A COMPARATIVE ASSESSMENT OF KNOWLEDGE MANAGEMENT

LEADERSHIP APPROACHES WITHIN THE DEPARTMENT OF DEFENSE

THESIS

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AFIT/GIR/ENV/07-M12

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THESIS

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Abstract

Knowledge has superseded traditional corporate assets and has become the strategic resource for competitive advantage. To reap the benefits of knowledge, organizations must harvest and leverage the collective knowledge of the entire workforce. This is achieved through effective knowledge management. KM involves processes to create, to store, and transfer knowledge to accomplish business objectives and to achieve a competitive advantage.

The Department of Defense has also recognized the importance of KM and have since mandated the acquiring, refining, and sharing knowledge. The Departments of the Army, Air Force, and Navy have each undertaken individual KM efforts. This research, guided by Dr. Michael Stankosky's Four Pillar Framework, used a case study methodology to investigate each of the department's KM leadership and described how they compare and contrast (Stankosky, 1999). This study identified evidence of each KM leadership element for all three departments. Additionally, this research revealed that each department approaches KM leadership uniquely.

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I. Introduction

Background

Knowledge is "*the* strategic corporate resource" driving today's economy (Drucker, 1993); a sure source of a lasting competitive advantage, it is key to the success of organizations (Nonaka, 1991). As any important resource, it should be effectively managed for maximum results (Davenport & Prusak, 2000; Holsapple & Joshi, 2002). This realization is gave birth to the concept of knowledge management. Knowledge management (KM) is a relatively young field and there are no accepted definitions for knowledge or KM (Sasser, 2004). However, renowned KM experts Davenport and Prusak (2000) describe knowledge as the experiences, insights, values and contextual information that provide competitive advantage. KM is the mechanism used to manage knowledge for the benefit of the organization. In fact, a report by KMPG compiled in 1999 lists the top benefits of KM as seen by over 400 organizations across Europe and the US as better decision making, faster response to key business issues, better customer handling and improved employee skills (KPMG Consulting, 1999).

KM research has led to the proposition of several frameworks, including Stankosky's "Four Pillar" Framework (Booker, 2006). This particular framework was used in evaluating each service's KM programs in a previous study. The framework by

Stankosky et al. (1999) suggests that "managing an organization's knowledge assets can be more effectively achieved by designing a KM program that uses a defined framework" (p. 7). The "Four Pillars" represent leadership, organization, technology, and learning; each pillar is comprised of sub-elements that support that particular pillar (Calabrese, 2000; Stankosky, 2005).

The leadership element of the Four Pillar framework "deals with the environmental, strategic, and enterprise-level decision-making processes that involves the values, objectives, knowledge requirements, knowledge sources, prioritization, and resources allocation of the organization's knowledge assets" (Stankosky, 2005, p. 5). Table 1 below synthesizes the elements of the KM leadership pillar.

Purpose of Study

The experts agree that knowledge should be managed like any other corporate asset (Davenport and Prusak, 2000). The Department of Defense (DOD) has mandated the KM in the military (DOD, 2005). Finally, leadership is often viewed as the most important element to effective KM (Stankosky, 2005; Tirkpak, 2005). These facts are motivation then to investigate the military leaders approach to KM. More specifically, the guiding research question for this study is "How do the Km leadership approaches compare within the Department of Defense?"

Methodology

The proposed study is primarily qualitative research. The appropriate qualitative research method selected for this research is a descriptive case study, holistic in nature

with multiple cases. A case study is "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 2003, p. 13). Yin (2003) recommends a case study when examining a contemporary event that offers little or no control over what is being studied. This is the situation with the KM programs in the four services. Yin (2003) further writes that descriptive case studies "illustrate certain topics within an evaluation" (p. 15).

This case study will be holistic in that it only has one unit of analysis but contain multiple cases. Each military department, the Departments of the Army, Air Force and Navy, will be a separate case with its enterprise-level KM program as the unit of analysis.

Thesis Overview

This chapter has provided a brief introduction to the study conducted. Chapter II reviews the current literature on KM and the the theories behind it. Chapter III describes the details of the case study methodology used in this study. Chapter IV contains the results of the data analysis and Chapter V closes with a discussion of the results.

II. Literature Review

This chapter provides a background on the research topic. Specifically, it reviews the current literature on knowledge management (KM), KM frameworks, and KM in the Department of Defense (DOD). It discusses KM theory, providing the foundational for the remainder this study.

Knowledge

Throughout history, brilliant minds such as Socrates, Plato and Aristotle have philosophized over the intriguing notion of knowledge. Modern times are no exception. On the contrary, knowledge may be receiving more interest today than ever before. The late Peter Drucker (1993), in fact, suggested the modern world has transformed into a so called "knowledge society." Drucker, soon followed by others, argued that knowledge should be treated as an important resource. Where the traditional resources of land, labor, and capital were once the primary concern, knowledge has virtually replaced them as the source of power and is now considered the organization's most valuable and strategic resource (Drucker, 1993; Nonaka & Takeuchi, 1995; Skyrme & Amidon, 1998; Zack, 1999; Nissen, 2006). The motivation is competitive advantage. As Nonaka (1991) writes, "[i]n an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge" (p. 22). Drucker expounds upon that declaring not only is knowledge the key economic resource and the dominant source of comparative advantage, but it may be the only source (1993). Unlike its traditional

predecessors, knowledge is the sole resource that does not deplete but instead increases with use (Davenport & Prusak, 1998; Nissen, 2006; Tirpak, 2005).

Interestingly, however, knowledge experts have yet to settle upon a standard, universally accepted definition. While varying definitions have been proposed (Drucker, 1993, Nonaka & Takeuchi, 1995; Davenport & Prusak, 2000; Alavi & Leidner, 2001), Sasser (2004) notes common themes among them include:

- Knowledge cannot exist without a human agent (Nonaka & Takeuchi, 1995; Davenport & Prusak, 1998; Alavi & Leidner, 2001; Girard, 2005)

- Knowledge is linked to information and data (Nonaka & Takeuchi, 1995; Davenport & Prusak, 1998; Tuomi, 2000)

- Knowledge is actionable (Drucker, 1993; Alavi & Leidner, 2001).

While Tuomi (2000) asserts knowledge must first be present before information and data can exist, the standard hierarchal view of their relationship is an evolution progressing from data to information to knowledge (Nonaka & Takeuchi, 1995; Davenport & Prusak, 2000). By in large, the experts agree that knowledge is not information. As already stated, knowledge, not information or data, is the strategic resource for competitive advantage. Davenport and Prusak (2000) believe that "most people have an intuitive sense that knowledge is broader, deeper, and richer than data or information" (p. 5). The two also propose one of the more comprehensive descriptions, defining knowledge as the following:

> Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of

knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms (1998, p. 5).

For the purpose of this study, this will be the selected definition of knowledge.

Knowledge Management

"If knowledge is viewed as a resource that is critical to an organization's survival and success in the global market, then like any other resource it demands good management" (Holsapple & Joshi, 2002a, p. 47). As organizations came to this realization, the concept of knowledge management (KM) emerged. Like knowledge, there is no universally accepted definition for KM (Sasser, 2004). Von Krogh (1998), however, describes KM simply as "identifying and leveraging the collective knowledge in an organization to help the organization compete."

Several researchers have stated that the purpose of KM is to increase an organizational performance to gain a competitive advantage (Davenport and Prusak, 1998, Bartczak, 2002). Several benefits have been associated to KM including: better decision making, better customer handling, faster response to key business issues, improved employee skills, and increased profits (KPMG Consulting, 2000). As evidence, many respected companies have used KM in varying ways to a great of success including British Petroleum, Xerox, Honda, and 3M (Davenport & Prusak, 2000).

Though the KM field is young and its terminology is not agreed upon, the concept of KM is not new and the experts agree it is certainly not a fad (Calabrese, 2000;

Speigler, 2000; Stankosky, 2005).   In fact, KM is increasingly being studied within academia.

Knowledge Management Frameworks

In managing knowledge effectively within an organization, certain strategic components are required for key KM processes (Stankosky, 2005). Frameworks, or blueprints, help ensure organization's KM programs are include these elements (Stankosky, 2005).

According to Metaxiotis et al., a framework is "a holistic and concise description of the major elements, concepts, and principles of a particular domain" (2005, p. 11). The fundamental purpose of a framework is "to explain the domain and define a standardized schema of its core content as a reference for future design implementations" (Metaxiotis et al., 2005, p. 11). It follows then that a KM framework should explain the essentials of the KM domain and offer a plan to build and implement a KM program (Metaxiotis et al., 2005; Stankosky, 2005).

The experts suggest there are three categories of KM frameworks: prescriptive, descriptive, and a hybrid of both (Rubenstein-Montano et al., 2001; Holsapple and Joshi, 1998). In a Rubenstein-Montano et al.'s study of KM frameworks, prescriptive and descriptive frameworks are defined as the following:

> Prescriptive frameworks provide direction on the types of knowledge
> management procedures without providing specific details of how those
> procedures can/should be accomplished. In essence, they prescribe different ways
> to engage in knowledge management activities (i.e., suggest a knowledge
> management methodology). In contrast, descriptive frameworks characterize or
> describe knowledge management. These frameworks identify attributes of
> knowledge management important for their influence on the success or failure of
> knowledge management initiatives (2001, p. 7).

Then, a combination of elements from both prescriptive and descriptive frameworks is a hybrid, providing a more comprehensive explanation and ideal for systems thinking approach to KM (Holsapple and Joshi, 1998; Rubenstein-Montano et al, 2001).

A systems thinking approach is ideal for KM because it "can enhance knowledge management through its ability to depict complex, dynamic processes and thus enhance understanding and the ability of knowledge management initiatives to respond to the needs of the organization" (Rubenstein-Montano et al., 2001, p. 6). The systems thinking context also provides a guiding framework providing KM programs direction within an organization (Rubenstein-Montano et al, 2001). One such hybrid framework providing a systems thinking approach to KM is the Four Pillar Framework.

Four Pillar Framework

Many KM frameworks have been proposed and several studies followed, comparing them or proposing new ones (Booker, 2006; Harp, 2006). According to one study, however, the Four Pillar Framework (see Figure 1) is "one of most studied and quoted descriptions of the knowledge management systems" (Girard, 2005, p. 10). This hybrid framework provides both direction on what KM elements KM programs should possess and describing those elements and key sub-elements (Rubenstiein-Montano et al., 2001). Proposed by Dr. Michael Stankosky of George Washington University, one of the foremost universities in the field of KM, the framework suggests there are four

Environmental Influences

Political

Social

Governmental

Economic

KNOWLEDGE MANAGEMENT
The Architecture of Enterprise Engineering

LEADERSHIP	ORGANIZATION	TECHNOLOGY	LEARNING
Business Culture	BPR	E-mail	Intuition
Strategic Planning	- Processes	OLAP	Innovation vs.
- Vision and Goals	- Procedures	Data Warehousing	Invention
Climate	Metrics	Search Engines	Learning
Growth	MBO	Decision Support	Community
Segmentation	TQM/L	Process Modeling	Virtual Teams
Communications	Workflow	Management Tools	Shared Results
	Communications	Communications	Exchange Forums
			Communications
LEADERSHIP	ORGANIZATION	TECHNOLOGY	LEARNING

MULTIPLE DISCIPLINES

Systems Engineering   Organization Development   Systems Management   Organization Behavior

Stankosky, Calabrese, Baldanza, 1999

Figure 1. The Four Pillar Framework by Stankosky et al (1999)

fundamental elements or pillars to KM: leadership/management, organization,

technology, and learning (Stankosky, 2005). Stankosky (2005) describes each pillar:

- Leadership/management: Deals with the environmental, strategic, and enterprise-level decision-making processes involving the values, objectives, knowledge requirements, knowledge sources, prioritization, and resource allocation of the organization's knowledge assets. It stresses the need for integrative management principles and techniques, primarily based on systems thinking and approaches.

- Organization: Deals with the operational aspects of knowledge assets, including functions, processes, formal and informal organizational structures, control measures and metrics, process improvement, and business process reengineering. Underlying this pillar are system engineering principles and techniques to ensure

a flow down, tracking, and optimum utilization of all the organization's knowledge assets.

- Learning: Deals with organizational behavioral aspects and social engineering. The learning pillar focuses on the principles and practices to ensure that individuals collaborate and share knowledge to the maximum. Emphasis is given to identifying and applying the attributes necessary for a "learning organization."

- Technology: Deals with the various information technologies peculiar to supporting and/or enabling KM strategies and operations. One taxonomy used relates to technologies that support the collaboration and codification KM strategies and functions. (p. 5)

These four elements were later validated in a doctoral dissertation that statistically supported their values and comparative significance (Calabrese, 2000). Calabrese (2000) writes,

> …no other "model" was discernible as being comparable to the framework postulated by [Stankosky et al., 1999]. More explicitly, no other "model" surfaces that was structured to take a disciplined systems approach to the integration of a defined framework encompassing all facets of an enterprise-wide KM program. (p.24)

This KM framework, particularly the leadership element of concern for this study, encompasses many of the elements or influences vital to a successful KM program (Holsapple and Joshi, 2000b).

Knowledge Management Leadership

Though Stankosky recommends a balanced approach, a survey of KM practitioners ranked leadership as most important of the four elements to KM (Stanksosky, 2005). Leadership's important relationship within KM is not limited to Stankosky's research, however. Existing literature indicates several experts agree that leadership and its role within on organizational culture is crucial to the success of KM initiatives (Davenport and Prusak, 2000; Grover and Davenport, 2001; Liebowitz, 1999; Wong, 2005). Additionally, almost all other KM frameworks include elements of leadership (Holsapple & Joshi, 1998; O'Dell, Grayson, & Essaides, 1998). Since KM cannot exist without people, leadership is a necessary and vital element of KM (Nonaka & Takeuchi, 1995; Alavi & Leidner, 2001). According to Tirpak, it is the quality of leadership that allow KM efforts to realize their maximum influence.

Although leadership comprises of many things to different people, there are apparent common themes throughout. Those key sub-elements of leadership identified by Stankosky (2005) and statistically validated by Calabrese (2000) are:

- Strategic Plans, Vision, and Goals (Zack, 1999; Wong, 2005)

- Senior Leadership Commitment (Liebowitz, 1999)

- KM Program tied to Metrics (Holsapple & Joshi, 1998)

- Formal KM Roles in Existence (Liebowitz, 1999).

- Tangible Rewards for Use of KM (Liebowitz, 1999; Wong, 2005)

- KM incorporated in Performance Criteria (Skyrme & Amidon, 1997; Zack, 1999)

KM leadership influences other key factors and is best summed up this way by Calabrese (2000):

"People want their leaders to set the tone, and create the management practices and

organizational structures and policies tha will form a culture receptive to knowledge

sharing and facilitated through technology tools and networks to achieve a learning-

enabled enterprise." (p. 37)

Knowledge Management in the Department of Defense

The Department of Defense (DOD) has also recognized the benefits of KM. In

addition to meeting the challenges of future warfare, KM has become increasingly

important to retaining and sharing knowledge. The DOD realized the usefulness of KM

during the early 1990s while it attempted to retain its valuable corporate knowledge

during a massive personnel reduction (Glennie & Hickock, 2003). Since then, the

Pentagon has become recognized the need to for knowledge, particularly in integrating

the services into a joint force as seen by the Chairman of Joint Chief of Staff (DOD,

2005a). Joint Vision (JV) 2020, along with several service doctrines, emphasize the

concepts of "information superiority" and "knowledge superiority" as critical to fighting

future wars (DOD, 2000). JV 2020 states, "[i]nformation superiority provides the joint

focrce a competitive advantage only when it is effectively translated into superior

knowledge and decisions" (DOD, 2000, p. 11).

The Capstone Concept for Joint Operations (2005), in fact, mandates KM. It

requires each service to plan for "acquiring, refining, and sharing knowledge" as a Joint

U.S. Force (DOD, 2005). Though the military has recognized knowledge's value, there

is still much room for progress. Similar to civilian organizations, leadership is influential

in military KM. A 2002 dissertation within the Air Force, for example, found leadership

influences as a significant barrier to KM (Bartczak, 2002). This study revealed numerous difficulties in leadership to include lack of leadership commitment, lack of KM roles for leading and championing the KM effort, and lack of a rewards system (Bartczak, 2002).

This issue resides not only within the Air Force, however. In a recent study, the all the department's were found to have varying degrees of success in respect to their respective KM leadership approaches (Booker, 2006). The Department of the Army (DA) appears to be at the forefront of KM in the DOD. According to the study, they have the most comprehensive and robust KM program with strong support from leadership (Booker, 2006). Conversely, while the extent of senior leadership commitment within the Department of the Air Force (DAF) and Department of the Navy (DON) could not be determined, there was evidence for a more defined strategy, vision, and goals for KM, particularly within the DAF (Booker, 2006). The report acknowledges that though each service has shown interest in KM and exhibits elements of leadership, KM leadership is vital to the sharing of knowledge between the departments as a Joint U.S. Force (Booker, 2006).

III. Methodology

Introduction

The primary purpose of this research is to compare the leadership approaches to KM that exist within the DOD. All research, regardless of its purpose, benefits in quality from a sound methodology, or a particular analysis procedure or set of procedures (Stake, 1995; Yin, 2003, Leedy and Ormrod, 2005). The case study methodology is but one of several methodologies common for qualitative studies. This chapter illustrates why this specific methodology was chosen for this comparison of KM leadership approaches. It further details the exact data collection, analysis and interpretation techniques used within this case study.

Case Study Methodology

As its name suggest, a research strategy helps provide a methodical and logical plan for conducting an investigation (Stake, 1995; Yin, 2003). Common strategies within social science research include experiments, surveys, archival analyses, histories and case studies. While each offers advantages and disadvantages, they are not mutually exclusive and can be used in conjunction with one another (Yin, 2003). Given this, the appropriate research strategy (or combination of strategies) typically depends on "three conditions: the type of research question, the control an investigator has over actual behavioral events, and the focus on contemporary as opposed historical phenomena" (Yin, 2003, p.1).

Type of Question.

To reiterate, the primary research question in this study is how the KM leadership approaches compare across the U.S. military services – a "how" question. In fact, as will be discussed later, all six investigative questions are also in the form of "how." The appropriate strategies for "how" questions include experiments, histories, and case studies (Yin, 2003).

Research Object.

The focus of this social science research is the comparison of each department's KM leadership approach. To that regard, there is certainly no control of behavioral events. When little to no control of the behavior event is required, all research strategies except experiments are adequate (Yin, 2003). Additionally, the departments' KM leadership approaches are contemporary phenomena, not historical or archival in nature. This fact, according to Yin (2003), precludes history from further consideration for this study. Thus, when examining a contemporary event that offers little or no control over the research object(s), the appropriate research strategy is a case study (Yin, 2003).

Type of Case Study.

Yin (2003) formally defines a case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p. 13). Similar to other research strategies, case studies can be exploratory, explanatory, or descriptive (Yin, 2003). While exploratory studies often use collected data to build theories and ask the question "what," explanatory studies are used in more mature fields to explain a course of events or relate how things happened using "how" or "why" questions (Yin, 2003). This

study, however, is considered more of a descriptive study, requiring theory to guide the collection of data to illustrate certain topics within the evaluation; it also answers questions in the form of "how" (Yin, 2003). In this research, data was collected based on existing KM literature in efforts to describe the how the services' KM leadership approaches compare and contrast.

Components of Case Study Research Design

The essence of all research designs is in defining a problem, collecting the data, analyzing the data, and interpreting the results (Leedy and Ormrod, 2005). For case studies such as this study, Yin (2003) suggests there are five important components of research design:

1. Research questions

2. Propositions (if any)

3. Unit of analysis

4. Collecting data and linking to propositions

5. Criteria for interpreting the data

Research Questions.

The overarching research question is how do the KM leadership approaches compare within the Department of the Defense? Guided by this and existing KM framework theory, the primary investigative questions for this study were:

IQ1. How do strategic plans, vision, and/or goals address service-level KM?

IQ2. How does senior leadership demonstrate involvement/commitment to KM?

IQ3. How are metrics/measurements used to assess KM programs?

IQ4. How do established KM offices and/or roles support service-level KM?

IQ5. How are rewards/recognition provided for participation in KM?

IQ6. How do service-level performance goals incorporate KM items?

Each question, asking "how," is descriptive and together, with the main research question, they fulfill Yin's first component.

Propositions.

A proposition is a statement that "directs attention to something that should be examined within the scope of study" (Yin, 2003, p. 22). Based on the literature review, including a previous thesis to which this is a follow-on, this study proposed that:

1. Each department demonstrates some elements of the KM leadership pillar

2. Each department approaches KM leadership in unique fashions

The literature review indicated leadership's importance to KM. Thus, logic suggests that the mere existence of a KM program is evidence of *some* leadership elements. Also, each department has unique missions, history, and organizational structure. Logic suggests, then, that each department would approach KM unique. Additionally, Booker's 2006 study indicated support for these two propositions (Booker, 2006)

Unit of Analysis.

Yin's third (2003) component of research design is the unit of analysis. This case study is holistic in that it only had one unit of analysis; however, it does contain multiple cases. Each department within the DOD (DA, DAF, and DON) was a separate case with its department-level KM program being the unit of analysis. As it was in Booker's 2006 study, the DON case includes both of its military services, the United States Navy (USN)

and the United States Marine Corps (USMC). Specifically, each department's leadership approach to strategic KM was analyzed for comparison.

Collecting Data and Linking to Propositions.

Typical of case studies, the triangulation technique was used in the collecting the data. Triangulation, the use of multiple sources of data, is a primary principle of the collection process because it strengthens the case (Yin, 2003). Six sources of evidences common in case studies are identified below:

- Documents

- Archival records

- Interviews

- Direct observation

- Participant-observation

- Physical artifacts (Stake, 1995; Yin, 2003; Leedy and Ormrod, 2005)

Although all of these six types of sources were used to some degree in collecting the data in this investigation, they were classified into three main categories: documents obtained from the departments' KM portals, documents obtained from the World Wide Web, and feedback from interviews with KM practitioners. As this study extends Booker's (2006) research conducted the previous year, many of the documents then were still applicable to this study.   Thus, this study attempted to place more emphasis on collecting data from KM practitioners as suggested by the previous research (Booker, 2006).

The initial data collection order was KM portals, the World Wide Web searches, followed by the interviews. However, KM practitioner feedback did, in some instances, warrant additional KM portal visits and web searches.

KM Portal Documents.

First, documents were collected from each department's own KM portal, or information/knowledge repository. The DA operates the Army Knowledge Online (AKO) portal; the DAF has the Air Force Portal (AFP) and, specifically for KM, the Air Force Knowledge Now (AFKN) portal; and the DON runs the Navy Knowledge Online (NKO) portal. Although each department operates its portal independently, it should be noted that the AKO portal is also being used as the foundation for the eventual Defense Knowledge Online (DKO) portal.

Each portal requires secure access. As an Air Force member, the researcher had previously obtained access to the AFP and AFKN portal. The AFP (https://www.my.af.mil) is required to be registered by all Air Force members. It is a service-wide web portal or "main page" for numerous applications, including AFKN. Entry was permitted via an authenticated username and password or issued common access card (CAC) and the user's personal identification number (PIN). The AFKN portal (https://afkm.wpafb.af.mil) required secure access via the Air Force Portal or directly through its website using an authenticated CAC and PIN.

The AKO (https://www.us.army.mil) and NKO (https://www.nko.navy.mil) portals required similar access procedures. Because the researcher is not a member of the AKO or NKO respective departments, a guest account was obtained for access. Along with personal information, a registered and authorized sponsor was required for the guest

account application. Instructions for guest accounts were available on both portals'

pages. Once guest accounts were granted, the portals were accessed with the respective

established username and password combination. Unfortunately, however, guest

accounts did not have full privileges and access to the AKO and NKO portals.

The KM portals can be categorized as several types of sources. As a web-based

technological tool, for example, the portals themselves qualify as artifacts. Additionally,

evidence was gathered by directly observing KM processes, such as communities of

practices, within the portal and participating in them. Finally, both documents and

archival records, such as organizational charts, were collected from the KM portals. A

complete list of evidence collected from the KM portals is found in appendices.

World Wide Web Documents.

Documents were also collected from web search tools. As in the previous

research, the popular search engine "Google" (www.google.com) was the primary search

tool used in this study. Search strings used to gather KM documents from the web

included: "service" knowledge and "service" knowledge management, where "service" is

the Army, Air Force, Navy or Marine Corps.

Not all files matching the search criteria where applicable to this study, however.

Careful scrutiny was given to each item, whether obtained from the portal or the web. In

determining acceptance into this study, the researcher thoroughly considered the

document's information including, but not limited to: origin—author, organization, and

source from which it was obtained; date published; level of authority—headquarters-level

or lower echelons of command; and intended audience/recipients. For example, draft

documents, superseded memorandums or items lacking service-wide authority were not used in this study.

KM Practitioner Feedback.

Feedback from interviews with KM practitioners were the third and final source of evidence. As recommended by the previous study, the researcher focused on receiving more feedback, attempting for a minimum of three interviews per department. Senior knowledge workers or KM practitioners knowledgeable on their respective service-wide KM initiatives were targeted for interviews relating to their service's KM leadership approach. Permission for telephone interviews, included anonymously in the final report, was granted through the Human Subjects Board exemption approval process and senior leaders within each department. In all, twelve KM practitioners participated in this study: two from the DA; three from the DAF; and seven, including one Marine Corps interviewee, from the DON.

All but one of the participants was a member of or referred to by their service's Chief Information Officer (CIO) or KM office. Contact was initially made via email, where a brief background of the study was given. Along with their service's permission to participate in the study, the background information included the purpose of the research, a definition of KM leadership from the Four Pillar Framework (Stankosky et al, 1999), and the six investigative questions to be asked during the telephone interview. One participant responded directly to the interview questions via email.

The remaining eleven of the interviews were conducted via the telephone at the appointed time of convenience for the participant. Each interview began with a repeat of background information covering the purpose of the study and the Four Pillar Framework

(Stankosky et al, 1999). Although not every participant had KM responsibility across their entire service, each was asked to respond to the questions based on his/her knowledge of his/her respective department's service-level KM initiatives. In instances where the individual's organization had some service-wide purview, specific organizational examples were occasionally included in responses. A significant limitation, the researcher recorded all responses only by hand, clarifying questions and answers when necessary; this issue is address further in Chapter V. At the conclusion of each interview, the participant was asked to recommend any other KM practitioners within their department as potential interviewees for the study.

Criteria for Interpreting Data.

After completing a single-coder content analysis, the researcher interpreted the results based on their quality of support for the elements of KM leadership and, ultimately, the two propositions. Since there are no statistical tests appropriate to this end, the researcher used pattern-matching logic to compare the data to the KM and leadership theory discussed in Chapter II. A common case study analysis technique, the pattern-matching logic sometimes uses a data matrix in which "several pieces of information from the same case may be related to some theoretical proposition" (Yin, 2003, p.26). In this study, the researcher created a data matrix for each department listing each the leadership element and the three categories of sources. During the content analysis, the research denoted evidence of leadership elements identified in a particular source. An observed pattern of evidence within a department of an identified KM leadership sub-element supported a link between the two. A more detailed explanation of the data matrix table is included in Chapter IV.

Design Quality Criteria

The quality of any empirical social research design, including case study, is commonly judged by four logical tests: construct validity, internal validity, external validity, and reliability (Kidder and Judd, 1986; Yin, 2003; Leedy and Ormrod, 2005). Together, these design quality tests are the glue that holds research together.

Construct Validity.

According to Kidder and Judd (1986), construct validity deals with ensuring the operational research procedure measures the concept it intended to study. Often problematic in case study research, Yin (2003) recommends using multiple sources of evidence and establishing a chain of evidence as tactics to achieve good construct validity.

As recently explained, this study used multiple sources of data collected from three categories: documents from online search tools, documents from KM portals, and, most importantly, feedback from KM practitioners. Additionally, the result of the data analysis reflects an established chain of evidence as presented in the following chapter.

Internal Validity.

Internal validity is important in explanatory or causal studies to demonstrate the extent to which an independent variable affects a dependent variable (Yin, 2003; Leedy and Ormrod, 2005). Because this was a descriptive study where a causal relationship was not sought, no efforts were made to achieve internal validity.

External Validity.

External validity is the extent to which a study's findings can be generalized or extended to situations beyond the case study (Yin, 2003; Leedy and Ormrod, 2005). In designing the research, framing the case study using theory and replicating it similar settings help establish external validity (Yin, 2003; Leedy and Ormrod, 2005).

This particular study relied heavily upon the existing KM and leadership theory discussed in Chapter II in its research design. The investigative questions posed to the study participants were a direct reflection of the "Four-Pillar" framework and also guided the collection of data from retrieved documents. Additionally, this immediate case study is a partial replication of Booker's thesis conducted in 2006 (Booker, 2006). Both studies used the same framework theory in its research design. In fact, this study uses the same principal KM leadership sub-elements identified in Booker's research.

Reliability.

The goal of reliability is to "demonstrate the operations of the study—such as data collection procedures—can be repeated with the same results" in efforts to reduce any potential errors or biases (Kidder and Judd, 1986, p.26-29; Yin, 2003). Yin (2003) advises using a case study protocol design to combat such issues and best achieve reliability.

The particular case study protocol followed by this study's researcher is detailed throughout this chapter. This protocol process allows any subsequent researchers following the prescribed methods to obtain similar results, barring any differences contributed to maturation of the departments' KM programs.

IV. Analysis

Introduction

The purpose of this research is to compare and contrast the KM leadership approaches within the DOD, guided by the Four Pillar Framework. This chapter presents the results of an analysis performed on the data collected. The chapter begins with a review of the data collection process follows followed by each department's results. Each department's results section is partitioned further by the leadership sub-elements.

Review of Data Collection Process

A triangulation technique was used in collecting the data for this analysis. The three sources of evidence are categorized as each department's respective KM portal, a web search via Google, and feedback from interviews with KM practitioners. Unlike the web searches for data, all the KM portals (AKO, AFP, AFKN, and NKO) required authorization for access. While one of the interviewee's feedback was provided via email, the other 11 interviews were conducted over the telephone. Though each had varying levels of knowledge and experience in respect to their enterprise-level KM program, all interviewees worked in organizations with at least some service-wide responsibilities.

After all the data was collected, it was analyzed using a pattern-matching technique. It is important to note, the researcher subjectively interpreted the data. An individual content analysis was performed by the researcher, annotating evidence of the leadership elements in a data matrix. An example is depicted in Table 1.

Table 1. Example Data Matrix

Elements of Leadership	Portal	Web	Feedback (3)	Source (See Appendix)
Strategic planning, vision and goals	x	x	x	1, 2, 3, 4, 6, a, c, A, B
Senior leadership commitment	x	x	x	1, 2, 3, 4, 5, 6, a, b, c, d, f, A, B
KM programs tied to metrics			x	A, B
Formal KM offices/roles	x	x	x	1, 2, 3, 4, c, A, B
Tangible rewards for use of KM	x	x		2, 3, 7, e, f, g
Performance criteria include KM items	x		x	1, 2, 3, A, B

Description of Data Presentation.

Each table represents an illustration of what elements of KM leadership were supported by the data. The first column lists the elements of leadership within KM. The middle three columns represent the three categories of feedback. The number in parentheses in the feedback column denotes the number of interviews, in this case 2. An "x" in the intersecting box denotes evidence of that leadership sub-element from the corresponding source. The last column identifies the specific sources containing evidence of that leadership sub-element. KM portals are listed numerically; web documents and archival records are represented in lower-case letters; and, upper-case letters designate the KM practitioners' feedbacks. The tables represent only evidence identified and does not qualify how each department incorporates each element and to what extent. Following each department's data matrices, there is a brief description of how each department approaches the leadership elements in the following sections.

Department of the Army

Two KM practitioners responded and provided feedback for the DA. Both participants work separate KM initiatives within the Army's senior KM offices at the Pentagon. Additionally, 14 documents collected from the Army's AKO portal (restricted

access) and the World Wide Web provided evidence—7 from the portals and 5 from the web. The sources of evidence indicate the DA's approach to KM contains the following elements of leadership: strategic planning, vision sharing, and goal setting; executive commitment, KM program tied to metrics, tangible rewards for using KM, and performance criteria. A graphical depiction of the results is displayed in Table 2. The full list of sources providing evidence for the DA's KM leadership approach is found in Appendix B.

Table 2. Evidence of Leadership Elements in the DA's KM Program

Elements of Leadership	Portal	Web	Feedback (2)	Source (See Appendix B)
Strategic planning, vision and goals	x	x	x	1, 2, 3, 4, 6, a, c, A, B
Senior leadership commitment	x	x	x	1, 2, 3, 4, 5, 6, a, b, c, d, f, A, B
KM programs tied to metrics	x	x	x	2, 3, 4, 5, a, A, B
Formal KM offices/roles	x	x	x	1, 2, 3, 4, 7, c, A, B
Tangible rewards for use of KM	x	x	x	2, 3, e, f, g, A
Performance criteria include KM items	x		x	1, 2, 3, A, B

Strategic Plans, Vision, and Goals.

Within the DA's KM leadership approach, there is evidence of strategic planning, vision sharing, and goal setting provided by the AKO, web sources, and both practitioners' feedback. Army Knowledge Management (AKM) "is the DA's strategy to transform itself into a network-centric, knowledge-based force of the future" (DA, 2005, p. 2). AKM is integral to the transformation efforts to become the future force as outlined in *The Army Campaign Plan* (ACP) and *Army Regulation* (AR) *25-1: Army Knowledge Management and Information Technology* (DA, 2003a, 2003b, 2005). In the *Army Knowledge Management Strategic Plan* (2003a), the vision of AKM is:

> "A transformed Army, with agile capabilities and adaptive processes, powered by world class, network-centric access to knowledge, systems, and services, interoperable with the Joint environment." (p. 1)

Also detailed in the plan (2003a) are its five strategic goals:

> Goal 1: Adopt governance and cultural changes to become a
> knowledge-based organization.
> Goal 2: Integrate knowledge management concepts and best practices
> to promote the knowledge-based force.
> Goal 3: Manage the infostructure as an enterprise to enhance
> capabilities and efficiencies.
> Goal 4: Institutionalize Army Knowledge Online (AKO) as the enterprise
> portal to provide universal secure access for the entire Army.
> Goal 5: Harness human capital for the Knowledge-based organization. (p. 12)

The plan further lists and describes objectives to obtaining each of the goals (DA, 2003a).

The end result of these AKM goals and objectives "is to manage the Army infostructure

as an enterprise and to align the Army with the Global Information Grid and the Future

Force" (DA, 2005, p. 2).

Senior Leadership Commitment.

The Army's commitment to KM is littered throughout the portal, web sources,

and interviews. From the most senior ranks, Army leaders are committed to KM and

provide the necessary guidance and direction through memorandums, regulation, plans

and other policy. The respondents and evidence confirmed this. The Army Chief of

Staff and Secretary of the Army signed and distributed the *AKM guidance memorandum*

#1, which briefly introduces AKM and its five goals Army-wide (Shinsek & White,

2001). The Vice Chief of Staff for the DA signed a 220-page *Headquarters Department*

of the Army: The Army Knowledge Management Implementation Plan that details

specific steps necessary for their vision and to obtain their goals (DA, 2003b). Not only

does AR 25-1 detail the purpose, strategy, vision of AKM and roles within it, but it also

mandates familiarity with them (DA, 2005). Additionally, the DA has invested in future

knowledge workers through their Army Knowledge Leaders scholarship program (DA,

n.d.-b). This scholarship program intends to build future knowledge leaders by awarding

civilian students scholarships to IT/IM education programs. The presence of all the KM

leadership sub-elements, especially where leadership is most involved within the strategic

plans and establishment of KM roles, testifies to the Army leaders' commitment to KM.

KM Program tied to Metrics.

All three sources indicate the DA's KM program is tied to metrics. Metrics,

according to one participant, are included in the ACP and the *500-Day Plan*, the CIO's

six goals in response to the ACP. Additionally, the AKM Strategic Plan mandates, "[t]he

CIO will track and measure AKM progress and accomplishments by evaluating the

performance of the goals, objectives, and initiatives." As such, the G6/CIO's website

includes accomplishments of each of the five AKM goals, also published in the *Army*

CIO/G-6: 500-Day Plan Update (DA, 2006a). The *Update* also lists additional

objectives for each goal as a way ahead to measure future AKM progress (DA, 2006a).

Finally, both the AKM's strategic and implementation plans reference using a balanced

scorecard system, benchmarking best practices, and establishing meaningful metrics or

numerical standards (DA, 2003a, 2003b)

Formal KM Roles in Existence.

The portal, web sources, and feedback demonstrate the establishment of KM roles

within the DA. AR 25-1, the DA AKM and IT regulation, and the AKM implementation

plan outlines the KM responsibilities of various offices (DA, 2003b, 2005). The G6/CIO,

for example, is designated as the functional directorate to lead KM efforts across the

Army (Shinseki & White, 2001; DA, 2005). It is within the CIO office where the

primary KM offices reside. The director of the Governance, Acquisition & Chief

Knowledge office is the DA's Chief Knowledge officer (CKO) and leads KM efforts (DA, 2006b). Former CIO once said, "The Army's Chief Information Office has championed the AKM strategy, which includes web enabling all Army applications, using knowledge management principles and techniques to improve organizational performance, and managing the IT infostructure and services from any where in the world, leveraging the internet at anytime" (DA, 2003a, p. 7).

Tangible Rewards for Use of KM.

Similar to the preceding leadership elements, all three categories of sources support the DA's rewarding for the participation in KM. The DA has established a KM awards program, Army Knowledge Awards, presented annually at the LandWarNet conference (DA, 2003a; Wages, 2006). The awards program recognizes outstanding AKM initiatives. (Wages, 2006). No other evidence of tangible rewards was identified in the collected sources.

KM incorporated in Performance Criteria.

The AKO and both practitioners provided support for the element of incorporating KM into performance criteria. Like the KM metrics, the interview feedbacks referred back to the ACP and initial *500-Day Plan*. In the AKM implementation plan, several offices are required to determine relevant performance criteria for various KM related tasks (DA, 2003b). Many of these criteria, as also stated in the CSA's and SA's *Army Knowledge Management (AKM) Guidance Memorandum Number 2,* must be reported via the Key Performance Metrics Monitor and Strategic Readiness System (Shinseki & White, 2002).

"The Strategic Readiness System (SRS) is an integrated management and measurement system that ensures that all levels of the Army recognize and align their operations to the vision, objectives, and initiatives of The Army Plan (TAP) and measures each element's success in achieving these goals. The system is mission-focused, evaluates strategic readiness, links readiness to resourcing decisions, leverages web-based automation, and focuses on the Army's future capability to perform its missions." (DA, 2003a)

One practitioner summed it up best commenting that within the DA's enterprise-level KM office, nothing is done that does not support the ACP.

Department of the Air Force

For the DAF, three KM practitioners provided feedback. One respondent works KM from the Pentagon while the other two work for the DAF's lead KM office, the Center of Excellence for Knowledge Management (CEKM). Additionally, 12 documents with evidence of DAF KM leadership were collected from the Air Force Portal (AFP) and AFKN portals (both restricted access) and the World Wide Web—ten from the portals and two from the web. The sources of evidence indicated the DAF's approach to KM contains the following elements of leadership: strategic planning, vision sharing, and goal setting; senior leadership commitment, KM program tied to metrics, tangible rewards for using KM, and performance criteria include KM items. A graphical depiction of the results is displayed in Table 3. The full list of sources providing evidence for the DAF's KM leadership approach is found in Appendix C.

Table 3. Evidence of Leadership Elements in the DAF's KM Program

Elements of Leadership	Portal	Web	Feedback (3)	Source (See Appendix C)
Strategic planning, vision and goals	x	x	x	2, 3, 5, 6, 10, a, b, A, B
Senior leadership commitment	x	x	x	1, 2, 3, 5, b, A, B
KM programs tied to metrics	x	x	x	3, 6, 7, b, B, C
Formal KM offices/roles	x	x	x	1, 3, 4, b, A, B, C
Tangible rewards for use of KM	x		x	9, B, C

Performance criteria include KM items	x		x	3, 10, 4, B

Strategic Plans, Vision, and Goals.

The AFP and AFKN portals, the web, and two of three respondents supported strategic planning for DAF KM. The value of managing knowledge is first apparent in the DAF's new vision document, AF Vision 2025. Within it, one of the vision's goal stresses the importance deliberate actions enabled by knowledge (DAF, 2006). KM is also briefly documented in the *Air Force Information Strategy* (DAF, 2002) and further expounded upon in the *Information Resources Flight Plan* (DAF, 2004), both published by the Air Force's Chief Information Officer (CIO) office. Goal 7 of the Information Strategy is to "[i]mplement knowledge management practices and technologies to assure knowledge is identified, captured, and shared" (DAF, 2002). Three objectives of this goal are to:

- Identify and adopt KM best practices and technologies;
- Facilitate identification, capture, transfer, and sharing of knowledge sources and/or content;
- Foster ongoing integration of new knowledge into work practices. (DAF, 2004)

Concerning KM-specific strategic plans and visions, the practitioners' responses conflicted. While one practitioner referred to only joint doctrine for KM strategic plans, another referenced working CONOPs in draft form, the Knowledge-Based Organization (KBO) and Knowledge-Centric Operations (KCO) concepts. The third respondent flatly stated there is no focus on service-level KM; he asserts the KBO and KCO concepts were recently "scrapped" and there was no official KM-specific strategy, officially on paper, within the DAF. However, a 2005 document entitled *Air Force Knowledge Management* produced by the DAF's lead KM office apparently defines a vision and mission for DAF

KM (Sasser, 2004). According to the document, the vision is to "[c]reate an environment that provides integrated processes, best practices, and operations designed and structured to enhance and institutionalize collaborative and innovation-enabling capabilities Air Force wide" and the mission is to "[a]ccelerate decision-making capabilities and enable superior battle space awareness through boundary-less sharing of intellectual capital" (Sasser, 2004). However, that document's legitimacy may be question as it also discusses the aforementioned defunct KBO and KCO concepts. Though the DAF may lack a general KM vision, the vision for AFKN, the DAF's KM portal, is to store and access information centrally in AFKN, managing it at the source of ownership and expertise (Adkins, n.d.).

Senior Leadership Commitment.

The portals, web sources, and two of three respondents supported evidence of Air Force senior leadership's commitment to KM. The practitioners' responses again varied on the amount of commitment received from leadership. According to one practitioner, leadership support exists, demonstrated by dedicated time and resources. Another interviewee added Air Force leaders seek industry leaders for KM consulting. A third respondent, however, acknowledged there is some effort to investigate the benefits of KM, but contested there are still many questions from senior leadership and very little funding. While several DAF publications, such as the *USAF Strategic Planning Directive for FY 2006-2023* and *USAF Transformation Flight Plan—November 2003*, acknowledge the importance knowledge to the Air Force activities, they did not necessarily demonstrate commitment to KM. On the other hand, the publication and

distribution of other official and signed DAF material were examples of some senior leader commitment to KM (DAF, 2004; Gilligan, 2004).

KM Program tied to Metrics.

Although the portals, web sources, and two of three practitioners' feedback included evidence of KM metrics, the interviewees also confessed there is not yet an official metrics program to measure KM in the DAF. Instead, the majority of KM metrics identified in the data were primarily used to gauge AFKN system usage (Brook, n.d. Sasser, n.d.; DAF, 2004; Adkins, 2005). The Information Resources Flight Plan did include two other qualitative metrics in its appendices—a milestone for published a program's "lessons learned" AF-wide and another for achieving 100% access to CoIs/CoPs through the AFP and AFKN (DAF, 2004). Overall, the respondents acknowledged the difficulty in measuring meaningful KM metrics; one suggested implementing user questionnaires to determine helpfulness.

Formal KM Roles in Existence.

Evidence of formal KM roles was identified in the portals, web sources, and all three feedbacks. In an official memorandum available from the AFP, the Air Force CIO designated the then AFKN office as the Center of Excellence for Knowledge Management (CEKM) and KM lead for the DAF (Gilligan, 2004). The CEKM continues to operate the AFKN, but one practitioner confirmed that the majority of its staff now focuses on the development of procedures, processes and a strategic plan for DAF KM. Though one practitioner works KM from DAF CIO's office at the Pentagon, the extent of KM offices and duties at the Headquarters level could not be determined. Likewise, there is no evidence of a Chief Knowledge Officer.

Tangible Rewards for Use of KM.

Two practitioners and an awards program instruction collected from AFKN support rewarding for the use of KM. The feedback showed that since 2003, the CEKM has awarded the Community of Practice (CoP) of the Quarter and CoP of the Year awards. In addition to a certificate and photograph on AFKN, the award recipients are rewarded with a free conference trip. As relayed by the respondents, the program has been a great success in creating excitement for KM and encouraging others to follow suit. In fact, the finance function within the Air Force (SAF/FM) has adopted a similar award of its own.

KM incorporated in Performance Criteria.

Though several portal documents provided evidence for the DAF's incorporation of KM into performance criteria, only one practitioner did the same. That interviewee recognized that the Air Force is focused on mission accomplishment. While the mission is not KM, he continued, KM is a key enabler for the mission and goals. Three portal documents also provided evidence. Performance objectives listed in the *SAF/XC Strategic Plan* include creating knowledge-sharing systems and a knowledge center of excellence (DAF, 2005b). The *Information Resources Flight Plan* identifies a relationship between KM (its Goal 7) and an objective from the *2005-2009 Air Force Strategic Planning Objectives* (DAF, 2004). Finally, the *Air Force Strategic Plan 2006-2008* recognizes several objectives are enabled by KM (DAF, 2005a). For example, objectives for all three priorities—winning the war, developing Airmen, and recapitalizing aging aircraft—include KM items such as developing knowledge-enabled warfighting capabilites, leveraging knowledge for decision making, tapping into new

sources of knowledge for Airmen development, and knowledge sharing for continuous process improvement (DAF, 2005a).

Department of the Navy

The DON is unique from the DA and DAF in that it comprises two military services: the United States Navy (USN) and United States Marine Corps (USMC). As previously mentioned, the unit of analysis is department level and thus they were analyzed together as the DON.

The NKO portal provided three pieces of evidence while the web added an additional five documents and records. Seven KM practitioners provided feedback for the DON—six respondents within the USN and the other from the USMC. However, according the lone Marine Corps respondent, the official USMC stance is IM and KM are no different—USMC IM is KM. The feedback, however, did suggest there is some disagreement to their official position. Regardless, the large majority of the data for the DON was collected from the USN.

The collected evidence suggests the DON exhibits leadership elements of strategic planning, vision and goals; senior leadership commitment; KM programs tied to metrics; formal KM offices and roles; tangible rewards for the use of KM; and performance criteria include KM items. An illustration of the KM leadership elements found in the DON is represented in Table 4.

Table 4. Evidence of Leadership Elements in the DON's KM Program

Elements of Leadership	Portal	Web	Feedback (7)	Source (See Appendix D)
Strategic planning, vision and goals	x	x	x	1, 2, a, d, A, B, C, D, E, F
Senior leadership commitment	x	x	x	1, 2, 3, a, b, d, A, B, E, F
KM programs tied to metrics	x		x	2, 3, B, D, E

Formal KM offices/roles	x	x	x	1, e, A, B, C, D, F
Tangible rewards for use of KM		x	x	c, e, A, B, C, D, E
Performance criteria include KM items	x		x	2, 3, A, D, F

Strategic Plans, Vision, and Goals.

The portal, web sources, and all six Navy respondents supported evidence of

strategic plans, vision, and goals. The *Department of the Navy Information Management*

and Information Technology Strategic Plan (2006) was published by the DON CIO and

his leadership team and endorsed by the Chief of Naval Operations (CNO), Secretary of

the Navy (SECNAV), and Commandant of the Marine Corps (CMC). Of the plans six

goals, Goal 4 pertains to KM. It reads, "[c]reate, align, and share knowledge to enable

effective and agile decision-making to achieve Knowledge Dominance" (DON, 2006b, p.

15). It aims to transform the DON from a culture of knowledge retention to one of

knowledge sharing and transfer. Strategies to accomplish this include:

> 1. Create the knowledge culture and processes to operationalize the sharing of
> essential information.
> 2. Implement a comprehensive standards-based content management strategy
> across the Department.
> 3. Establish single authoritative data sources across the Department.
> 4. Effectively manage records and continue the Department-wide implementation
> of electronic records management. (DON, 2006b, p. 15)

Several practitioners referred also to the KM Strategy memorandum issued by the

DON CIO. Per the *Department of the Navy Knowledge Management Strategy*

memorandum, "[t]he DON vision of KM is to create, capture, share, and reuse

knowledge to enable effective and agile decision-making, increase the efficiency of task

accomplishment, and improve mission effectiveness" (Wennergren, 2005, p. 1). To

achieve this vision, the DON KM strategy "is a centralized vision executed through

decentralized implementation" by commands who recognize and value these KM

concepts as an enabler for transformation (Wennergren, 2005, p. 1). The four-fold

strategy for implementation is to:

- First, broaden and expand Departmental awareness that KM concepts, when applied to the operational and business process of any command, will enable significant improvements in mission accomplishment.
- Second, encourage commands to implement KM programs, structures, pilots, and methodologies as part of process improvement efforts.
- Third, assist command with KM experience share their experiences, lessons learned, and results to foster collaboration, enable shortened learning cycles, and assist other efforts.
- Fourth, assist commands embarking on new implementations build upon the experiences and resources of others. (Wennergren, 2005, p. 2)

The memorandum then details several focus areas including KM advocacy and education

and training (Wennergren, 2005).

Senior Leadership Commitment.

The NKO portal, web source, and four of six practitioners support evidence of

senior leadership commitment to KM. The aforementioned DON CIO memorandum and

IM/IT strategic plan are evidence. Other examples of commitment include a 2-day KM

instructional course for DON commands and an in-depth metrics guide specifically for

KM (DON, 2001; Roth, 2007).

One practitioner, however, commented that the DON KM strategy memorandum

is more encouragement than a directive and perhaps the CIO office is not the appropriate

level for KM efforts. The CNO and other senior leadership are not very involved and, as

a result, the respondent continued, KM is not being executed operationally throughout

DON.

KM Program tied to Metrics.

The NKO and half of the KM practitioners provided support for this leadership sub-element. Though the practitioners stated that KM metrics were primarily confined to gauging system use for NKO and CoPs, a *Metrics Guide for Knowledge Management Initiatives* was published by the DON CIO office in August 2001. The guide explains the role and value of metrics, the various types, and what should be measured. According to the guide, metrics and performance should determine the extent of knowledge usage and sharing, and not just how often it was accessed (DON, 2001). Additionally, it delineates between systems measures, relating to IT system performance; output measures, measuring direct process output for users; and outcome measures, which determine the overall impact of KM initiatives on the entire organization (DON, 2001).

Formal KM Roles in Existence.

The existence of formal KM roles is evident in the NKO, web sources, and practitioners' feedback. Although there is currently no Chief Knowledge Officer (CKO), there is a KM team within DON CIO office. However, the organization of the KM team is unknown. The strategy memorandum appointed that KM team as the department-lead (Wennergren, 2005). Its purpose, according the DON CIO website, is to promote and assist in implementing Departmental KM (DON, 2006a). One respondent clarified the KM team provides only guidance and does not mandate KM. In addition to the DON KM team and the NKO offices, the DON Information Management/Information Technology/Knowledge Management (IM/IT/KM) Civilian Career Path Guide promotes civilian knowledge workers (DON, 2006a).

Tangible Rewards for Use of KM.

Rewards are provided for the use of KM as evidenced by the web sources and feedback from the interviews. Though there is no department-wide awards program specific to KM, the DON IT/IM excellence awards rewards KM efforts in its Knowledge Superiority category (DON, 2006a; Honegger, 2007). Feedback revealed some commands, such as the Naval Personnel Development Command, have instituted a KM awards program. Several practitioners did note that KM is self-rewarding for those that engage in KM.

KM incorporated in Performance Criteria.

Data from the NKO portal and half the interviews supported this final element of leadership, though few specific examples are cited. The *Metrics Guide for Knowledge Management* urges for KM metrics to be tied to performing mission objectives. "As much as possible, the KM measures should be related to, or the same as, existing measures in the organization that are used to monitor the success of performing mission objectives" (DON, 2001). This leadership element is also taught in the DON's KM 101 instructional course, which covers how KM is driven by a need to increase organizational performance (Roth, 2007).

V. Discussion, Conclusions and Recommendations

This research has focused on the KM leadership approaches evident within the DOD. After an extensive literature review, two statements were proposed to help focus the case study. The main purpose of this chapter is to determine whether the data presented in Chapter IV supports the study's propositions. This chapter and thesis will close with a discussion of limitations, recommendations for future research and a brief conclusion.

Comparison Summary of Findings

The DA's, DAF's, and DON's KM leadership elements are depicted together in Table 5.

Table 5. Comparison of the Departments' Evidence of Leadership Elements

Elements of Leadership	DA			DAF			DON		
	Portal	Web	Fdbk (2)	Portal	Web	Fdbk (3)	Portal	Web	Fdbk (7)
Strategic planning, vision and goals	x	x	x	x	x	x	x	x	x
Senior leadership commitment	x	x	x	x	x	x	x	x	x
KM programs tied to metrics	x	x	x	x	x	x	x		x
Formal KM offices/roles	x	x	x	x	x	x	x	x	x
Tangible rewards for use of KM	x	x	x	x		x		x	x
Performance criteria include KM items	x		x	x		x	x		x

The table illustrates the leadership elements evident of each of the department's. As previously mentioned, it only represents evidence identified and does not qualify how each department incorporates each element and to what extent.

Propositions

Propositions, a key component to the case study methodology, guide the direction of research (Yin, 2003). A review of current KM theory, KM framework theory, and KM within the DOD literature led to the development of this study's two propositions.

1. Each department demonstrates some elements of the KM leadership pillar.

2. Each department approaches KM leadership in unique fashions.

Each Department demonstrates some elements of the KM Leadership Pillar.

The data reveals that all three Departments exhibit evidence of each of the sub-elements. According to the data, leadership elements of strategic planning, senior leadership commitment, and formal KM roles and offices appear to have the strongest support across the DOD. In contrast, the DOD evidently has the most difficult time including KM items in its performance goals. The departments are also alike in that the identified metrics focus mainly on KM IT systems, i.e. KM portal usage. Altogether, the departments seem to display similar aspects in their leadership approaches.

Each Department Approaches KM Leadership in Unique Fashions.

There are differences, however, in how each Department's leadership approaches KM. The evidence suggests the DA's approach to be the most comprehensive. The Army's most senior leaders, the Chief of Staff of the Army and Secretary of the Army, are involved in KM. They developed a strategic plan (AKM), corresponding goals and designated a CKO within the CIO office as the KM-lead. Additionally, they mandated familiarity with the AKM strategic plan and goals department-wide. The DA has established KM-specific strategic plans, goals, regulations awards programs and

performance metrics that all align to communicate one message. AKM is not an option but the Army's way of business to achieve their transformational vision.

The DAF, on the other hand, does not have the support for KM as the DA has. Though the DAF recognizes the importance of managing knowledge, there was no evidence of the Chief of Staff of the Air Force's or Secretary of the Air Force's commitment to DAF KM. For example, there is no CKO, KM authority or champion at the Headquarters Air Force level. In fact, the Air Force CIO designated a KM-lead only after several home-grown KM efforts were already in practice. Since then, however, the CEKM has focused on growing CoPs within the AFKN and have done so successfully. However, the DAF still lacks KM leadership leading KM from the top.

The DON, comprised of both the USN and USMC, is an interesting case. While the DON also does not have a CKO, they do have a KM team at Headquarters level within the CIO office. This team, however, only provides KM guidance and not mandated direction like the DA. Thus, the Navy and the Marine Corps are permitted to address KM individually within their own services. Though the Marine Corps has not distinguished between KM and USMC IM, the Navy has pursued KM efforts.

Unlike the DAF, the DON has published KM specific literature, including a KM strategy memorandum. The DON also released a KM metrics guide in 2001, providing instruction on how to best measure KM progress. While their CIO office does reward for Knowledge Superiority, the DON is the only department without a KM-specific awards program. Still, many organizations within the Navy chose to implement KM programs. The Navy's 2-day instructional course aids to their efforts. The DON's leadership has done well encouraging KM, but still lacks firm direction.

Limitations

  The analysis of the data and subsequent results were based only on the evidence collected during the study. However, the data collected was limited to the accessibility and availability of the departments' KM portals, documents and practitioners. The guest accounts for the AKO and NKO portals, for example, may have restricted access from certain valuable data. The quantity of feedback was limited to the KM practitioners who where invited *and* agreed to participated in the study and varied between each department. In addition, the quality of feedback depended on the interviewee's familiarity and level of responsibility of KM within their department; thus, feedback quality was limited to the willing participants and differed between departments. As the respondents were not randomly chosen, the study's results may not be generalizable even within each case. Due to these aforementioned factors, it is possible that there were developments or relevant information not made available/accessible to the researcher.

  Finally, this study is the result of a single primary researcher, allowing for a risk of researcher bias. Bias may have been present in the data collection process—selecting which evidence was appropriate to include into the study—and data analysis since they were conducted by the same researcher. These limitations may have affected the overall accuracy of the study's assessment.

Conclusions

  This research has sought to extend a previous study and provide a more detailed description of the leadership approaches evident within the DOD. After a careful review

of existing literature, a case study design was chosen to conduct the investigation guided by the Four Pillar Framework. This methodology utilized a triangulation technique, gathering data from online web searches, each department's KM portals, and feedback from KM practitioners. The collected data was analyzed using a pattern-matching technique then compared to the earlier propositions.

The evidence supported both propositions. First, the Departments of the Army, Air Force and Navy each displayed some aspect of KM leadership. In fact, all three departments revealed some evidence, though to varying degrees, of every identified leadership sub-element.

Second, each department approaches KM leadership differently. The evidence suggested the DA to have the most comprehensive. The Army has the most extensive KM literature and, more importantly, strong senior leader commitment. The DA is the best example of a top-down approach to KM. The DAF, conversely, appears to have a bottom-up approach. It was initial grass-roots efforts within the Air Force that led to the eventual designation of a department-lead for KM. Though the DAF has recognized the importance of knowledge, they still lack strong senior commitment. The DON is similar in that respect. Though they lack the senior leader commitment portrayed by the DA, the DON does encourage the practice of KM. They have a unique challenge, however, in having two separate services within the DON.

In conclusion, more evidence of KM leadership elements than was found for each department in the previous study. However, there still appears to be more focus on information management and information technology than knowledge management. For the future, the departments should realize that IM is a subset of KM and not opposite.

The DOD needs to move from this focus on IM/IT to become true KBO. Finally, as required by the *Capstone Concept for Joint Operations* (2005), the departments must eliminate boundaries and learn to "acquire, refine, and share knowledge" as one U.S. Joint force to meet the warfighting demands of tomorrow.

Recommendations for Further Study

  This study provides four recommendations for further study. The first recommendation is to conduct a single case study, examining each military service more in-depth individually. Where the USN and USMC were examined together as the DON, researching one separate from the other may prove enlightening. A study concentrated on a single service could benefit from multiple units of analyses, examining the different levels of leadership. This research should attempt gather more feedback from KM practitioners through interviews, a survey and/or self-assessment tool. Finally, conducting a full content analysis with a minimum of three coders would minimize researcher bias.

  The second recommendation is to replicate this study several years from now. Another recommendation is to assess the maturity of each department's KM program and determine if KM leadership has a relationship with KM maturity within the DOD. A final recommendation is to conduct similar research guided by the other pillars for a Four Pillar Framework. Together, the four studies would provide a more complete comparison and illustration of the KM programs within the DOD.

Appendix A: Acronym List

ACP	Army Campaign Plan
AFKN	Air Force Knowledge Now
AFP	Air Force Portal
AKM	Army Knowledge Management
AKO	Army Knowledge Online
AR	Army Regulation
CAC	Common Access Card
CEKM	Center of Excellence for Knowledge Management
CIO	Chief Information Officer
CKO	Chief Knowledge Officer
CoI	community of interest
CoP	community of practice
DA	Department of the Army
DAF	Department of the Air Force
DOD	Department of Defense
DON	Department of the Navy
FM	Financial Management
IM	information management
IT	information technology
KBO	knowledge-based organization
KM	knowledge management

NKO	Navy Knowledge Online
PIN	personal identification number
SAF	Secretary of the Air Force
TAP	The Army Plan
USMC	United States Marine Corps
USN	United States Navy
XC	Warfighting Integration

Appendix B: The Department of the Army's KM Documents

This appendix lists the sources that provided evidence of the Army's KM leadership approach. Each source was evaluated for evidence of identified KM leadership elements from the Four Pillar Framework. The list of sources is divided into two sections. The first section contains items retrieved from KM Portals and the second contains items obtained from alternate sources on the World Web Web (Google, military websites, and KM practitioners). The numbered sources indicate they were obtained from KM and the items that are marked with lower-case letters indicate they were obtained from alternate web sources. Upper-case letters signify individual interview feedbacks from KM practitioners; however, these individuals are not referenced in appendix due to the Human Subjects Board Exemption rules.

Army Knowledge Online (https://www.us.army.mil – restricted access)

1. Department of the Army. (2005). *Army Regulation 25-1 Information Management: Army Knowledge Management and Information Technology.* Washington: HQ DA.

2. Department of the Army. (2003a). *The Army Knowledge Management Strategic Plan. Second Ed.* Washington: Department of the Army Chief Information Office / G-6.

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a. Winkler, G. L. (2005). Department of the Army. *Army Knowledge Management.* Principal Director of Governance, Acquistion and Chief Knowledge Officer.

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g. Onley, D. (2004). Army Salutes Knowledge Management Projects. Government Computer News. Retrieved November 29, 2006 from http://www.gcn.com/eletters-archive/.

Appendix C: The Department of the Air Force's KM Documents

This appendix lists the sources that provided evidence of the Air Force's KM leadership approach. Each source was evaluated for evidence of identified KM leadership elements from the Four Pillar Framework. The list of sources is divided into two sections. The first section contains items retrieved from KM Portals and the second contains items obtained from alternate sources on the World Web Web (Google, military websites, and KM practitioners). The numbered sources indicate they were obtained from KM and the items that are marked with lower-case letters indicate they were obtained from alternate web sources. Upper-case letters signify individual interview feedbacks from KM practitioners; however, these individuals are not referenced in appendix due to the Human Subjects Board Exemption rules.

Air Force Knowledge Now (https://afkm.wpafb.af.mil – restricted access) accessed via
Air Force Portal (https://www.my.af.mil – restricted access)

1. Gilligan, J. (2004). *Knowledge Management Memorandum.* Department of the Air Force. United States Air Force Chief Information Officer.

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3. Department of the Air Force. (2004). *Information Resources Flight Plan: August 2004.* Washington: United States Air Force Chief Information Officer.

4. Department of the Air Force. (2005b). *Office of Warfighting Integration and Chief Information Officer Strategic Plan FY 2006.* Washington: SAF/XC.

5. Department of the Air Force. (2006). *Air Force Vision 2025.* Washington: HQ USAF.

6. Adkins, R. (2005). *Air Force Knowledge Now: Air Force KM Center of Excellence.* HQ AFMC/TRCI.

7. Adkins, R. (n.d.). *Air Force Community of Practice Workshop: Defining the Community of Practice.* HQ AFMC/DR.

8. Brook, D. (n.d.). *Air Force Knowledge Now.* Air Force Material Command HQ AFMC/DRW.

9. Department of the Air Force. (n.d.). *AFMC Strategic Organizational Development Directorate Community of Practice (CoP) Awards Program.* Wright-Patterson AFB: HQ AFMC.

10. Department of the Air Force. (2005a). *Air Force Strategic Plan 2006-2008*. Washington: HQ USAF.

World Wide Web

a. Sasser, D. (2005). *Air Force Knowledge Management.* Department of the Air Force, Air Force Material Command. Center of Excellence for Knowledge Management. Wright-Patterson Air Force Base, OH.

b. Sasser, D. (n.d.). *Air Force Knowledge Management: The Way Ahead.* Department of the Air Force, Air Force Material Command. Center of Excellence for Knowledge Management. Wright-Patterson Air Force Base, OH.

Appendix D: The Department of the Navy's KM Documents

This appendix lists the sources that provided evidence of the Navy's KM leadership approach. Each source was evaluated for evidence of identified KM leadership elements from the Four Pillar Framework. The list of sources is divided into two sections. The first section contains items retrieved from KM Portals and the second contains items obtained from alternate sources on the World Web Web (Google, military websites, and KM practitioners). The numbered sources indicate they were obtained from KM and the items that are marked with lower-case letters indicate they were obtained from alternate web sources. Upper-case letters signify individual interview feedbacks from KM practitioners; however, these individuals are not referenced in appendix due to the Human Subjects Board Exemption rules.

Navy Knowledge Online (https://www.nko.navy.mil – restricted access)

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3. Department of the Navy. (2001). *Metrics Guide for Knowledge Management Initiatives.* Washington: Department of the Navy Chief Information Officer.

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a. Department of the Navy. (2006). *Department of the Navy Information Management and Information Technology Strategic Plan FY 2006 - 2007.*Washington, DC. Retrieved January 3, 2006, from http://www.doncio.navy.mil/FY06StratPlan/.

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14. ABSTRACT

Knowledge has superseded traditional corporate assets and has become the strategic resource for competitive advantage. To reap the benefits of knowledge, organizations must harvest and leverage the collective knowledge of the entire workforce. This is achieved through effective knowledge management. KM involves processes to create, to store, and transfer knowledge to accomplish business objectives and to achieve a competitive advantage.

The Department of Defense has also recognized the importance of KM and have since mandated the acquiring, refining, and sharing knowledge. The Departments of the Army, Air Force, and Navy have each undertaken individual KM efforts. This research, guided by Dr. Michael Stankosky's Four Pillar Framework, used a case study methodology to investigate each of the department's KM leadership and described how they compare and contrast (Stankosky, 1999). This study identified evidence of each KM leadership element for all three departments. Additionally, this research revealed that each department approaches KM leadership uniquely.

15. SUBJECT TERMS
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