge management.

1 is the most important, 2 is the next most important, etc.

- Communication: \_\_\_\_\_
- Team Orientation: \_\_\_\_\_
- Trust: \_\_\_\_\_
- Conflict: \_\_\_\_\_
- Rewards and Recognition: \_\_\_\_\_
- Motivation: \_\_\_\_\_
- Participation: \_\_\_\_\_
- Leadership Support: \_\_\_\_\_
- Learning: \_\_\_\_\_
- Innovation: \_\_\_\_\_
- Adaptability: \_\_\_\_\_
- Tolerance for risk: \_\_\_\_\_
- Strong and Positive culture: \_\_\_\_\_

## APPENDIX C – ROUND 2 QUESTIONNAIRE

### **SURVEY INSTRUCTIONS**

Please read the following instructions before filling out this questionnaire. This questionnaire consists of open-ended and scaled questions.

The rating system for the scaled questions ranges from a low of 1 to a high of 6. Please type the selection you feel best reflects your opinion in the appropriate column to the right of the question. **Please refer Figure 3 and the definitions of the cultural factors when selecting your responses.**

The open-ended questions have space provided for your reply. If there is insufficient room, continue to type and I will take care of any formatting problems when I receive the forms.

Specific responses of each respondent will be treated anonymously. However, each participant's name, organization, and contact information will be included in a list of contributors unless he/she desires to be excluded.

S

This survey is based on analysis of information compiled from the Round 1 survey that you recently completed. Figure 3 on the following page is a step that will be included in a 7-step decision framework for identifying and selecting knowledge management projects. This step and this research are primarily concerned with evaluating an organizational culture to determine whether or not it is conducive to implementing knowledge management initiatives.

Please complete the survey by indicating the level of agreement with each statement.

Please save the completed questionnaire as an MS Word document and e-mail (forward) back to me at [jeffrey.phillips@afit.edu](mailto:jeffrey.phillips@afit.edu).

Step #2b. Identify and analyze cultural aspects of the organization

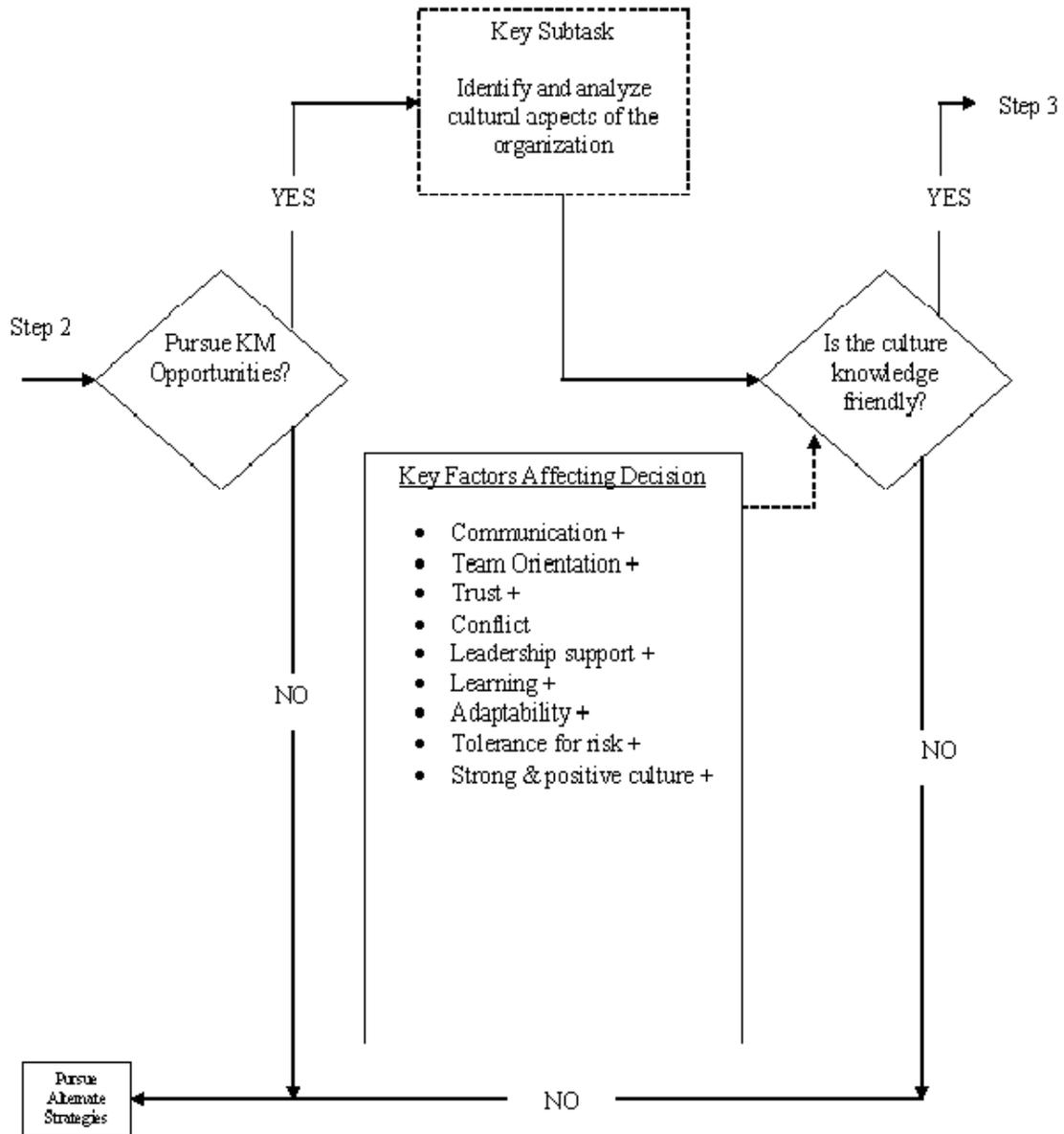


Figure 3

## **Cultural Factor Definitions**

**Communication** is the degree to which members of an organization freely exchange information with one another.

**Team orientation** is the degree to which organizations value and encourage teamwork

**Trust** is the degree to which members of an organization depend on one another

**Conflict** is the degree to which members of an organization compete with or oppose one another

**Rewards and Recognition** refers to the degree to which members of an organization are compensated for taking part in knowledge management related activities.

**Motivation** is the initiative demonstrated by members of an organization to achieve organizational goals

**Participation** is the degree to which members of an organization interact with one another to achieve organizational goals.

**Leadership support** is the degree to which the leadership in an organization demonstrates commitment to knowledge management initiatives.

**Learning** is the degree to which members of an organization value gaining experience and expertise.

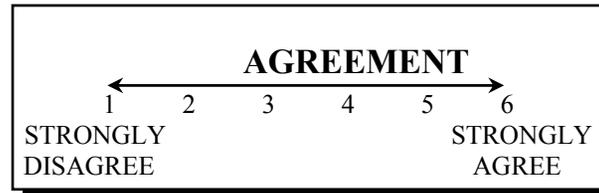
**Innovation** is the degree to which an organization stays current with technology.

**Adaptability** is the degree to which an organization can change to be successful in current initiatives.

**Risk tolerance** is the degree to which members an organization will experiment to achieve goals and accept well-intentioned errors.

**An existing strong and positive culture** is one in which most members of the organization share common values, have high morale, and are committed to achieving organizational goals.

## SURVEY REGARDING ORGANIZATIONAL CULTURE AND



The statements below refer to Figure 3 on the previous page. Please indicate your level of agreement in the space provided based on the scale above.

|   | Agreement |
|---|-----------|
| 1. It is necessary to evaluate organizational culture in order to successfully implement knowledge management (KM) initiatives.   |           |
| 2. The nine cultural factors listed under Key Factors Affecting Decision in Figure 3 are adequate to evaluate an organizational culture in order to determine whether or not the culture is conducive to implementing KM initiatives.   |           |
| 3. If a culture is found to be <b>NOT</b> conducive to implementing KM initiatives, the organization should hold off on KM initiatives and pursue alternate business strategies.  |           |
| 4. Based on the results of the Round 1 Survey, the cultural factors of rewards and recognition, motivation, participation, and level of innovation have been excluded as key factors used to evaluate culture. <b>Do you feel any of these factors should be re-introduced into the decision process?</b> |           |
| 5. <b>ADDITIONAL COMMENTS:</b> <i>Please indicate any additional cultural factors that you feel should be considered, or any comments you have about Figure 3.</i>  |           |

# APPENDIX D – REVISED DECISION FRAMEWORK FOR IDENTIFYING AND SELECTING KM PROJECTS

#1. Analyze corporate Strategic Ojectives Using SWOT methodology

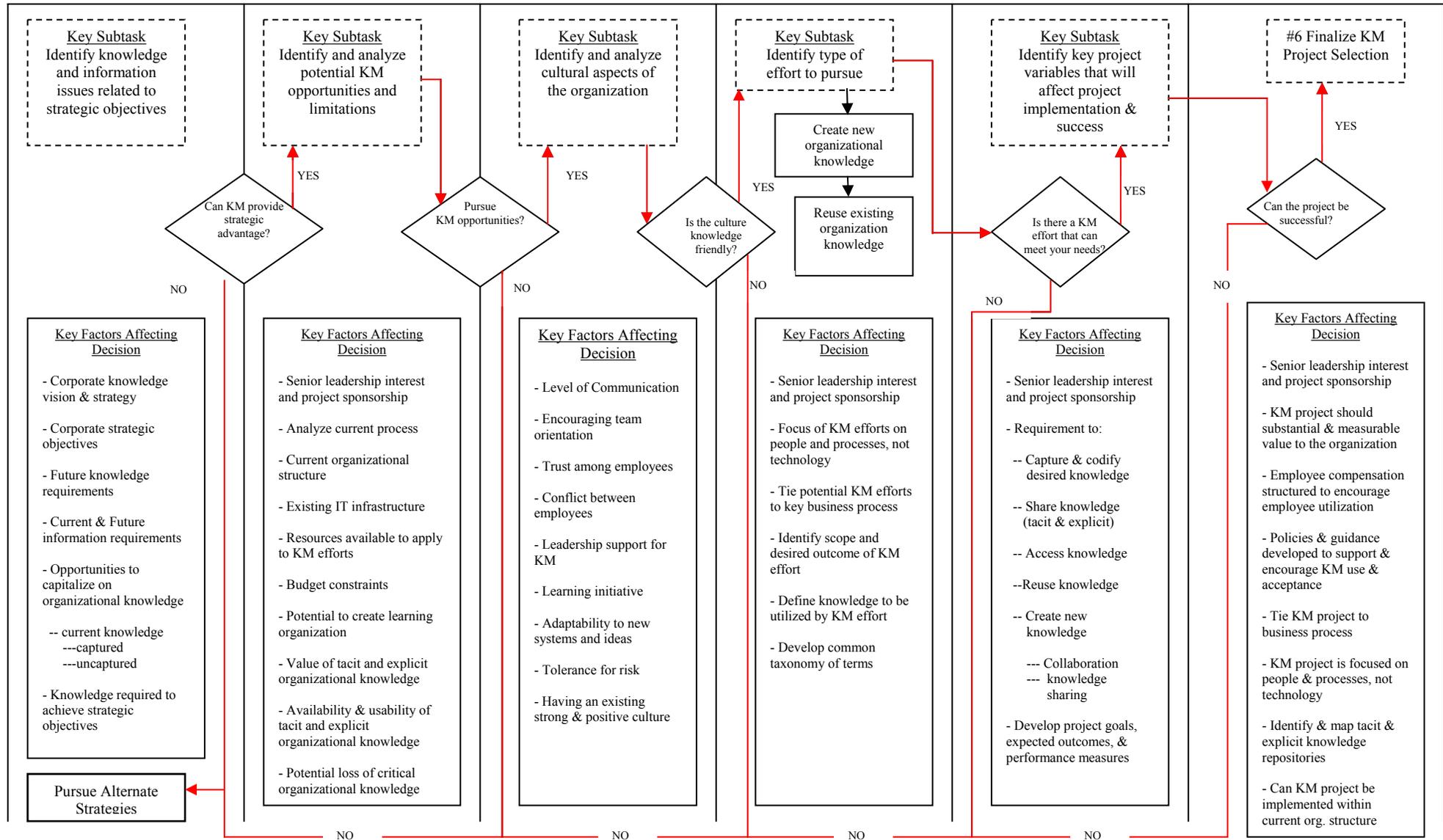
#2. Identify potential KM opportunities and limitations

#2b. Identify and analyze cultural aspects of the organization

#3. Identify potential KM project

#4. Identify KM project variables affecting implementation & success

#5. Identify success factors for project variables



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## **Vita**

1<sup>st</sup> Lieutenant Jeff Phillips graduated from Norwich High School, in Norwich, NY, in June 1989. He entered the Air Force in 1993 and attended basic training at Lackland AFB, TX. He spent the next 6 years as a configuration manager at the 1912<sup>th</sup> Computer Systems Group, the Air Combat Command Computer Systems Squadron and the Air Combat Command Communications Group. In 1995 he deployed in support of Operation Southern Watch as a systems administrator for the Contingency Theater Automated Planning System. Lieutenant Phillips has an Associates of Science Degrees from the Community College of the Air Force and a Bachelor of Arts Degree in Computer Information Systems from Saint Leo College. He attended Officer Training School from February to May of 1999 and received his commission on 21 May 1999. He was then assigned to the 20<sup>th</sup> Communications Squadron, Shaw AFB, South Carolina, as the Plans and Programs Deputy Flight Commander and later as the 20<sup>th</sup> Support Group Executive Officer. Lieutenant Phillips attended the Aerospace Basic Course in residence in March 2000. In August 2001, he entered the Graduate School of Engineering and Management, Air Force Institute of Technology to pursue a MS in Information Resource Management. Upon graduation, he will be assigned to the 690th Computer Systems Squadron, Lackland AFB, TX.

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**14. ABSTRACT**  
Knowledge management is an emerging business practice throughout commercial industry and is becoming more recognized as a valuable concept in the Department of Defense and the Federal government. In March 2001, Captain William Bower completed a research effort that proposed a framework model for guiding the identification and selection of knowledge management initiatives within the Air Force. The members of the Delphi committee that participated in the original research to develop the decision framework recommended that organizational culture be more emphasized. Therefore, this research effort evaluated the decision framework proposed by Captain Bower and adapted the framework by including organizational culture. To incorporate organizational culture into the framework, this research identified cultural factors that can be assessed to determine whether or not a given organizational culture is ready to implement knowledge management initiatives. An additional step was then added to the original decision framework; this step is focused on determining whether or not an organizations culture is knowledge friendly.

**15. SUBJECT TERMS**  
Knowledge Management, Organizational Culture, Decision Framework, KM, KM and Organizational Culture, Assessing Organizational Culture, Knowledge Friendly Culture

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