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IDENTIFYING BARRIERS TO KNOWLEDGE MANAGEMENT IN THE UNITED STATES MILITARY

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Abstract

The evolution of computing technology has changed the landscape of the modern world and workplace from an Industrial Age to a Knowledge Age. Where the focus in the past has been on traditional organization resources such as land, labor, and capital, today knowledge is being recognized as the most strategically significant organization resource (Drucker 1993). The focus on knowledge and knowledge processes has led to the concept and practice of knowledge management (KM). Definitions for KM abound, but what is necessary to understand is that the general purpose of KM is to "enhance organizational performance by explicitly designing and implementing tools, processes, systems, structures, and cultures to improve the creation, sharing, and use of…knowledge that [is] critical for decision-making" (Delong and Fahey 2000, para 14). As such, it is widely acknowledged that KM must become part of the basic fabric of successful organizations (Davenport and Grover 2001, p. 4). Military organizations are no exception. In order to achieve service goals of "information and knowledge superiority" knowledge management must become a key focus. It has been recognized, however, that there are many influence factors that act as barriers to implementing KM both inside and outside the military. Whereas sufficient research exists that addresses barriers to KM implementation in the private sector, such research concerning the military is sparse. This dissertation uses a case study approach to answer the basic research question: What influence factors act as barriers to KM implementation across the U.S. military services?

Introduction

The evolution of computing technology has precipitated the transition of society from an Industrial Age to a Knowledge Age. While unprecedented advances in information technology have allowed organizations to increase productivity, reduce cycle times, and integrate operations, this same technology has caused an information glut that has overwhelmed, instead of helped, its human users. This glut highlights the importance of "knowledge", rather than "information" or "data", as the key to future organizational successes and innovation (Amidon, 1997). As a result, organizations are beginning to shift their strategic focus from land, machines, and capital, to knowledge as the their critical resource (Drucker, 1993). The military is no exception.

The new focus on knowledge and knowledge processes has generated the concept and practice of knowledge management (KM). KM is said to "enhance organizational performance by explicitly designing and implementing tools, processes, systems, structures, and cultures to improve the creation, sharing, and use of…knowledge that [is] critical for decision-making" (Delong and Fahey, 2000, para 14). While some argue that it is just another management "fad", KM is growing in many organizations. According to Davenport and Grover, "…[KM] must become part of the basic fabric of successful businesses (2001, p. 4)."

Military Interest in Knowledge Management

Like other organizations, the U.S. military services are challenged by the realities of the Knowledge Age. Joint Vision 2020 and service doctrines all tout the need for "information superiority" and "knowledge superiority" as critical core competencies in fighting future wars (Joint Chiefs of Staff 2000; Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence 2000). In military circles, information technologies are causing a revolution in both business

and military affairs. Such revolution is "driving the services to transform their structures and warfighting doctrines from an Industrial Age model to one embodied in today's successful Information Age corporations" (Johns, Shalak, Luoma, and Fore 2000, p. 4). Knowledge management is at the center of this transformation.

Factors that Influence Knowledge Management

Factors that influence KM implementation have been found to include culture, leadership, technology, organizational adjustments, evaluation of knowledge management activities and resources, governance/administration of knowledge activities and resources, employee motivation, and external factors (Holsapple and Joshi 2000; 2002). Holsapple and Joshi (2000; 2002) classified influences into three categories: managerial influences, resource influences, and environmental influences (Figure 1). This classification provides a framework for identifying KM implementation barriers.

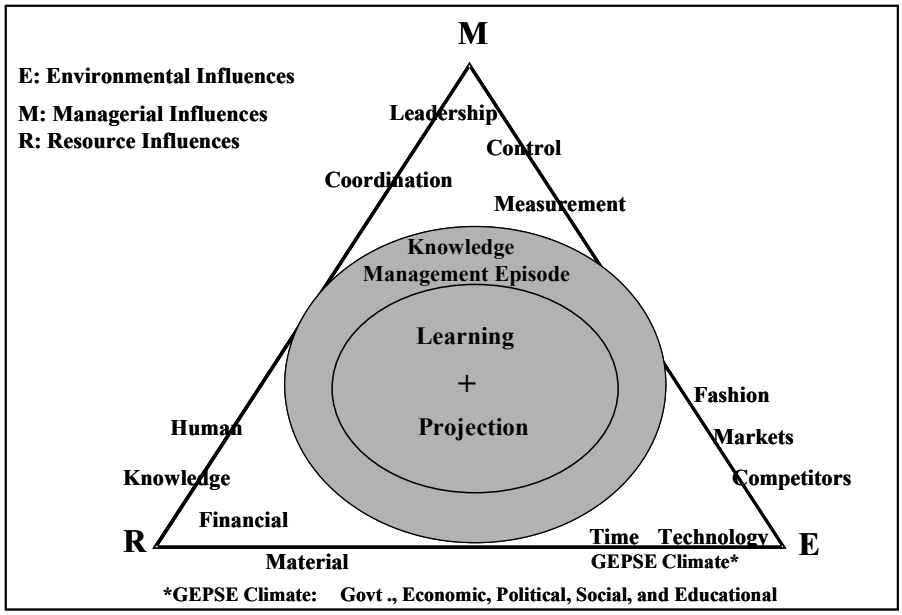

Figure 1. KM Influences Framework (Holsapple and Joshi 2000)

The Military "Context"

KM activities in military organizations must be deployed and conducted within a complex military culture, bureaucracy, and policy environment that has been well documented (Lehman and Sicherman 1999; CSIS 2001). Because of its unique structural and cultural attributes, the managerial, resource, and environmental factors that influence the military's KM efforts need to be investigated.

Research Needs

KM research, for the most part, has not considered the military. Such scarcity of research relates to the military's delay in starting KM efforts. Past research does, however, argue for an examination of the unique barriers to the military's KM efforts (Plant 2000; Bower 2001; Johns et al. 2000). Therefore, this research examines the managerial, resource, and environmental influences that act as barriers to the military's KM implementation efforts. This research will identify these barriers in order to propose how they can be circumvented or overcome to facilitate the implementation of KM activities within the U.S. military services. The general research questions include:

1. What are the managerial influences that act as barriers to KM programs in the military?
   a. How do leadership commitment and KM reinforcing behaviors from managers at various levels impact KM efforts?

b. What coordination issues (e.g. strategy alignment, outside organization relationships, disparate KM efforts) impact KM efforts?
c. What technical, social, and legal issues (e.g. issues concerning the protection and quality of knowledge resources) impact KM efforts?
d. What "measuring" or "valuing" issues impact KM efforts?

2. What are the resource influences that act as barriers to KM programs in the military?
   a. How do financial resource issues impact KM efforts?
   b. How do human resource issues (e.g. manpower availability, KM expertise/skill, outsourcing) impact KM efforts?
   c. How do material resource issues (e.g. existing technical infrastructure, computer systems) impact KM efforts?
   d. How do knowledge resource issues (e.g. human/computer-based knowledge, organizational culture, purpose/strategy, infrastructure, knowledge artifacts) impact KM efforts?

3. What are the (external) environmental influences that act as barriers to KM programs in the military?
   a. How do governmental, economic, political, social, and educational (GEPSE) climate issues impact KM efforts? How has the impact of the GEPSE climate changed over the past few years?
   b. How does technology (external to the military) impact military KM efforts?
   c. How have past military or industry KM strategies and results impacted current KM efforts and strategies?
   d. How does "time" (i.e. response time, development time, crisis scenarios) impact the KM efforts? Has the impact of "time" on KM efforts changed over the past few years?

Case Research Methodology

This research will be based on case research methodology. In a qualitative study, "one does not begin with a theory to test or verify" (Creswell 1994, p. 94). This is certainly the case in investigating factors that influence KM in the military. According to Paper (2001, para. 22), "case studies make an excellent vehicle to explore state-of-the-art thinking because researchers can gain a better understanding of "how" a phenomena works and "why" it works the way it does." According to Yin, "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 1994, p. 13).

The case study method is especially appropriate when investigating contextual conditions, "believing that they might be highly pertinent to [the] phenomenon of study" (Yin 1994, p. 13).

Much of the current research on KM and knowledge management systems has emerged from the IS field. Given that information systems are integral to many KM efforts, this seems a natural source of research. Case method research has been identified as the most common qualitative method used in information systems (Orlikowski and Baroudi 1991; Alavi and Carlson 1992). Benbasat, Goldstein, and Mead argue that "Case study research is particularly appropriate for certain types of problems: those in which research and theory are at their early, formative stages," and "sticky, practice-based problems where the experiences of the actors are important and the context of action is critical" (Bonoma 1983 and Roethlisberger 1977, as cited in Benbasat, Goldstein, and Mead 1987, p. 369). In fact, case study research of KM is also seeing a shift in emphasis from technological to managerial and organizational questions (O' Dell et al. 1998; Brown and Duguid 2000; Cohen and Prusak 2001). Clearly, the case study research method is well-suited to the study of knowledge processes and knowledge management systems in organizations.

Unit(s) of Analysis

As a general guide, Yin states that "the definition of the unit of analysis (and therefore the case) is related to the way the initial research questions have been defined" (1994, p.21). Since these research questions address KM in military organizations, the specific unit of analysis will be sub-units of those organizations in which KM projects/programs and/or knowledge management systems are being implemented.

Data Analysis Steps

The data for each case will be the answers to the research questions, which are based on the "influences" framework from Figure 1. Answers to these questions will help determine what "influences" KM implementations, and the subsequent barriers to effective implementation. According to Benbasat, Goldstein, and Mead, "The analysis of case data depends heavily on the integrative powers of the researcher" (1987, p. 374). Triangulation between multiple data sources (interviews, documents, archival records, knowledge management system demonstrations, etc.) will provide support to any conclusions. This research will be carried out as follows:

1. ***Theory Development***

According to Creswell, "In a qualitative study, one does not begin with a theory to test or verify. Instead, consistent with the inductive model of thinking, a theory may emerge during the data collection and analysis phase of the research or be used relatively late in the research process as a basis for comparison of other theories" (1994, p. 94-95). For this particular research effort, the Holsapple and Joshi KM "influences" framework (2000; 2002) provides an excellent foundation for "analytic generalization" (Yin 1994 p. 31), but does not "drive" theory development. This approach is consistent with Lather's (1986) qualification of the use of theory, which states:

Building empirically grounded theory requires a reciprocal relationship between data and theory. Data must be allowed to generate propositions in a dialectical manner that permits use of *a priori* theoretical frameworks, but which keeps a particular framework from becoming the container into which the data must be poured. (p. 267)

2. ***Initial Expert Interviews***

Initial interviews were conducted with experts involved with knowledge management in the U.S. military. The primary purpose of these interviews was to get both perspectives on KM in the military and possible suggestions for a fruitful and beneficial research focus. The expert interviews included the head of the Air Force KM program, the OASD/C3I (and KM head), the CKO of the Navy, and the Chief Scientist and CKO of the Air Force Operations and Test Center. These interviews were augmented by numerous contacts made at various KM activities and conferences such as the E-Gov Conference on KM (2001) and the Navy E-Business/Knowledge Fair (2001). The interviews and impromptu contacts were primarily in the form of unstructured conversations. This approach was most appropriate given the exploratory nature of the research.

3. ***Literature Review***

To refine the research direction and to aid in development of research questions, an extensive literature review was conducted. In this case, the literature was "used deductively as a framework for the research questions" (Creswell 1994, p. 22).

4. ***Research Questions***

The researcher decided to focus on those "situations" or "conditions" that prevented or acted as barriers to KM. The literature provided a framework for the research (Holsapple and Joshi's KM "influences" framework). This framework helped formulate the initial research questions.

5. ***Sample Selection***

A research design that generates "evidence from multiple cases is often considered more compelling, and [makes] the overall study … more robust" (Herriot & Firestone 1983, as cited by Yin 1994, p. 45). Yin states that each case in a multiple-case study "must be carefully selected so that it either (a) predicts similar results (a *literal replication*) or (b) produces contrasting results for predictable reasons (a *theoretical replication*)" (1994, p. 46). For the purposes of this research, a broad range of cases was selected to adequately cover the investigation in each of the military services as well as the address the variety of KM programs/projects in existence. Each of the cases serves a "specific purpose within the overall scope of inquiry" (Yin 1994, p. 45). Eisenhardt (1989) argues that random selection is neither necessary nor even preferable due to the fact that the goal of theoretical sampling is to choose cases, which are likely to replicate or extend emergent theory. For this research, six case studies were selected from military organizations identified as having an active KM program. Within this common military context, the cases equally represent the four services (Air Force, Army, Navy, and Marine Corps) and provide the basis for possible literal replication. The difference in service approaches to KM, and the unique organization missions (e.g. test & evaluation, medical,

engineering support, warfighter support, and acquisition) with their accompanying levels of organization acceptance/need for KM also provide a solid foundation for possible theoretical replication.

Preliminary Findings

A pilot case study was completed to test the research proposition, to strengthen the research questions, and to evaluate the overall research approach/design. The case study approach was found to be both an appropriate/robust method for addressing the research questions and well-suited to researcher's talents. Preliminary findings showed that the "influences" framework was appropriate for collecting and ultimately organizing the data. More specifically, it was found that that many influences, some specific to the military, act as barriers to the implementation of KM in the military service.

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