KNOWLEDGE MANAGEMENT METHODOLOGY AND TOOLS (HOW DOD CAN BECOME A LEARNING ORGANIZATION)

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ABSTRACT

Knowledge Management (KM) initiatives are surfacing daily and at an increasing rate. The Department of Defense (DoD) can become a Learning Organization by using many of these KM synthetic solutions in the 21st century. To become a Learning Organization, the DoD needs to implement integrated KM using knowledge bases, KM tools and change management processes, rather than merely implementing information technology approaches. There are indications that individual Services are already moving in that direction. The Navy is "committed to a broad KM effort."(Natter, Feb 99) The other Services are beginning to focus on what KM can do for them as well, particularly in the area of training. To make this transition smoothly, clear definitions of knowledge, knowledge processes, and knowledge management are needed. The author proposes two key paradigm shifts, including Metalevel thinking that dictate new KM methods capable of being embedded in, and benefit to, the entire learning organization culture. This leads to distinct understanding of the impact KM will have on training, as the new framework for all future training. The other new knowledge paradigm, besides metalevel thinking, "the best knowledge to the right person at just the right time," has emerged from the ongoing KM activities. Use of the KM lexicon, and philosophy, allows further analysis of alternative KM approaches in the light of their unique training and knowledge transfer needs.

AUTHOR'S BIOGRAPHY

Mr. Douglas Weidner is an engineering graduate of the US Air Force Academy, and holds a MBA in Business Economics and a MSIE in Operations Research. He is presently working on a doctorate in Executive Leadership through Knowledge. Currently employed with Litton/PRC Management Consulting as their Chief Knowledge Engineer, he is the primary proponent of knowledge management processes and tools. He invented the concepts and designed the KnowledgeBase Tool for DoD from 1994 to 1996. Mr. Weidner led the development of DoD's first knowledge base--a comprehensive Business Process Reengineering (BPR) methodology in 1995/6.

Mr. Weidner is the invited author of a key chapter of the just-released book, *Technology Based Learning*, where his KnowledgeBase concepts are highlighted. In 1998 he published articles in the *E-Gov Journal*. In 1999, he become a monthly columnist on KM for the *E-Gov Journal*. A much-demanded speaker, based on the recognized importance of the content and the quality of the presentation, Mr. Weidner presented seven to 12 papers annually from 1997 through 1999. He was keynote speaker at the Center for Continuous Improvement, Washington, DC, presenting, "Knowledge Management/Learning Organization Meta-Theory," in June 1997. Two of Mr. Weidner's presentations have been published on a compact disc, "Best of the Best KM Presentations."

He is the Chairperson of the Knowledge Management Consortium International's (KMCI – www.KM.org) Standards Committee on KM Methods and, President of the Washington DC Chapter of the KMCI. Mr. Weidner is one of the first KMCI Certified Instructors.

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KNOWLEDGE IMPERATIVE

Many organizations have been performing precursors to Knowledge Management (KM) and building essential technological infrastructure under the guise of information technology. Seeking synthetic solutions for the 21st century, the Department of Defense (DoD) needs to define KM, truly understood what KM is, and maximize the benefit to be derived from harnessing the intellectual capacity of their people and the knowledge bases that are the DoD organization to become a Learning Organization. If DoD misapplies KM in these early days, it will lose this wonderful opportunity.

Vice Admiral Natter, in a general call to arms within the Navy, has said, "Knowledge Management has tremendous potential for changing the way we harness info in the info age. Request your assistance in leveraging it." (Natter, Feb99)

Lieutenant General Campbell, who runs the highest-level Army KM efforts, continues the drum roll with, "the Army needs to transform…that leverages intellectual capital to better organize, train, equip, and maintain…embed KM into Army culture and processes." For KM goals, LTG Campbell announced, "Measurably improve business processes, incorporate KM into strategic processes." And finally for KM objectives, he wants to, "Build skills to apply KM, empower process owners, influence policy/procedures." (Campbell, 1998)

Finally, though many quotes can be taken from commercial experts on KM, Tom Peters is widely believed to have said, "Knowledge has become the only competitive advantage." (Peters, date unknown)

DoD, drawing from the commercial world, knows competitive advantage is survival. If knowledge has become the only competitive advantage, then KM will become the true discriminator for Armed Forces in the 21st Century.

KNOWLEDGE MANAGEMENT PRIMER

Knowledge is tacit, in the heads of knowing people. Organizations will find that converting tacit, head knowledge, into explicit, documented knowledge, is one way of leveraging knowledge, of better integrating it into processes and creating a Learning Organization. To understand how to best apply KM, an understanding of the definitions of knowledge, knowledge processes, how to best manage knowledge processes, and what tools might be used to enable such knowledge management is required. Recent initiatives have introduced a new concept of metalevels. This lexicon and philosophy can be explored through an overview the methods for full life cycle, enterprise-wide, management of KM processes from the viewpoint of the Chief Knowledge Officer (CKO). Understanding another new paradigm about the knowledge burden, again through some practical examples in important knowledge integration areas such as training, will provide the means for DoD to become a Learning Organization in the 21st century.

Key Knowledge Definitions

In order to get the advantages of KM, organizations need to define and understand the components of KM, including knowledge, knowledge processes and knowledge management.

Knowledge

Knowledge is a complex concept with multiple ways to view knowledge from a technical viewpoint. They include the following:

* Types - tacit - in our heads, explicit - documented in some way, spoken or written, structured - such as in procedure manuals or courses, or unstructured - such as in email correspondence.
* Rules - Knowledge is the validated, hierarchical network of procedural (know *how* to do something) and declarative (know something is true, possibly *why*) rules that have useful, predictive, and explanatory power for people.

* Levels - Knowledge levels include: recall, comprehension, application, analysis, synthesis, and evaluation.

The Knowledge Management Consortium International (KMCI) Standards Committee is focusing on a rules-based approach to complement and enrich the knowledge 'Types' viewpoint. (See KM.org 1999) In this definition, the concept of knowing how to do something means procedural rules as to how to do it, exist. This definition may clarify the rules-based technical viewpoint for some. For example, the process step, "if the light is red, stop," is a rule-based action, just as the more complex functions performed on the job are all rules-based, whether performed by habit or made explicit in documented procedures.

Tom Davenport defines knowledge as ubiquitous, "Knowledge is embedded in documents, organizational … processes, practices, and norms. If knowing how to do things defines a firm, then Knowledge is the firm." (Davenport, 1998)

Possibly a more preferable approach, applicable to training, is the 'Levels' viewpoint. An understanding of knowledge "Levels" is important from the standpoint of defining knowledge requirements for particular tasks or learning objectives.

But knowledge is not just data or information. The definition of knowledge cannot be oversimplified for fear users will miss an opportunity for complete understanding and proper application of KM. Some claim that knowledge may reside buried in information, such as in the concept that important knowledge about customer needs may be buried in information of customer buying habits. While this is essentially true, especially if the concept is that the customer needs become knowledge once the customer needs are filtered out of the info and validated. However, a better definition or clarification would add that knowledge also tells you what to do with the data and information.

Knowledge Processes

Whether knowledge is tacit or explicit, structured or unstructured, knowledge can't be managed, but knowledge processes can, especially those embedded in the very fabric of our other, customary Enterprise processes. The three core knowledge processes include acquisition of information, the production of new knowledge, and the process of integrating existing knowledge into the enterprise.

The knowledge acquisition process is getting existing information from outside the organization/Enterprise. This process could be done by such activities as competitive research, browsing the Internet or other libraries of knowledge, getting training, etc. Whether information or knowledge is acquired, it is not knowledge to the organization yet. It must be validated.

The knowledge production process involves the validation of existing information or knowledge acquired from the outside or the actual, internal creation of new knowledge. Once this new knowledge is created and validated, typically in the mind of some inventor, researcher, or team of process improvers, it must be integrated into the enterprise to have value.

The process of integrating existing knowledge includes many Knowledge activities such as structuring and storing the Knowledge, instructing or presenting it to others within the firm, collaborating or sharing it with others, or it may be integrated by exposing folks to best practices.

The key concept is not what specific label or title put on these three knowledge processes or how exactly they are defined. The key concept is that they exist and that they are comprised of alternative activities that are determined based on the best way to perform the process to satisfy a given need in a given environment. In addition, organizations must recognize that these three knowledge processes typically exist embedded within the customary processes of the organization or enterprise.

Knowledge Management

KM is a process to improve and manage knowledge processes.

Metadata, Metaknowledge, Metaprocesses, Metalevels and Metaprise™

Meta means a higher level. The concept of metadata may be familiar, that is metadata is data about data. If metadata had been properly standardized about date fields in computers, i.e., all date fields must include four digits for the year, instead of sometimes only two digits, there would not have been a Year 2000 (Y2K) problem. A metaknowledge concept (knowledge about knowledge) is a more complex proposal. But metaknowledge is also a far more powerful extension of metalevel thinking than metadata, a new paradigm. A critical aspect of Enterprise KM is the concept of metalevel thinking. Proper application of metalevel thinking not only ensures better KM, but it can actually produce a Metaprise™. The following are some simple applications that follow from metalevel or metaknowledge thinking.

Consider both Total Quality Management (TQM) and BPR are metaprocesses. They are processes or methods to improve an operational Enterprise process. Likewise, KM is a metaprocess, a process to improve knowledge processes.

Metalevel thinking is characteristic of true KM. The exact categorization is less important than the understanding of the meta concept of progressively higher levels. The lowest level is that of the Enterprise and its core processes, where process knowledge is used to perform work. Knowledge processes, where knowledge is used to acquire, produce, and integrate knowledge, are embedded in the core processes. If KM processes were perfect, further levels of metaprocesses would not be needed. Understanding the imperatives of meta thinking results in true continuous improvement.

Knowledge metalevels is a way to summarize the hierarchy of knowledge, knowledge processes, and KM. It is also a way to introduce how to think about KM and an essential higher level, the KM metaprocesses. (This concept is under development by the KMCI Standards Committee on KM Methods, which I chair.) Higher level development depends on whether the benefit exceeds the cost or whether the law of diminishing returns sets in.

Figure 1 introduces the organizational structure of a typical major business unit of the Enterprise performing knowledge-related tasks. Under a KM scenario, the business unit is conducting operations as usual, while attempting to better acquire, produce, and integrate knowledge. The business unit, as a knowledge-centric learning organization, is performing KM to essentially increase the effectiveness of these knowledge and other core processes. The goal is to improve innovation, decision-making, process functioning, etc. In this scenario the knowledge manager, operating autonomously from other Enterprise units, has difficulty developing and delivering a world-class KM effort. The question is, "How can the knowledge manager have the time and energy to improve the KM Process when it takes substantial effort merely to perform KM itself?"

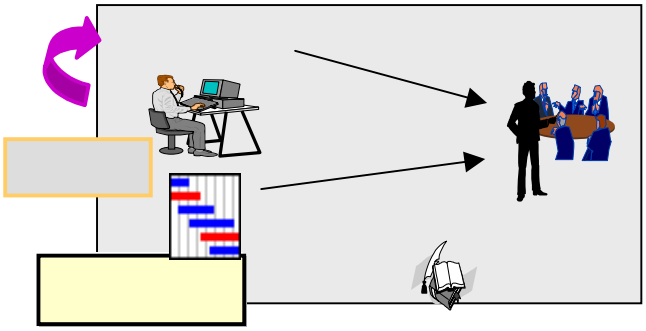

Figure 1. A Major Business Unit Performing KM

One answer is that another level, a metalevel must be considered. Figure 2 depicts the Enterprise employing metalevel thinking, the Metaprise^{TM}. The metalevel doesn't necessarily mean another organizational level, it is merely the metalevel activities required of the enterprise KM function that often is otherwise overlooked. As shown, three essential needs include the need for codified, proven KM methods, for KM tools, and for the promulgation of consistent KM guidance, policy, and best KM practices throughout the Enterprise. The KM function must practice what it preaches, continuously improving KM methods while attempting to help others.

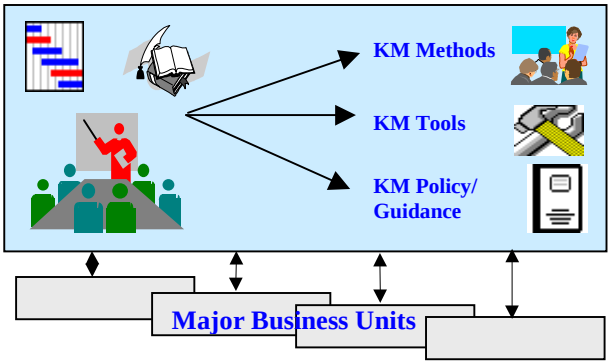

Figure 2. The Metaprise - Enterprise KM Hierarchy

Figure 3 shows the role of the Chief Knowledge Officer (CKO) in a Metaprise^{TM}. A CKO is typically called for in large, complex, or multi-divisional Enterprise operations, especially at the initiation of a major or strategic KM initiative. The function of the CKO, if one exists, or an essential function of the KM staff, if it wants to be truly successful, is to apply the metalevel philosophy, to continuously evaluate its KM methods, tools, and initiatives with an eye toward continuously improving the knowledge about how to apply KM. Regardless of the size and complexity of the KM initiative, these CKO-type tasks are important. They are evident in the previous description of Enterprise KM and particularly so for developing a Metaprise^{TM}.

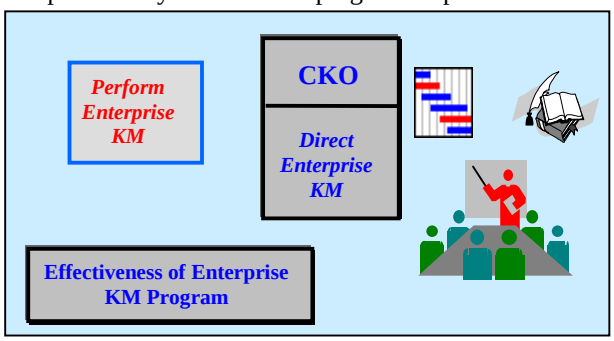

Figure 3. Roll of the Chief Knowledge Officer

Such an attitude about meta KM, will almost certainly result in the awareness of certain needs. Here are

several examples of metalevel thinking that are applicable to any part of DoD:

Examples Applying KM Principles

In the first example, assume there is knowledge embedded in statutes and regulations needed for performing certain activities. Responsible practitioners within the organization should be knowledgeable of these constraints or guidelines. The statutes and regulations are probably published in some manual, provided in some new employee introduction, or available in its entirety on some web page. Can this customary KM solution be improved? The organizational practitioner wants to know, "What is the real requirement dictated by the statute and how will it be met?" This person certainly doesn't want a copy of the manual, but only wants the pertinent section of the statute, regulation, or policy and how it applies to the task at hand. This highlights the dilemma of knowledge management, should we make the entire statute available to affected parties, such as electronically available on an Intranet site, or merely make available the section pertinent to the task at hand, possibly with an interpretation? The answer is obvious when thought of in this way. The Intranet solution, presently being recommended by many vendors, no matter how powerful the search engine, seems to miss the mark.

In the second example, the customary activity of sending folks to conferences for them to acquire knowledge is addressed. Attending conferences is one of many primary knowledge activities for acquiring knowledge. The present cultural norm is to tell employees to go, enjoy the conference and enrich themselves. The initial KM reflection or metalevel thinking, recognizing this as a knowledge acquisition activity, might be to seek to improve the acquisition process for the attendee. However, the Learning organization needs to leverage such events to continuously improve its processes, especially with respect to gaining and using knowledge. A potential solution is as follows. In return for the corporate investment in travel, fees, and employee time from work, attendee must take notes of key, applicable teachings. This forces greater attention, focus, and retention of conference materials, achieving an improved knowledge acquisition process. In addition, upon return from the conference, the attendee must brief others in the department. This again reinforces the attendees learning experience, according to the old adage, "You don't know something until you can teach it." So far two simple rules known to be effective have been instituted to improve the knowledge acquisition process. But, as a bonus these initiatives simultaneously capitalize on another knowledge process, that of knowledge production. For negligible incremental cost, the valuable conference highlights can be shared, while the knowledge is fresh, and the group can validate the knowledge. Instituting such requirements on conference attendees, with KM principals in mind, results in a beneficial knowledge initiative, a better knowledge acquisition with initial group validation and learning. Metalevel thinking might even take this success story to another level. For instance, what if instead of limiting the focus on merely the primary knowledge acquisition process and intradepartmental transfer to our own immediate associates, the organization would have the attendee put the documented conference notes into the corporate knowledge base? Such an act would continue to transfer the knowledge into the future and, more importantly, to a much wider audience, thus beginning to integrate the knowledge into the entire organization, and demonstrate the benefits of interdepartmental knowledge sharing. While KM is not rocket science; it is the wise application of KM principles and methods, including the application of KM methods to organizations at all levels.

Enterprise KM Tools: Methods and Framework

The KMCI Standards Committee has evolved the following high level KM Methods or Framework for use in a Learning Organization like the DoD. An overview of the methods is provided here to complement the new paradigm discussions and serve as a basic primer.

Phase I - Perform Strategic Planning

- **-- Promote Knowledge Management Leadership**
  - *** Establish Knowledge Imperative (Stakeholders, Satisfiers, Metrics)**
    - **-- Assess, Prepare Case for Action and Build Consensus**
    - **-- Develop Communication/Awareness Campaign**
    - **-- Provide KM Insights to Strategic Plan Vision**
  - *** Define KM Infrastructure (Organization, Methods, Tools, Delivery, & Enrichment Means)**
- **-- Propose KM Initiatives/Strategies**

The key rationale for this phase is that KM must be raised to the level of the Enterprise's vision for itself and be incorporated into the strategic plan for ultimate success. The number one rule for ultimate success is to have top management commitment to KM. If a KM initiative is starting at the grass roots, it should be accomplished according to the guidance in Phase II,

with an eye toward Phase I when a successful initiative has been documented.

Phase II - Design/Justify Improvement Initiatives

-- Design KM Technical and Organizational Infrastructure
-- Provide Best Practices Input to KM Methods
-- Design KM Initiatives
  *** Corporate (Awareness, Collaboration, Motivation, Personnel Development)**
  *** Process (ID KWorker Needs, Thought Leaders, Change Champions)**
-- Integrate KM Initiatives w/ other Strategic Initiatives (BPR, TQM, New Product Development, Strategic Development, etc.)
-- Justify KM Initiatives

The key rationale for this phase is that KM must compete with other initiatives for corporate attention and funding. The strategic plan may have sanctioned KM, but this phase, typically characterized by increased understanding of KM and its implications, and by pilot or prototype initiatives, must prove the validity of KM, to justify KM. To justify KM means to prove its merit or benefit, typically by some return on investment criterion, such that the KM initiative will survive the competition for limited corporate resources.

Phase III - Implement Measurable Results of Knowledge Initiatives

-- Manage Change
-- Evaluate Performance

This phase involves implementation of proven and funded KM initiatives. Any consequential change within an organization requires managing the change and the evaluation of the performance for continuous improvement. A Phase IV could involve operate and maintain.

NEW PARADIGMS AND KNOWLEDGE BASES

There are two other key concepts in addition to metalevel thinking and the KM Methods just discussed. First is an understanding of the implications of another new paradigm, this one about the burden of knowledge within the organization, to be illustrated with a training example. And the second is the functionality of process knowledge bases, considered essential to a full KM understanding and application. The story, "A Year in the Life of a Knowledge Base", focuses the concepts of knowledge, knowledge processes, and KM and puts them to practice.

Another Paradigm – The Burden of Knowledge

There is yet another knowledge paradigm about the burden of knowledge within the organization. This will be discussed along with the functionality of process knowledge bases. Both are considered essential to a full understanding and execution of KM. The knowledge worker's burden or dilemma, as described below, leads to a new paradigm that provides principles and guidance for much of our KM efforts and initiatives. Consider the following.

Many times knowledge workers are assigned new tasks when already swamped with work, and more importantly, they not really sure how to do the new task. When given such a task, most organizations have a few underlying cultural norms that help determine the path to successful task completion. Cultural norms might include the desire to do it right the first time, and to understand this new activity well enough so that in time the worker can improve the process. The worker might have a network of experienced or knowledgeable associates with whom to collaborate, who can clarify a few issues and help perform the task. There might be Internet or local area network (LAN) or Wide Area Network (WAN) access to databases that can provide basic, required data or information. Maybe, the worker can attend a class to bone up on applicable techniques. But, typically, the worker was hired with basic capabilities to "do-it-themselves."

What does this typical situation in a knowledge worker's daily life depict? It depicts a dilemma, a root problem concerning the burden of knowledge acquisition. The knowledge burden rests heavily on the individual. This paradigm must change. The burden of knowledge must be lifted from individual workers and shared by the organization with more extensive resources. The way this burden can be lifted is if the organization accepts this new paradigm and shares in the goal of providing, "The best knowledge to the right person at just the right time."

This new knowledge paradigm invokes many knowledge processes, concepts and delivery means. This would include determining, defining, or providing the best knowledge--the knowledge either needs to be created new by someone or acquired from a source and validated. It also includes a way to determine the right person to whom to deliver or transfer the knowledge and a delivery means that enables the right person to get instantaneous access to the best knowledge. Finally this new paradigm includes a way to organize or classify the knowledge for the right person so that it can be easily interpreted or removed for use.

These knowledge process, concept and delivery means descriptions may be accurate, but can be further clarified by giving a specific training example of providing: the best knowledge to the right person at just the right time.

Training is a key component or means for knowledge transfer and integration. The usual training approach is to mold a body of knowledge into a basketball-sized course, delivered by conventional one-on-many, classroom-type means. The logical name for such a course is just-in-case training. The retention of this material after six months is a mere 5 - 10 percent, according to conventional wisdom, hardly a convincing Return on Investment (ROI) scenario. Others say as little as 5 - 10 percent retention after only two to three weeks.

The extreme alternative is to deliver a golf ball-sized lesson, just at the right time, so the recipient will learn while doing. The golf ball sized lesson is not a compaction of the basketball-sized course into a small lesson. Rather, the basketball-sized course contains knowledge, probably spread over many activities comprising the field of study, whereas the golf ball-sized lesson can focus on one specific activity, the one about to be accomplished. In addition, the golf ball-sized lesson can be delivered when needed, rather than when scheduled; it can be the ultimate concept for "distance learning".

Knowledge Bases

The KnowledgeBase Tool has proven effective in promoting knowledge acquisition, production, and integration. It serves as a delivery means for just-in-time learning, and fosters other new paradigm innovations. The KnowledgeBase Tool was initially designed for the DoD as part of think tank consulting contract in 1993 through 1995. The tool was named the Process Management Tool (or PMT). The Process Management Tool, served as the knowledge repository for DoD's business process reengineering framework, including detailed methods, lessons learned and references. As KM evolved and became better understood, the PMT functionality was enhanced to where it can truthfully be called the KBase Tool.

KnowledgeBase Tool

The KBase Tool has two primary knowledge base components, the Process Work Breakdown Structure (WBS) (see Figure 4) and Process References (see Figure 5). There are many possible knowledge categorization or organizing schemes; this one is focused on detailed work processes.

The Process WBS addresses the "Who", "What", and "When" of activities within an organization. The WBS addresses: who is responsible for accomplishing the task, including the skills or prerequisites required. Also, what is it that the workforce must accomplish, including metrics to measure quality or cost of accomplishment.

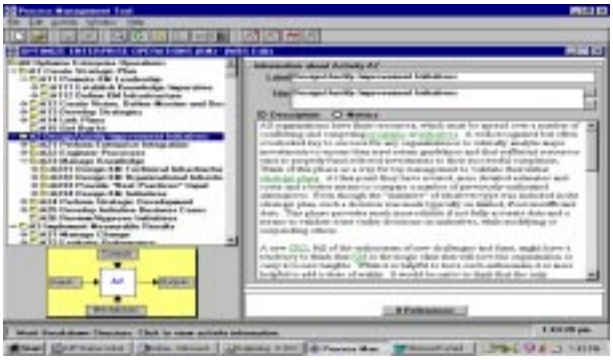

Figure 4. The process WBS tells the who, what, and when for each activity within a work process

And finally, the when is how soon the task needs to get done, including prerequisite inputs. Such knowledge, about how you run your business, is definitely part of the intellectual capital of the firm, but some consider it merely the organizing scheme for the true K, the why and how in process references.

Figure 5. Process References tell the why and how for each activity within a work process

For any given knowledge base, or process, the types of references (Lessons, Keys to Success, Guidelines, Tools, etc. to mention a few) can be geared to what makes the most sense for that type of process. It is important to understand that the singular entities of each reference bookshelf are not for the entire process, they are not a generalized encyclopedia of knowledge, but rather they are customized to house the knowledge related to the specific process activity about to be performed. In other words, one would not be provided the entire regulation, but merely the component of the

regulation that applies to the activity about to be performed.

"A Year in the Life of a KnowledgeBase or How to become a Learning Organization

In the following example, the assumption that the firm has set its goal to be a Leaning Organization is important. Also, the Kbase Tool as described is but one component of a complete KM strategy.

Consider Kay Worker who has been assigned to accomplish a specific project task, as part of a team and as listed on the project Gantt Chart. Kay is a very competent worker but unfamiliar with how best to perform this specific task. She has been told that she works for a Learning Organization, so she feels comfortable asking her boss or team leader for some guidance, rather than striking out completely on her own. In a Learning Organization the employee's performance is graded more on end results and lessons learned than the starting competency.

Kay is directed to a knowledge base as an aid. She feels comfortable finding the task on the WBS of Figure 4, because it corresponds to the exact coding scheme used on the Gantt Chart. She opens the knowledge base and within seconds accesses her assigned activity and views an informative description. The metrics view gives her an estimate of the time involved. She clicks on "Input" to see a list of prerequisite information she will need before commencing, but that is the extent of the knowledge base help on this screen. Before closing out she notices the Reference button in the lower left-hand corner lists one reference, so she presses the button to launch the reference "Books of Knowledge", which can be seen on Figure 5.

The reference "Books of Knowledge" are displayed, but only "Lessons" has any content. The firm has just commenced its KM journey and has wisely understood that a partially populated knowledge base is better than no knowledge base at all. This is especially true if it is realized that a substantial benefit of the knowledge base is in the act of enriching it with ever-improving new knowledge. After taking the lesson, Kay commences the task, taking about ten hours as predicted by the duration metric. When complete, she provides her work product to the team for critique, a final copy to the client, and one important copy back to the knowledge base as a repository for reference by others to follow.

Six months later, Kay is once again asked to work on a similar team and task. This time she remembers the knowledge base was an aid and she goes directly to it. In the reference book section she notices additional entries. She expects to have to take the lesson again but notices the "Keys to Success" book has an entry, where none existed last time. It includes four bullet points with explanations. The first three appear to refresh in her mind the content of the lesson, so she needn't repeat it despite knowing that her recall without the "Keys to Success" is probably only about 5 - 10%. The fourth bullet point is a new insight and she realizes that it updates the lesson without having to actually update the interactive video content, which she imagines might be expensive to do. She further realizes that the lesson contained fairly stable knowledge about the activity, whereas the "Keys to Success" and a new "Bibliography" entry provide an easy vehicle to document rapidly evolving knowledge. But, most importantly, entries in the "Informal Documents" section include other work products. She finds it immensely helpful to see how her associates attacked essentially the same task, especially how to write some sensitive sections.

In another example, one essential component of being committed to becoming a Learning Organization is a periodic review of knowledge base content. KM is definitely a continuous improvement effort. The Knowledge Engineer for the subject domain should facilitate knowledge production by periodically debriefing the actual knowledge base users. The goal is to improve process knowledge, which by definition means to improve the process. Here are some typical outcomes of such a meeting that improve process knowledge:

- Tom Techie showed an Excel spreadsheet he used to calculate the numeric needs of the report. Upon review, it was adapted as the "**Tool**" of choice. The tool was loaded into the "Tool" book.

- The growing number of work product samples indicated a consistency that can be replicated in the form of a "**Template**". The resultant report template was loaded into the "Template" book.

- Many of the users have remarked upon the occasional need to call another more experienced associate for help. Typically, this was Sam Expert, the center hub of an influence net. Sam not only volunteers to be responsible for a new book called "**Frequently Asked Questions (FAQ)**", but also included in it the five questions he has been asked in the past few months, but which were not part of "Keys to Success" book or incorporated into the lesson. He further volunteered to have his name and phone number appended to the "FAQ" book to save future users from having to search for a knowledgeable, subject matter expert. This last act

provided a feature which performs much like the publicized "Expert Yellow Pages", but it assigns the best person to the specific activity rather than the much more generic method of the existing yellow page initiatives. There should be Enterprise incentives for Sam for sharing the power of knowledge, beyond the psychic income of being listed and recognized as the expert in this field.

- The meeting listed many other knowledge base needs that were not satisfied at that time, including:

  * The need to understand which statutory mandates directly applies to this activity.

  * The need to evaluate, for incorporation in the knowledge base, the content of some recent publications on this subject.

  * The need to better define the necessary skill sets of persons assigned to this task.

At the close of the briefing session, the Knowledge Engineer mentions that he has arranged for a meeting with the Knowledge Engineer from another division which does similar analytical work, even though the product line is quite dissimilar. It is hoped that both knowledge bases can be integrated and the best practices of each disseminated to users from both divisions.

How has the Firm Progressed over the Year in its Journey to be a Learning Organization?

It's one year later, and new employee Susan is assigned to accomplish the same basic task done by Kay Worker a year ago. Susan was hired from a lengthy list of qualified applicants because she evidenced characteristics that Learning Organizations seek; e.g., she is a self-learner and has a sharing attitude, amongst other traits. In the meantime, the firm has honored its commitment to enrich the knowledge base over time based on industry best practices and lessons learned by actual users. How will Susan's combination of learning and sharing orientation interact with a knowledge base resource provided by the firm to help take the knowledge burden off of Susan's back?

Recall Kay had only a lesson to prepare her for the task last year and it took the industry average of about ten hours to satisfactorily complete the required report. This year Susan takes the lesson and reviews the "Formal Documents" book content, where she reads the paragraph from a relevant regulation with explanation of its applicability to this task. She uses the "Keys to Success" book content to focus her attention and efforts on the critical aspects of the task in order to increase her likelihood of success. Susan then reviews the past task products produced by her teammates over the last year in the "Informal Documents" book to appreciate the look and feel and any nuances that others have used. She launches the "Template" object, which provides a form that when completed generates most of the required report product, based on the best ideas as to how to organize the report, including strong introductory and concluding sections, and other efforts of last year's users to address unique situations. Susan then launches the "Tool" book, both to use the embedded search engine, with already set bookmark, to check on the latest information that is needed for the report, and another tool, Excel, to perform the necessary calculations, the results of which she adds to the template in the appropriate place. Finally, wanting to be rigorous, Susan checks the frequently asked questions book, one of which triggers an additional thought in her own mind. So she calls Sam Expert for a clarification and adds a new insight to the report. In all, Susan took less than two hours to accomplish a much better end product than anyone created in the prior year.

But Susan is not done. There are some additional interactions, characteristic of knowledge base enrichment in a Learning Organization, that get Susan involved in creativity and actual innovation of the innovation process.

The knowledge base aided Susan's efforts immensely--it resulted in a much better product in less time. Now its payback time. It is called knowledge sharing or knowledge base enrichment, which is a key aspect of a Learning Organization. Since Susan has received knowledge from the knowledge base to enrich her and enhance performance, the knowledge base's functionality should encourage and increase creativity. Based on what she has seen in the knowledge base about the duration metric, she launches the "Messaging" feature and informs the knowledge engineer for this knowledge base that the metric of ten hours should be updated to about two hours so that future project managers will have a more accurate estimate of total project duration, of which this task was only a minor part. She knows that exporting the knowledge base to MS Project created the Gantt Chart used to manage the project and the project task duration is the duration listed in the knowledge base by activity. Knowing the enhancements to the knowledge base that have been made, the knowledge engineer will probably change the duration metric as Susan suggested, or wait to get additional confirmation.

Also, Susan advises her peer group that she has recently read a book with some key points pertinent to this type

activity and she would like to submit an abstract for peer review consideration and possible entry into the knowledge base over her name. She has in effect proposed a knowledge claim, which must be validated by her group if they are to accept it as knowledge for themselves. Such knowledge can then be submitted to the knowledge engineer for entry into the knowledge base that will integrate it throughout the remainder of the learning organization.

Finally, Susan enters the Metrics chat room, reads a message on metametrics, submitted by the knowledge engineer based on a white paper provided by the Knowledge Management Consortium International. She reads the message again, studies it really, and begins to have some insights about how the metalevel concept, and metametrics in particular, may improve results in another area in which she is involved. But that is another story.

CONCLUSION

While drawing simplistic examples from industry situations, all examples clearly illustrate the power of these new Knowledge Management paradigms and how the Department of Defense could use these synthetic solutions to become a highly effective Learning Organization in the 21st century.

REFERENCES

Campbell, Lieutenant General, Excerpted from Army On-Line Brochure, 1998.

Davenport, Thomas H., and Prusak, Laurence, "Working Knowledge – How Organizations Manage What They Know", by, Harvard Business School Press, 1998.

Knowledge Management Consortium International (KMCI) Standards Committee, KM.org., 1999.

Natter, Bob Vice Admiral, "Improving the Value of Information Through Knowledge Management." Administrative Message, Feb. 1999.

Peters, Ralph. *Undocumented attribution.*