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ASSESSING A KNOWLEDGE MANAGEMENT (KM) PROJECT SELECTION FRAMEWORK

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Abstract

Knowledge management (KM) is becoming recognized as a valuable tool for establishing and maintaining competitive advantage. Decision superiority, the ultimate goal of KM, is only possible through the effective and efficient use of knowledge. But, to effectively and efficiently create and use KM, it is important to carefully select KM projects. This research assesses the usefulness of a KM project selection framework that was developed by U.S. Air Force Captain William Bower (2001) and refined by 1st Lt Jeffrey Phillips (2003) referred to here as the Bower-Phillips decision framework. To assess the usability of the framework, a case study was undertaken at an Air Force organization to identify and address potential knowledge management opportunities. The framework was found to be useful in identifying possible KM projects.

Keywords: knowledge management, project selection, framework

Background

Like many large organizations today, the Air Force has begun to adopt knowledge management (KM) as an important tool for operating in the rapidly developing information environment. KM has made its way to the forefront of the Air Force's Transformation Flight Plan, Information Resources Flight Plan, and Information Strategy (AF/CIO, 2002, 2004; HQ-USAF/XPXC, 2003). Early attempts at implementing KM within the Air Force and the Department of Defense (DoD) have been shown to provide benefits to include improved business processes and greater employee and customer satisfaction (Sasser, 2004).

As the Air Force seeks to take advantage of the improvements offered by the adoption of KM practices, an important issue is the selection of appropriate KM projects from the many possible choices. While selection of an appropriate KM project could provide many benefits to the Air Force, selection of an inappropriate project could result in a large waste of both time and money, with no real benefit. Therefore, a framework for aiding in the selection of an appropriate KM project could save the Air Force much time and money, and help to focus efforts where they could do the most good. Based on this need, Bower (2001) developed a model for Air Force organizations to use to identify and select appropriate projects for KM implementation. This model was assessed using a Delphi group, and improvements were made based on the group's feedback. Bower's final model included the following steps: analyze corporate strategic objectives, identify and analyze potential KM opportunities, identify and address potential KM projects, identify and address KM project variables affecting project success, identify & address success factors for project variables, and finalize KM project selection. Although the Delphi group agreed on the value of Bower's model, several of the members raised the issue of organizational culture. Phillips (2003), following up on this work, refined the model to include organizational culture and its affects on KM. The Delphi group used by Phillips for his research agreed that the identification and analysis of organizational culture should

occur as step three of the KM project selection framework. Thus, after inserting organizational culture assessment as a step in the framework, the Bower-Phillips framework consists of the following steps.

Step 1: Analyze Corporate Strategic Objectives Using SWOT (Strengths, Weaknesses, Opportunities, Threats) Methodology

Step 2: Identify & Analyze Potential Knowledge Management Opportunities

Step 3: Identify and Analyze Cultural Aspects of the Organization

Step 4: Identify & Address Potential Knowledge Management Projects

Step 5: Identify & Address Knowledge Management Project Variables Affecting Project Implementation & Success

Step 6: Identify & Address Success Factors For Project Variables Affecting the Successful Implementation of Knowledge Management Projects

Step 7: Finalize Knowledge Management Project Selection

Although the framework was developed with the assistance of Delphi groups, both Bower and Phillips recommended that the model be tested in a real world setting to see if it provided the necessary support for identifying and selecting a KM project. This study undertook that assessment by investigating an application of the framework in a real world organization, with real world issues related to the selection of KM projects. The organization selected for this study was a unit within the Air Force.

Research Question

Based on the desire to learn if the Bower-Phillips framework would work well to support organizations to identify and select appropriate KM projects, we proposed the following research question:

Does the Bower-Phillips decision framework support an organization's decision making process for selecting knowledge management (KM) projects?

Literature Review

The literature review explores KM success, with particular focus on efforts at the project identification and selection stage. The literature review also further explores the framework developed by Bower and Phillips.

Knowledge management is an emerging discipline that holds promise for organizations attempting to achieve the full potential and value of its knowledge resources. As with any emerging concept, the details of knowledge management may be fuzzy or confusing. KM is receiving a lot of attention lately, with business and academic journals seeing a 100 percent increase, per year, in KM articles (Despres & Chauvel, 2000).

Knowledge management involves the use of techniques, most often technological, of providing an organization's knowledge resources for the use and resultant advantage of the organization as a whole in the support of decision making (Alavi & Leidner, 2001; Brown & Duguid, 2002; Davenport & Prusak, 1998; Earl & Scott, 2000; Holsapple & Joshi, 2001; King, 2001; Murray, 2000; Roth, 2000).

Some of the benefits of managing knowledge include empowering members of an organization with the ability to make the best decisions based upon the complete knowledge base of the organization, using that knowledge base to formulate solutions to an organization's problems and changing business environment, and, probably most importantly, preventing the organization from making the same mistake twice (Davenport & Prusak, 1998).

Issues that affect KM participation within organizations include understanding the organization's corporate strategy, whether its culture is one of sharing or hoarding information/knowledge, how receptive its people are to change, and the values and relationships between the people within the organization (Ardichvili, Page, & Wentling, 2003; Davenport & Prusak, 1998; Tiwana, 2000; M. Zack, 1999).

As a starting point for KM initiates, Koulopoulos and Frappaolo (2001), Tiwana (200), and M. Zack (1999) suggest that an organization perform a "knowledge audit" to identify critical knowledge areas and vulnerabilities based upon its corporate strategy. A knowledge strategy would be the ultimate product of the audit. This strategy could ensure that critical knowledge resources are properly focused to achieve the overall strategy of the business or organization (M. Zack, 1999).

Upon identifying a knowledge strategy for the organization, the practitioner next needs to achieve a better understanding of the organizational culture. The culture will make or break any knowledge sharing initiative no matter the money spent on it or technology applied (Davenport & Prusak, 1998; Tiwana, 2000). The ideal culture would be one that shares openly, realizes all members are active participants, discourages knowledge hoarding behaviors, builds relationships and trust, and has senior management's support (Ardichvili et al., 2003; Davenport & Prusak, 1998; Nonaka & Takeuchi, 1995; Tiwana, 2000).

A Framework for Selecting Knowledge Management Projects

Bower's and Phillips' research provide a framework for selecting KM projects based on factors identified in the literature above, as well as ideas gained through their use of Delphi groups. The project selection framework is intended to guide the identification, selection, and eventual implementation of knowledge management projects within the Air Force. The original framework introduced by Bower consisted of six (6) steps. Phillips added the additional step focused on organizational culture. The steps in the final framework are as follows.

Step 1: Analyze Corporate Strategic Objectives Using SWOT Methodology

The framework begins with an analysis of the organization's overarching strategic vision, plan, and objectives using a standard Strengths, Weaknesses, Opportunities, and Threats (SWOT) methodology and concludes with an identification of key considerations (factors) that must be resolved prior to project implementation to ensure success. The ultimate result of Step 1 is to decide whether or not knowledge management can provide a strategic advantage to the organization. The goal is to identify the overall current knowledge management vision, strategy and initiatives within the organization.

Step 2: Identify & Analyze Potential Knowledge Management Opportunities (Bower, 2001)

An analysis of the SWOT findings from Step 1 is performed to identify specific areas where KM can assist in closing the organizations knowledge gap and aid in achieving a strategic advantage for the organization. The knowledge gap will be based on the types of knowledge needed to achieve the organization's strategic objectives and the usability and availability of the information to be used to support the potential KM objectives.

A few of the major factors to consider in this step include identifying and analyzing current business processes for potential knowledge management opportunities and an in-depth valuation process of current organizational knowledge (tacit & explicit). Together, these may help to determine the potential value for capitalizing on existing knowledge to create more value for the organization.

Step 3: Identify and Analyze Cultural Aspects of the Organization

This addresses the readiness of the corporate culture to accept and benefit from a KM project, based on whether or not the culture is "knowledge friendly." Identified factors that contribute to "knowledge friendliness" include communication, team orientation, trust, conflict, leadership support, learning, adaptability, tolerance for risk, and a strong and positive culture.

Step 4: Identify & Address Potential Knowledge Management Projects

This step surfaces and addresses the existing and future potential limitations identified in Step 2 and the cultural factors addressed in Step 3. Potential KM projects should be tied to the key business processes identified in Step 2.

Step 5: Identify & Address Knowledge Management Project Variables Affecting Project Implementation & Success

This will assist in identifying whether or not there's a good probability that a KM project will succeed, based on variables identified in the KM literature. One factor emphasized throughout the KM literature is that of senior leadership interest and project sponsorship. Requirements of the knowledge management effort/project should be defined and include specifics on how to capture and codify desired knowledge, how this knowledge will be shared, accessed, and reutilized, and ultimately how new knowledge will be created through collaboration and knowledge sharing. Also included in this step is the need to develop project goals, expected outcomes and performance measures. Performance measures/metrics can be used to tie daily organization activities to the overall strategic objectives.

Step 6: Identify & Address Success Factors For Project Variables Affecting the Successful Implementation of Knowledge Management Projects

This will aid in identifying success factors for the project variables identified in the previous step. For example, one variable investigated under Step 5 was senior leadership interest and project sponsorship. Success factors for these variables would be the need for continued active participation and involvement from senior leadership and the need for an appointed knowledge management champion and project sponsor.

Policy and guidance that governs KM use may need to be developed to support and encourage acceptance under this step. Policy and guidelines should promote the creation, sharing, and utilization of organizational knowledge bases. Factors that potentially impact the identification and mapping of knowledge repositories should also be identified and addressed.

Step 7: Finalize Knowledge Management Project Selection

Methodology

The methodology for this study was a case study. Yin defines the appropriateness of case study as a research method by providing the following definition: "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: 13)

KM project identification and selection in Air Force organizations is a poorly understood phenomenon and case study research may help answer whether or not the Bower-Phillips decision framework may be helpful in assisting organizations to identify and select potential KM projects.

This was a single-case case study with an Air Force organization as the unit of analysis. Yin offers several rationales for selecting a single case, the first being "when it represents the *critical case* in testing a well-formulated theory" another being that the case is "a representative or typical case" (2003). The case, and therefore the unit of analysis, was an Engineering Installation Squadron (EIS), which may be considered to be a typical active duty Air Force organization, consisting of enlisted and officer military personnel and government civilian employees.

The general data analysis technique selected for this case study was pattern matching (Yin, 2003). The theoretical Bower-Phillips decision framework guided the data collection and the data were categorized accordingly based upon the steps, and *Key Decisions Affecting the Decision Process*, within the framework. Data from any of the sources that matched the categories of the framework were placed in their respective category for examination, analysis, and final conclusions. Structured interviews with the personnel of the organization were conducted to determine if the data from the organization compared to the framework provided a meaningful way for them to select a KM project.

Findings and Analysis

Data for this study came from a number of sources (Yin, 2003), including structured interviews with a purposive sampling of squadron personnel (Miles & Huberman, 1994), commander mission briefings, squadron pamphlets, internal documents, Air Force Instructions (AFI)s, Air Force Material Command Instructions (AFMCIs), operational

instructions (OIs), newspaper articles, and media interviews. Multiple sources of evidence were used to support validity by converging on the same set of facts or findings (Yin, 2003).   The interviews represented personnel at various levels of the organization, including the commander, as well as line and managerial positions. Both civilian and military members of the squadron were interviewed.

The information gleaned from this data was matched against the categories of the Bower-Phillips framework to see if they corresponded to the framework. Across all of the categories the framework was supported as a basis for identifying and selecting KM projects. The steps of the framework found to be the most emphasized by the data were senior leadership interest and project sponsorship, analysis of current business processes, and addressing organizational culture.

Based on the interviews with workers in the organization, the Bower-Phillips decision framework was reported to be beneficial in focusing data collection efforts to determine knowledge management opportunities and potential projects for the AF organization under study. Upon reviewing the findings of the case study the commander of the EIS stated that he was extremely pleased with the information the study provided and that he was interested in a few of its recommendations. Specifically this commander was "most interested in capturing organizational knowledge, establishing post-job formal feedback, and improving QA [quality assurance] information flow." The way the data were categorized using the framework was reported to support the decision process of this commander. Therefore, within the context of this case study, the results suggest that the decision framework can, in fact, support organizations wishing to identify and select KM projects.

Discussion and Conclusions

The Air Force has outlined knowledge management as one if its goals as detailed in the Air Force's Transformation Flight Plan, Information Resources Flight Plan, and Information Strategy, but it falls short of providing any guidance to subordinate organizations (AF/CIO, 2002, 2004; HQ-USAF/XPXC, 2003). Absent an Air Force level knowledge strategy, knowledge management strategy, or knowledge management framework and as Air Force organizations look to implement knowledge management, commanders and managers need a comprehensive "roadmap" to assist in identifying potential KM opportunities.

The results of this study support using the decision framework developed by Bower and Phillips for identifying and selecting KM projects in an Air Force organization.

Limitations and Suggestions for Future Research

While case study research does allow an in depth investigation of a subject of interest, it also has its limitations. By the very nature of it being a single case study, the findings may be unduly affected by the specific characteristics of the case. Thus, since the organization selected for this research was a particular subunit of the Air Force, we cannot be sure to what extent the results would apply to other military units, and we can be even less sure that its results would apply to civilian organizations. Further, since the data was gathered by a single investigator, one cannot rule out the effects of researcher bias. Although the investigator made efforts to surface, recognize and eliminate researcher bias, these limitations cannot be eliminated from this methodology.

Because of the identified limitations, we recommend that this study be replicated in other case study settings by other researchers to see if the findings are consistent. While other military examples would give greater confidence in its applicability to military organizations generally, civilian examples would be very helpful for generalizing the findings to civilian organizations. We further recommend that a study be done following the implementation of a KM project identified and selected via the Bower-Phillips framework to see if the actual development and implementation of the project benefits from the use of the Bower-Phillips framework. Finally, although Information Systems Development (ISD) concepts did not form the basis for this study, it is possible to consider many KM selection efforts as having much in common with ISD selection efforts. It may prove fruitful to explore this potential relationship to see what light each area of study can shed on the other.

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