Best Practices in Knowledge Management

A study of KM as practiced in

The Federal Aviation Administration,

The George Washington University, &

The Wachovia Bank

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> *"The illiterate of the 21st century will not be those who cannot read and write,*
>
> *but those who cannot learn, unlearn, and relearn"*

Alvin Toffler, Author of *Future Shock*

INTRODUCTION

Though it is difficult to pinpoint any watershed event that ushered in the era of knowledge management (KM), it is not difficult to observe that, in today's government, corporate and academic world, knowledge management is an increasingly important subject of discussion. The deep interest in knowledge management today is manifested by the plethora of articles that one can search on the Internet on knowledge management, the existence of innumerable professional KM organizations/forums and the publication of an *Encyclopedia of Knowledge Management* in 2005 (Ed. G. Schwartz, ISBN 1-1-59140-573-4). The origin of modern day knowledge management (we assume that some form of knowledge management existed from the ancient times) though an interesting subject, is of lesser importance than the basic questions around knowledge management, i.e. what is knowledge management, why is it important, what are its barriers and how should knowledge be managed. As students of project management we are especially interested in how knowledge should be managed in project environments. In the following pages we are going to examine how knowledge management is practiced in project environments in three different organizations: the Federal Aviation Administration (FAA), the George Washington University (GWU) and the Wachovia Bank. We will grade the practices based on some criteria that we think are essential to KM. Finally, we will provide our recommendations to make improvements to the practices, if needed.

Rosenberg (2001) defines knowledge management as the "creation, archiving, and sharing of valued information, expertise and insight within and across communities of people and organizations with similar interests and needs" (p.66). Beilawski and Metcalf (2003) add, that KM can consist of "key documents, expertise directories, lessons learned databases, best practices and communities of practice that reflect and deliver knowledge to learners at a particular time of need" (p.71).

Knowledge management is important for various reasons. To paraphrase an old saying, those who do not learn from the history of previous endeavors/projects are doomed to repeat it. As Sallis & Jones (2002) point out, some of the benefits of KM include the following:

- Avoiding reinventing the wheel
- Developing an organizational memory
- Forming relationships and knowing whom to contact for help
- Increasing problem-solving capability and ability to make improvements


As it is true for implementing any process at an organization level, KM is not without its barriers in being practiced successfully. As Goman (2002) and Wheatley (2001) point out the barriers to implementing KM include:

- An organizational culture that values control of information
- Lack of upper management support
- Lack of trust and fear of negative consequences for revealing knowledge
- Lack of time available for sharing and reflecting.

Sharing and managing knowledge becomes even more difficult in project environments due to some inherent characteristics of projects. As Payne & Sheehan (2003) point out, "two characteristics of project make KM difficult:

- Projects are transient. Team members disband at the end of a project and move on to new work. This means that new relationships have to be formed at the start of each project which might increase barriers to learning from the experience of others.
- Traditionally, projects are closely controlled to make sure they are completed on time, on budget and to the required quality. This tightly controlled environment is unlikely to create conditions conducive to innovation.(p.24)"

Establishing a knowledge management framework in an organization should be considered as establishing any other organization wide process. As Tolen (1999) points out, successful implementation of KM depends on the functional synergy of organization, culture and technique.

Organization

Culture   Technique
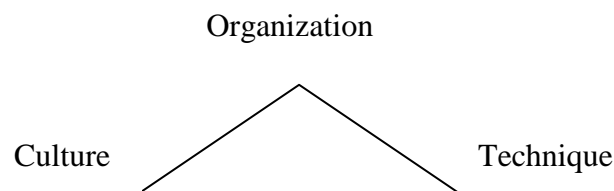
The organization should have a knowledge policy plan approved and championed by the executive management. This plan ensures that management communicates the importance of knowledge management for the organization. However, a plan without the culture of sharing knowledge would not go too far. New systems of rewarding individuals for overall contribution to the organizational knowledge should be implemented to encourage employees to share their knowledge. Management needs to work toward changing the environment from "knowledge is power" to "knowledge sharing is power." To facilitate the organization's effort to create the knowledge management process in the suitable culture, techniques of human networking and technology of information gathering and distribution should be in place. All tools should be provided to make information sharing easy.

KNOWLEDGE MANAGEMENT IN THE FAA

The technological backbone of the FAA's knowledge management system is its Knowledge Services Network (KSN). The KSN, which is primarily built around Microsoft's Share Point software, is a collection of tools for creating, collaborating, gathering and distributing information. Installed within a secure business environment, the system is accessible any time and from anywhere in the world over the Internet. This virtual environment, which started taking shape in the late 90s and caught up speed since 2002-2003, allows FAA business units, teams, other stakeholder agencies and industry partners to access and share project information effectively and efficiently. KSN supports a community of more than 21,000 government staff employees, contractors, and partners. The network is currently growing at over 800 users per month and encompasses all major operating divisions and regions of the FAA.

In our discussions with KM managers of the FAA, it was brought to our attention that though the right technology was a key element in the growing success of the KSN network, it was in fact, a multi-dimensional adoption strategy of integrating people, processes, technology and learning that contributed to the continuing popularity and growth of the system.

Winner of several industry awards for business solutions in the government (e.g. 2002 Public CIO Recognition for Advancement, 2003 eGov KM Government Solution, 2006 Gartner, Inc., High-Performance Workplace Excellence), the KM managers at the FAA point to the following successes factors that have lead to the KSN's achievements:

- The network is growing through user demand fueled by KSN solutions that directly support the day-to-day business processes of the FAA. Growth has been driven by early, proven success.

- In the most successful areas of implementation, a leader who understands the business is tightly partnered with a technologist who can map work processes to the KSN site in real-time.

- KSN's environment has been particularly successful because it is suited to the technology skill level of most FAA employees.

- The environment is well-supported by a network of embedded trained facilitators who serve as first-level help resources in their own offices. There are currently over 300 trained facilitators in place.

- Early adoption was managed successfully by a dedicated, full-time leader working with several well-respected business managers who understood the power of the technology to transform how they worked.

FAA's knowledge management system is being used everyday to perform the following functions of running projects:

- Managing the contracting process

- Managing the FAA's strategic planning process

- Managing workforce scheduling

- Managing project documentation and communication.

A hallmark of the FAA's KM system that the FAA KM managers were eager to point out is the ability to measure the KM system's business value in saving costs. Though we have not seen any concrete proof of how the business value of the KM system is being measured, a brief description was given on the topic of measurement. We were told that the current value assessment efforts of KSN include benchmarking gains in efficiency and effectiveness from the virtual work environment. Data generated from KSN performance over the last year, 2005, produced a conservative estimate of approximately $7.4 million in cost avoidance, time saved, or efficiency gained. Based on these preliminary experiences, a Business Value Model (BVM) has been developed. The KSN Business Value Model (BVM) uses a sophisticated statistical package to measure the potential benefit of KSN nodes, both in terms of percentage of productivity and in dollars. Since an actual investigation into the mechanics of value measurement of an organization's KM practice is beyond the scope of this paper, we have no way of validating the claim made by the FAA KM Managers.

However, from our random questioning of FAA's KM system users, we obtained positive responses and high praise regarding how FAA has taken the lead in this e-GOV initative.

Following is a sample page from one of the KSN nodes of the FAA which shows how project communication is being integrated through the use of KSN.

KNOWLEDGE MANAGEMENT IN THE GEORGE WASHINGTON UNIVERSITY

Introduction

The business of universities is all about knowledge. The rapidly expanding use of technology and the transformed economic basis, upon which universities are instituted, have caused universities to transform the ways in which knowledge is produced, stored, disseminated, and authorized. Every organization has a wealth of knowledge -- wisdom, know-how, lessons learned, and techniques -- distributed among its individual members. At the heart of most Knowledge Management (KM) efforts is an attempt to document and share information, ideas and insights so they can be organized, managed and shared. George Washington University (GWU), as an institution had undertaken initiatives to leverage this knowledge base existing within the GW community by finding, nurturing and supporting the communities that already share knowledge about key topics. Knowledge management, particularly within Information Systems Services has been used as the basis for this paper.

Information Systems and Services (ISS) works with departments across GW to provide advanced technology to students, faculty and staff and keeps the GW community connected. Some of the successful rollouts from ISS related to KM include the GW Portal, Blackboard academic system, Content Management System and collaborative e-mail. As part of the broader KM effort, ISS is making a concerted effort to harness the wealth of knowledge gained from all the projects, past and present, undertaken at ISS. ISS has formulated a knowledge management strategy that aligns with GWU's strategic and operational objectives.

Key aspects of the knowledge management strategies employed at ISS include:

- Use of corporate project information for all staff that will enable them to work with greater effectiveness and efficiency
- The preservation of these databases that has this wealth of information
- The capacity for all staff to enhance these databases with information using a web interface so that information can be accessed from anywhere in the world
- Adopt a centralized systematic approach yet devolving control over knowledge production, storage, dissemination, and authorization
- Achieve organizational improvement through knowledge management
- Establish a consistent universal collaborative and social network environment with communities of practice

Current KM Practices at GWU

The description of the KM practices at ISS is based on the conversation I had with the project managers and the IT architects. Though KM strategy has been in place at GWU for a year now, the knowledge culture consisting of beliefs and practices are still not developed. There is no formal KM process in place. People participate in the knowledge sharing effort as their interest, time and energy dictate. The management has not been able to communicate that the organization truly values sharing knowledge. Since most of the earlier projects were implemented under external vendor guidance, lack of KM practices resulted in loss of valuable information. Though project plans, schedules, lessons learned and post-implementation reports etc. are available, the real value in knowledge management in terms of sharing ideas and insights that are not documented and hard to articulate, called tacit knowledge, is missing. Most project related documents are stored in personal files locally and on network drives. Employees share insights with a small circle of colleagues without leveraging each other's knowledge. There is no mechanism to share, manage or control existing knowledge. To an extent, ISS enables person-to-person interaction and members ask for and offer help solving technical problems. Some members are unwilling to share their ideas or take the time to document their insights. "Leveraging" what you know by educating colleagues, writing, helping others, and teaching junior staff members has been central to GW KM strategy. All new hires are exposed to mentorship program with key players who have an important specialized knowledge in building a sense of commonality, enthusiasm and trust. When key employees leave, vital knowledge about the business processes these employees managed is lost as the knowledge is not documented. Excluding e-mail, there is no social networking infrastructure to promote sharing of ideas and insights. Employees are encouraged to participate in field related special interest groups, and build communities within the project context. However, due to lack of a reward or recognition mechanism, no one follows it.

Key people on some projects are unwilling to share knowledge, as they fear that sharing such information will reveal internal and core competency failures and expose all existent flaws. Furthermore, there are political and bureaucratic indifferences that further inhibit the process.

Benefits

Some key benefits GWU will realize with the practice of KM are:
- Assess knowledge material to decide what is important and enrich the documents in the database by summarizing, combining, contrasting, and integrating them
- Document key work processes so others could easily learn from them

- Provide structure, leadership, and technology that will greatly increase the documenting and sharing of knowledge

- Streamline operations and reduce costs by eliminating redundant or unnecessary processes

- Foster innovation by encouraging the free flow of ideas

- Establish communities of practice that are valuable, inclusive and vibrant

Some of the proposals in the pipeline to support KM to achieve the above benefits include:

- Create the KM infrastructure and collaborative capabilities through a portal

- Establish communities of practice - groups of people who share information, insight, experience, and tools about an area of common interest

- Integrate knowledge collection and dissemination into employees' everyday jobs. Link KM directly to job performance and create incentive programs to motivate employees to share their knowledge

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KNOWLEDGE MANAGEMENT IN THE WACHOVIA BANK

The following description of project management KM at Wachovia Bank is based on KM related support, usage and observation made by the author from employment at Wachovia Bank up to December 2002. From here on, any reference to the level of the business unit is with respect to its hierarchal level in the corporate organization chart.

The practice of KM varied at Wachovia Bank from business unit to business unit – at least among the business units up to the third level of the corporate organization chart. The business unit for which KM is being described here is for the Network Services business unit belonging to the Infrastructure and Architecture business unit. The Network Services business unit is on the fifth level of the corporate organization chart. The Infrastructure and Architecture (I&A) business unit is on third level of the corporate organization chart. Among the I&A business units, there were about a dozen business units at each level from the third level to the fifth level of the corporate organization chart – suggesting over 100 different efforts of KM organized around the operations of each business unit.

The practice of Knowledge Management

Although the culture was very conducive to KM, there did not appear to be any professional expertise and effort in the practice of KM. Professional expertise did exist for the development of information capturing and sharing (e.g. database, intranet), but not for systematically capturing, creating, organizing, integrating, and sharing information for the specific purpose of a complete KM system as professionally prescribed. Albeit, the efforts were mostly disjoint and fragmented, there was much enthusiasm and activity by business units, management, and employees for capturing and sharing knowledge.

For the most part, the business units had a KM system strategy and plan mandated by senior management which consisted of: developing and maintaining an intranet for widely referenced information, sharing this information among the business unit and its joint activity partners, and capturing all other information for sharing among the business unit and some of its joint activity partners (e.g. on a case by case basis for different types of information). A community of practice was in place to establish standards and guidelines for the development and maintenance of intranets for the business units within the third level business unit. However there was no such community of practice for the development and maintenance of project information among the separate business units.

There was no standardized, organized and integrated KM system in place. The KM system was facilitated by piecing together, in an ad hoc and dispersed manner, various information technology productivity tools. For the most part, for each project, data and documents were consolidated in one or

more Lotus Notes databases. However, there was no common database structure among different projects. Consequently, there was no standard way to intuitively and efficiently find information. If you weren't familiar with the data organization for a particular project, a full text search on all the data stores for the project would be your quickest and most exhaustive way to look for the information. However, this would provide you a result much like an intranet search which is tedious and time consuming to wade through to find information relevant to your specific interest. A standard organizational structure with keyword and category associations for all project data would make the retrieval of meaningful information much more efficient and effective.

For most third level business units, there existed a PMO (i.e. fourth level business unit) dedicated to that third level business unit. The PMO consolidated, structured and reported the information related to mostly high level, strategic projects within the directional concern of the third level business unit. The information for all other projects was mostly consolidated by functional staff at the fifth level business unit.

Generally, the sharing of PMO consolidated information occurred among those working on the strategic projects and management staff within the third level business unit. Access to this information was assigned by an administrator for the information. However, the PMO openly made available to all employees within the third level business unit: project management standards, guidelines, best practices, and templates. Much of this material focused on administration and financial management reporting guidelines (e.g. project charter, administrative structure, cost/benefit analysis, budget reporting, issues management, performance reporting). The material lacked focus on project management techniques (e.g. cost estimation, schedule management, earned value analysis, risk analysis and mitigation).

Generally, the sharing of fifth level project information occurred among all employees within the fifth level organization. Access to this information was defaulted to those employees having network access for the business unit.

Benefits

Successive projects did show noticeable improvement as a result of project participants having access to more effective supporting knowledge through the use of captured experience, lessons learned, standards, guidelines, best practices, and activity relevant reference material. Moral of employees and management did show improvement with the use of any supporting KM facility or practice. Although there was no established metric to isolate this benefit, employees shared many anecdotes about how captured knowledge came to their assistance and enthusiastically supported any endeavor to improve the practice of KM.

Summary

The practice of KM can be characterized more as a knowledge sharing effort as apposed to a KM effort. There was an enthusiastic KM culture and effort in the Network Services and I&A business units of Wachovia. The KM effort lacked the support of an integrated information technology system specialized for the function of KM. A PMO existed at the third level of the organization chart which consolidated and made available information about high level, strategic projects among management within the third level organization. The PMO also made available project management guidelines and templates for all employees within the third level business unit. All project information was captured; although, for most projects, the information did not reside with the PMO. Within the fifth level business unit, knowledge sharing extended among all employees. However, knowledge sharing between employees of different fifth level business units was spotty. There was no common structure for capturing project information. Consequently, finding information meaningful for comparative endeavor entailed a time consuming search effort.

Improvements can be derived by adopting the skills of KM professionals to develop in phases, a KM system that integrates the efforts, knowledge, and controlled access among all employees and business units.

RATING THE KM PRACTICES

Based on our review of KM literature to determine what KM strategies and techniques work, we came up with the following success criteria to measure an organization's KM system. In choosing the criteria, special attention was paid to the three pillars of good KM Practice, namely, organization, culture and technique

	Criteria	Ratings		
		FAA	GWU	Wachovia
1	Does a KM management plan exist?	5	2	3
2	Is the KM system aligned with strategy?	5	2	3
3	Does senior management approve?	4	2	4
4	Is knowledge shared?	4	1	3
5	Is technology used to its potential?	4	2	4
6	Is knowledge controlled?	4	1	3
7	Do communities of practice exist?	4	1	3
8	Is the culture conducive to KM?	4	2	4
9	Is there a KM organization/SME group?	5	1	3
10	Are there realized business values?	4	2	4
	Total	**43**	**16**	**34**

Scale: 5–Excellent, 4–Very Good, 3–Good, 2–Poor, 1–Very Poor

Our scoring of the three KM practices revealed that the FAA addressed most of the KM criteria at the very good to excellent level. The stellar performance of the FAA does not come as a surprise, as we came to know through our interview process that they have had a well established practice since the late 1990s. GW's poor showing came as a little bit of a surprise to us. We assumed that an institution which is in the business of imparting knowledge would do a better job of knowledge management. However, with projects being currently led by professionally trained project managers, GW's KM practice has the potential to turn the corner in the near future.

RECOMMENDATIONS

Though the FAA has performed very well in our scoring of the KM practices, here are some recommendations to improve the effectiveness and efficiency of the FAA's KM practice:

- Senior management approval needs to change to senior management involvement
- Single sign-on technology implementation
- Improving outreach program through communities of practice and SMEs

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APPENDIX

Critical Success Factors in Building Community
Management Challenge
1. Focus on topics important to the business and community members.
2. Find a well-respected community member to coordinate the community.
3. Make sure people have time and encouragement to participate.
4. Build on the core values of the organization.

Community Challenge
5. Get key thought leaders involved.
6. Build personal relationships among community members.
7. Develop an active passionate core group.
8. Create forums for thinking together as well as systems for sharing information.

Technical Challenge
9.   Make it easy to contribute and access the community's knowledge and practices.

Personal Challenge
10. Create real dialogue about cutting edge issues.

Source: 10 Critical Success Factors In Building Communities Of Practice, Richard Mcdermott, PM

Connections.