Knowledge Management: We know too much but feel too little

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Introduction:

Enterprises are realizing how important it is to "know what they know" and be able to make maximum use of the knowledge. This knowledge resides in many different places such as: databases, knowledge bases, filing cabinets and peoples' heads and are distributed right across the enterprise. Often one part of an enterprise repeats work of another part simply because it is impossible to keep track of, and make use of, knowledge in other parts.

Most traditional company policies and controls focus on the tangible assets of the company and leave unmanaged their important knowledge assets. Corporations are organizing their businesses to be focused on creating customer value. Staffs functions are being reduced as are management structures.

There is a need to replace the informal knowledge management of the staff function with formal methods in customer aligned business processes. Competitive pressures are reducing the size of the workforce which holds this knowledge. Knowledge takes time to experience and acquire.

There are trends for employees to retire earlier and for increasing mobility, leading to loss of knowledge. A change in strategic direction may result in the loss of knowledge in a specific area because the employees with that knowledge may no longer be there.

Knowledge management is not only about managing knowledge assets but managing the processes that act upon the assets. These processes include: developing knowledge; preserving knowledge; using knowledge, and sharing knowledge.

Why is Knowledge Management Difficult? There are many problems associated with identifying these knowledge assets and being able to use them and manage them in an efficient and cost-effective manner.

Knowledge engineering methods and tools provide disciplined approaches to designing and building knowledge-based applications. There are tools to capture, modeling, validation, verification and

maintenance of the knowledge in these applications. However these tools do not extend to support the processes for managing knowledge at all levels within the organization.

At the operational level knowledge is used in everyday practice by professional personnel who need access to the right knowledge, at the right time, in the right location using SWOT (Strengths Weaknesses Opportunities Threats) analysis.

Knowledge Management—Emerging Perspectives:

Knowledge management is the hottest subject of the day. The question is: what is this activity called knowledge management, and why is it so important to each and every one of us? The following may offer some emerging perspectives in response to these questions.

Like water, this rising tide of data can be viewed as an abundant, vital and necessary resource. With enough preparation, we should be able to tap into that reservoir -- and ride the wave -- by utilizing new ways to channel raw data into meaningful information. That information, in turn, can then become the knowledge that leads to wisdom.

A collection of data is not information.
A collection of information is not knowledge.
A collection of knowledge is not wisdom.
A collection of wisdom is not truth.

The idea is that information, knowledge, and wisdom are more than simply collections. Rather, the whole represents more than the sum of its parts and has a synergy of its own. We begin with data, which is just a meaningless point in space and time, without reference to either space or time.

A collection of data is not information. The pieces of data may represent information. We would also tend to say that it depends on the knowledge of the interpreter to define data and information.

Information is quite simply an understanding of the relationships between pieces of data, or between pieces of data and other information. Information has a tendency to be relatively static in time and linear in nature.

When a pattern relation exists amidst the data and information, the pattern has the potential to represent knowledge. It only becomes knowledge when one is able to realize and understand the patterns and their

implications. A pattern which represents knowledge also provides, when the pattern is understood, a high level of reliability or predictability as to how the pattern will evolve over time. Patterns which represent knowledge have completeness to them that information simply does not contain.

Wisdom arises when one understands the foundational principles responsible for the patterns representing knowledge.

The following associations can reasonably be made:

- Information relates to description, definition, or perspective
  (What, who, when, where).
- Knowledge comprises strategy, practice, method, or approach (how).
- Wisdom embodies principle, insight or moral (why).

Example
This example uses a bank savings account to show how data, information, knowledge, and wisdom relate to the principal, interest rate, and interest.

Data: The numbers 100 or 5%, completely out of context, are just pieces of data. Interest, principal, and interest rate, out of context, are not much more than data as each has multiple meanings which are context dependent.

Information: If we establish a bank savings account as the basis for context, then interest, principal, and interest rate become meaningful in that context with specific interpretations.
Principal is the amount of money, RS. 100 in the savings account. Interest rate, 5%, is the factor used by the bank to compute interest on the principal.

Knowledge: If a person put RS.100 in his savings account, and the bank pays 5% interest yearly, then at the end of one year the bank will compute the interest of RS. 5 and add it to his principal and he will have RS. 105 in the bank. This pattern represents knowledge. In understanding the pattern, we know, and what we know is knowledge.

Wisdom: Getting wisdom out of this is a bit tricky, and is, in fact, founded in systems principles. The principle is that any action which produces a result which encourages more of the same action produces growth. And, nothing grows forever for sooner or later growth runs into limits.

Now, if this knowledge is valid, why doesn't everyone simply become rich by putting money in a savings account and letting it grow? The answer has to do with the fact that the pattern described above is only a small part of a more elaborate pattern which operates over time. People don't get rich because they either don't put money in a savings account in the first place, or when they do, in time, they find things they need or want more than being rich, so they withdraw money. This depletes the principal and subsequently the interest they earn on that principal.

Note that the sequence data --> information --> knowledge --> wisdom represents continuous process. That is, although data is a discrete entity, the progression to information, to knowledge, and finally to wisdom does not occur in discrete stages of development.

Everything is relative, and one can have partial understanding of the relations that represent information, partial understanding of the patterns that represent knowledge, and partial understanding of the principles which are the foundation of wisdom. As the partial understanding becomes more complete, one moves toward the next phase.

Our real life experiences:

We are able to solve problems using our own knowledge and may not be able to resolve some
Of them due to lake of knowledge even though it may be a simple problem. It is difficult to
locate expert who help us in resolving our problem faster. It is again an iterative process.
In the world today concept of “Call Center” and “Help Line” is taking momentum to over
come some of the problems.

The conscious and unconscious state of mind is poles. Between them thoughts have
Made a swing. Person is not aware of the acts he is performing while in deep thinking state.
These thoughts are emerging from brain due to past experiences and knowledge about events.

Understand the following incident and get better hold on the situation. There was a telephone operator in a small town. He receives a daily call from a man who asked for the exact time. Finally, the operator asked him one day why he called everyday.

The person replied “I am the person responsible for blowing the whistle at noon each day”. It was a strange. The operator everyday exactly at noon sets his clock by listening the whistle.

Thus individual lives cannot be compartmentalized. Through our actions, we impact each other more than we realize. It follows that there is a profound relationship between the individual and the universe. It is important for us to understand one another better. One way is to learn more about emotions and human behavior by using knowledge management.

Theory of Knowledge Management:

Individuals may or may not choose to express disappointment, but the tone of voice or gesture may reveal the truth. What is critical for understanding is how things are being said rather than what actually is being said.

We tend to repress or push away painful memories – we store them in the “dumping ground” of our unconscious mind. But what we ignore, repress and fight, returns as a symptom – as headache. What lies between ease and disease is the invisible world of emotions.

We do not use knowledge management all the time. Hence, we should perhaps learn how to get involved in the process rather than constantly long for an end-result.

Grief, anger and fear tend to stay with us long after the provocation is gone. Sad feelings last indefinitely. Anxious about the future, regretful of the past, we slip the hidden fullness of the present.

We also need to use transformative practices that integrate physical, emotional and cognitive aspects of our life in order to deal with stressful situations. Otherwise, even with the best of intentions, we all end up getting caught up with old habits.

Knowledge management for Software Development:

The use of KMS better seen in Software development activity as well. The project team does not remain consistent due to various reasons. Projects get delayed because people do not document the progress of the project and go by nonstandard individual approach to perform their task. The project becomes person dependent.

We know that adding more manpower to already delayed project will further delay the project. Software development is a challenging activity (Without clear specifications). Systems are steadily growing in size (Becoming more complex). User requirements are tending to be dynamic.

Current experience in software development seems to indicate that this activity is not coping with the challenge very well. Systems often fail to meet user requirements. It cost too much over the budget. Development time exceed the estimates. Documentation is produced (if at all) at the end of all activities. This results in Maintenance activity becoming more difficult.

Use of KMS can facilitate Software Project Planning, help in early detection of errors, improve quality of System, and improve productivity of development team and tool for monitoring development activity by top management.

Introduction of formal methodology for analysis and design affects every one in the organization. The decision to select and implement SSAD methodology along with KMS must take in to consideration expectations of all concerned. This concern arises due to progressive increase in EDP expenditure and software meeting the objectives.

Both SSAD and KMS can help to protect the corporate investment. It also ensures non-dependence on single person/vendor. Systems often fail because the users do not cooperate

In development process. Need for strong emphasis on user involvement to Specify constraints on time and money, Selection of functional option and Selection of technical option that meets business needs is equally vital.

Tools:

There are very few tools providing a truly integrated set of functions to support the tasks associated with knowledge management. The following lists some tools that have been used to support various aspect of managing knowledge:

Knowledge Capture:

PC PACK is a portable package of integrated tools for requirements and knowledge engineering.

Intelligent Miner another data mining tool this time from IBM.

The Information Discovery System (IDIS) a data mining tool from Information Discovery.

- Knowledge Sharing:

  ART*Enterprise - object-oriented client/server tool with case-based retrieval of both structured and unstructured information from Brightware.

  GrapeVINE - two versions one for lotus notes and one for Netscape in which users can set up an interest profile that identifies what is useful to them and so filter information.

Knowledge Software - two products PKM (Personal Knowledge Manager) and PDP (Personal Development Plan) both based on Lotus Notes.

Knowledge Xchange - TM Knowledge Management System - a Lotus Notes based system.

References:

[1] Bateson, Gregory. Mind and Nature: A Necessary Unity, Bantam, 1988

[2] Bellinger, Gene. The Knowledge Centered Organization

[3] IEEE Intelligent Systems Special Issue on Knowledge Management and Knowledge Distribution Over the Internet; 1999.

[4] Macintosh, A., Filby, I. and John Kingston; Knowledge Management Techniques: Teaching & Dissemination Concepts; Journal of Human Computer Studies, Special Issue on Organizational Memories & Knowledge Management, Academic Press, 1999.

[5] Journal of Universal Computer Science (Special Issue on IT for Knowledge Management), 3 (8), 1997, Springer-Verlag.

[6] Karl M Wiig; books published and distributed by Schema Press, The 3 volumes are:

Volume 1; Knowledge Management Foundations, Thinking about thinking, how people and organizations create, represent and use knowledge; ISBN 0-9638925-0-9

Volume 2; Knowledge Management, The central focus for intelligent-acting organizations;

Volume 3; Knowledge Management methods, Practical approaches to managing knowledge;

[7] Artificial Intelligence in Knowledge Management, Papers from the 1997 AAAI Spring Symposium, Menlo Park, AAAI Press. Benus, B. (1993).

[8] Organizational modeling and Knowledge Management, Department of social science Informatics, University of Amsterdam, Amsterdam. Dieng, R., Corby, O., Giboin, A., & Ribière, M. (1998). Methods and Tools for Corporate Knowledge Management. Proceedings of the 11th Banff Workshop on Knowledge Acquisition, Modeling and Management, KAW’ 98, Banff, Alberta, Canada.