Key Issues in Knowledge Management: Introductory Analysis

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Abstract: This paper examines critically the origins and basis of knowledge management, its components and its development in the field of consultancy practice and managerial economics. Problems in the distinction between knowledge and information are explored, as well as Polanyis concept of tacit knowing. The concept is examined in the journal literature, the Web sites of consultancy companies and in the presentation of business schools. The conclusion is reached that knowledge management is an umbrella term for a variety of organizational activities and its management is very important for todays business giants.

Key words: Knowledge manaement, Inroductory analysis

INTRODUCTION

The Knowledge Management (KM) simply refers as strategies and structures for maximizing the return on intellectual and information resources. Because intellectual capital resides both in tacit form (human education, experience and expertise) and explicit form (documents and data), KM depends on both cultural and technological processes of creation, collection, sharing, recombination and reuse. The goal is to create new value by improving the efficiency and effectiveness of individual and collaborative knowledge work while increasing innovation and sharpening decision-making.

Knowledge management is not easy term to define rather it is a preposterous, pretentious and profoundly oxymoronic phrase that many of those who really understand KM--including some of the fields pioneers--refuse to use the term. If there is anything that those experts do agree on, its that knowledge management is not about managing people in any traditional sense. Nor is knowledge management really about managing knowledge. They prefer terms such as knowledge-sharing, information systems, organizational learning, intellectual asset management, performance enhancement or gardening. Knowledge management is the practice of harnessing and exploiting intellectual capital to gain competitive advantage and customer commitment through efficiency, innovation and faster and more effective decision-making. 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[1].

What is Knowledge?: Arent we managing knowledge already? Well, no. In fact, most of the time were making a really ugly mess of managing information. In practice, the terms information and knowledge are often used interchangeably by business writers.

Lets choose a simple working definition and get on with it:

Knowledge has two basic definitions of interest. The first pertains to a defined body of information. Depending on the definition, the body of information might consist of facts, opinions, ideas, theories, principles and models (or other frameworks). Clearly, other categories are possible, too. Subject matter (e.g., chemistry, mathematics, etc.) is just one possibility. Knowledge also refers to a persons state of being with respect to some body of information. These states include ignorance, awareness, familiarity, understanding, facility and so on. In traditional perceptions of the role of knowledge in business organizations, tacit knowledge is often viewed as the real key to getting things done and creating new value not explicit knowledge. Thus we often encounter an emphasis on the learning organization and other approaches that stress internalization of information (through experience and action) and generation of new knowledge through managed interaction. However, observing how knowledge is acquired and how we can apply knowledge-whether tacit or explicit-in order to achieve a positive result that meets business requirements ... thats a different and very important issue.

Tacit knowledge: Mention has been made more than once of the idea of tacit knowledge and the idea of capturing such knowledge is often presented as central to knowledge management. However, what is tacit

knowledge? The term originates with Polanyi[2], chemist turned philosopher of science and has been described as:

The idea that certain cognitive processes and/or behaviors are undergirded by operations inaccessible to consciousness.

This is the key point about Polanyis concept: tacit means hidden, tacit knowledge is hidden knowledge, hidden even from the consciousness of the knower. This is why Polanyi used the phrase We know more than we can tell. A phrase parroted even by those who mis-use the idea and believe that this hidden knowledge, inaccessible to the consciousness of the knower, can somehow be captured.

Polanyi equates tacit knowledge with acts of comprehension: tacit knowing achieves comprehension by indwelling and... all knowledge consists of or is rooted in such acts of comprehension[2].

In other words, tacit knowledge involves the process of comprehension, a process which is, itself, little understood. Consequently, tacit knowledge is an inexpressible process that enables an assessment of phenomena in the course of becoming knowledgeable about the world. In what sense, then, can it be captured? The answer, of course, is that it cannot be captured-it can only be demonstrated through our expressible knowledge and through our acts.

How did the idea that tacit knowledge could be captured arise? The guilty party appears to be Nonaka[3] and Nonaka and Takeuchi[4], who appear to have either misunderstood Polanyis work, or deliberately distorted it to enable them to construct the well-known two-by-two diagram.

A brief history of knowledge management: An overarching theory of knowledge management has yet to emerge, perhaps because the practices associated with managing knowledge have their roots in a variety of disciplines and domains. Special thanks to Karl Wiig for supplying us with a pre-publication copy of Knowledge Management:Where Did It Come From and Where Will It Go? which will appear in The Journal of Expert Systems with Applications. This section draws heavily on that work but supplies only a small part of that value.

A number of management theorists have contributed to the evolution of knowledge management, among them such notables as Peter Drucker, Paul Strassmann and Peter Senge in the United States. Drucker and Strassmann have stressed the growing importance of information and explicit knowledge as organizational resources and Senge has focused on the learning organization, a cultural dimension of managing knowledge. Chris Argyris, Christoper Bartlett and Dorothy Leonard-Barton of

Harvard Business School have examined various facets of managing knowledge. In fact, Leonard-Bartons well-known case study of Chaparral Steel, a company which has had an effective knowledge management strategy in place since the mid-1970s, inspired the research documented in her Wellsprings of Knowledge-Building and Sustaining Sources of Innovation .

Everett Rogers work at Stanford in the diffusion of innovation and Thomas Allens research at MIT in information and technology transfer, both of which date from the late 1970s, have also contributed to our understanding of how knowledge is produced, used and diffused within organizations. By the mid-1980s, the importance of knowledge (and its expression in professional competence) as a competitive asset was apparent, even though classical economic theory ignores (the value of) knowledge as an asset and most organizations still lack strategies and methods for managing it.

Recognition of the growing importance of organizational knowledge was accompanied by concern over how to deal with exponential increases in the amount of available knowledge and increasingly complex products and processes. The computer technology that contributed so heavily to superabundance of information started to become part of the solution, in a variety of domains. Doug Engelbarts Augment (for augmenting human intelligence), which was introduced in 1978, was an early hypertext/groupware application capable of interfacing with other applications and systems. Rob Acksyns and Don McCrackens Knowledge Management System (KMS), an open distributed hypermedia tool, is another notable example and one that predates the World Wide Web by a decade.

The 1980s also saw the development of systems for managing knowledge that relied on work done in artificial intelligence and expert systems, giving us such concepts as knowledge acquisition, knowledge engineering, knowledge-base systems and computer-based ontologies.

The phrase knowledge management entered the lexicon in earnest. To provide a technological base for managing knowledge, a consortium of US companies started the Initiative for Managing Knowledge Assets in 1989. Knowledge management-related articles began appearing in journals like Sloan Management Review, Organizational Science, Harvard Business Review and others and the first books on organizational learning and knowledge management were published (for example, Senges The Fifth Discipline and Sakaiyas The Knowledge Value Revolution).

By 1990, a number of management consulting firms had begun in-house knowledge management programs

and several well known US, European and Japanese firms had instituted focused knowledge management programs. Knowledge management was introduced in the popular press in 1991, when Tom Stewart published Brainpower in Fortune magazine. Perhaps the most widely read work to date is Ikujiro Nonakas and Hirotaka Takeuchis The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation (1995).

By the mid-1990s, knowledge management initiatives were flourishing, thanks in part to the Internet. The International Knowledge Management Network (IKMN), begun in Europe in 1989, went online in 1994 and was soon joined by the US based Knowledge Management Forum and other KM-related groups and publications. The number of knowledge management conferences and seminars is growing as organizations focus on managing and leveraging explicit and tacit knowledge resources to achieve competitive advantage. In 1994 the IKMN published the results of a knowledge management survey conducted among European firms and the European Community began offering funding for KM-related projects through the ESPRIT program in 1995.

Knowledge management, which appears to offer a highly desirable alternative to failed TQM and business process re-engineering initiatives, has become big business for such major international consulting firms as Ernst and Young, Arthur Andersen and Booz-Allen and Hamilton. In addition, a number of professional organizations interested in such related areas as benchmarking, best practices, risk management and change management are exploring the relationship of knowledge management to their areas of special expertise (for example, the APQC [American Productivity and Quality Council] and ASIS [American Society for Information Science]).

Developing a concept: Before attempting to address the question of knowledge management, its probably appropriate to develop some perspective regarding just what this stuff called knowledge, which there seems to be such a desire to manage, really is. Consider this observation made by Neil Fleming[fle96] as a basis for thought relating to the following diagram:

- 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. It is like an event out of context, a letter out of context, a word out of context. The key concept here being out of context. And, since it is out of context, it is without a meaningful relation to anything else. When we encounter a piece of data, if it gets our attention at all, our first action is usually to attempt to find a way to attribute meaning to it. We do this by associating it with other things. If I see the number 5, I can immediately associate it with cardinal numbers and relate it to being greater than 4 and less than 6, whether this was implied by this particular instance or not. If I see a single word, such as time, there is a tendency to immediately form associations with previous contexts within which I have found time to be meaningful. This might be, being on time, a stitch in time saves nine, time never stops, etc. The implication here is that when there is no context, there is little or no meaning. So, we create context but, more often than not, that context is somewhat akin to conjecture, yet it fabricates meaning.

That a collection of data is not information, as Neil indicated, implies that a collection of data for which there is no relation between the pieces of data is not information. The pieces of data may represent information, yet whether or not it is information depends on the understanding of the one perceiving the data. It would also tend to say that it depends on the knowledge of the interpreter. What I will say at this point is that the extent of ones understanding of the collection of data is dependent on the associations (s)he is able to discern within the collection. And, the associations (s)he is able to discern are dependent on all the associations (s)he has ever been able to realize in the past. Information is quite simply an understanding of the relationships between pieces of data, or between pieces of data and other information.

While information entails an understanding of the relations between data, it generally does not provide a foundation for why the data is what it is, nor an indication as to how the data is likely to change over time. Information has a tendency to be relatively static in time and linear in nature. Information is a relationship between data and, quite simply, is what it is, with great dependence on context for its meaning and with little implication for the future.

Beyond relation there is pattern[bat88], where pattern is more than simply a relation of relations. Pattern embodies both a consistency and completeness of

relations which, to an extent, creates its own context. Pattern also serves as an Archetype[sen90] with both an implied repeatability and predictability.

When a pattern relation exists amidst the data and information, the pattern has the potential to represent knowledge. It only becomes knowledge, however, when one is able to realize and understand the patterns and their implications. The patterns representing knowledge have a tendency to be more self-contextualizing. That is, the pattern tends, to a great extent, to create its own context rather than being context dependent to the same extent that information is. 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, for patterns are seldom static. Patterns which represent knowledge have a completeness to them that information simply does not contain.

Wisdom arises when one understands the foundational principles responsible for the patterns representing knowledge being what they are. And wisdom, even more so than knowledge, tends to create its own context. I have a preference for referring to these foundational principles as eternal truths, yet I find people have a tendency to be somewhat uncomfortable with this labeling. These foundational principles are universal and completely context independent. Of course, this last statement is sort of a redundant word game, for if the principle was context dependent, then it couldnt be universally true, now could it?

So, in summary 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, moral, or archetype (why).
- Now that I have categories I can get hold of, maybe I can figure out what can be managed.

An 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 I 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, $100, in the savings account.

Interest rate, 5%, is the factor used by the bank to compute interest on the principal.

Knowledge: If I put $100 in my savings account and the bank pays 5% interest yearly, then at the end of one year the bank will compute the interest of $5 and add it to my principal and I will have $105 in the bank. This pattern represents knowledge, which, when I understand it, allows me to understand how the pattern will evolve over time and the results it will produce. In understanding the pattern, I know and what I know is knowledge. If I deposit more money in my account, I will earn more interest, while if I withdraw money from my account, I will earn less interest.

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 an emergent characteristic called growth. And, nothing grows forever for sooner or later growth runs into limits.

If one studied all the individual components of this pattern, which represents knowledge, they would never discover the emergent characteristic of growth. Only when the pattern connects, interacts and evolves over time, does the principle exhibit the characteristic of growth.

Now, if this knowledge is valid, why doesnt 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 that operates over time. People dont get rich because they either dont 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. Getting into this any deeper is more of a systems thinking exercise than is appropriate to pursue here.

A Continuum

Note that the sequence data -> information -> knowledge -> wisdom represents an emergent continuum. 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. One progresses along the continuum as ones understanding develops. 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 is the foundation of wisdom. As the partial understanding becomes more complete, one moves along the continuum toward the next phase.

Extending the Concept

We learn by connecting new information to patterns that we already understand. In doing so, we extend the patterns. Csikszentmihalyi[csi94] in this context, provides a definition of complexity based on the degree to which something is simultaneously differentiated and integrated. Accordingly, complexity evolves along a corridor and he provides some very interesting examples as to why complexity evolves. The diagram below indicates that what is more highly differentiated and integrated is more complex. While high levels of differentiation without integration, promote the complicated, that which is highly integrated, without differentiation, produces mundane. And it should be rather obvious from personal experience that we tend to avoid the complicated and are uninterested in the mundane. The complexity that exists between these two alternatives is the path we generally find most attractive.

What is really interesting is that as you drop this diagram on top of the one at the beginning of this article it seems that Integrated and Understanding immediately correlated to each other. There is also a real awareness that Context Independence related to Differentiated. Overall, the continuum of data to wisdom seems to correlate exactly to Csikszentmihalyis model of evolving complexity.

THE VALUE OF KNOWLEDGE MANAGEMENT

In an organizational context, data represents facts or values of results and relations between data and other relations have the capacity to represent information. Patterns of relations of data and information and other patterns have the capacity to represent knowledge. For the representation to be of any utility it must be understood and when understood the representation is information or knowledge to the one that understands. Yet, what is the real value of information and knowledge and what does it mean to manage it?

Without associations we have little chance of understanding anything. We understand things based on the associations we are able to discern. If someone says that sales started at $100,000 per quarter and have been rising 20% per quarter for the last four quarters, I am somewhat confident that sales are now about $207,000 per

quarter. I am confident because I know what rising 20% per quarter means and I can do the math.

Yet, if someone asks what sales are apt to be next quarter, I would have to say, It depends! I would have to say this because although I have data and information, I have no knowledge. This is a trap that many fall into, because they dont understand that data doesnt predict trends of data. What predicts trends of data is the activity that is responsible for the data. To be able to estimate the sales for next quarter, I would need information about the competition, market size, extent of market saturation, current backlog, customer satisfaction levels associated with current product delivery, current production capacity, the extent of capacity utilization and a whole host of other things. When I was able to amass sufficient data and information to form a complete pattern that I understood, I would have knowledge and would then be somewhat comfortable estimating the sales for next quarter. Anything less would be just fantasy!

In this example what needs to be managed to create value is the data that defines past results, the data and information associated with the organization, its market, its customers and its competition and the patterns which relate all these items to enable a reliable level of predictability of the future. What it refers to as knowledge management would be the capture, retention and reuse of the foundation for imparting an understanding of how all these pieces fit together and how to convey them meaningfully to some other person.

The value of Knowledge Management relates directly to the effectiveness [bel97a] with which the managed knowledge enables the members of the organization to deal with todays situations and effectively envision and create their future. Without on-demand access to managed knowledge, every situation is addressed based on what the individual or group brings to the situation with them. With on-demand access to managed knowledge, every situation is addressed with the sum total of everything anyone in the organization has ever learned about a situation of a similar nature.

Why We Need Knowledge Management Now: Why do we need to manage knowledge? Ann Macintosh of the Artificial Intelligence Applications Institute (University of Edinburgh) has written a Position Paper on Knowledge Asset Management that identifies some of the specific business factors, including:

- Marketplaces are increasingly competitive and the rate of innovation is rising.
- Reductions in staffing create a need to replace informal knowledge with formal methods.

- Competitive pressures reduce the size of the work force that holds valuable business knowledge.
- The amount of time available to experience and acquire knowledge has diminished.
- Early retirements and increasing mobility of the work force lead to loss of knowledge.

There is a need to manage increasing complexity as small operating companies are trans-national sourcing operations.

Changes in strategic direction may result in the loss of knowledge in a specific area.

To these paraphrases of Ms. Macintoshs observations we would add:

Most of our work is information based: Organizations compete on the basis of knowledge.

Products and services are increasingly complex, endowing them with a significant information component. The need for life-long learning is an inescapable reality.

In brief, knowledge and information have become the medium in which business problems occur. As a result, managing knowledge represents the primary opportunity for achieving substantial savings, significant improvements in human performance and competitive advantage.

Its not just a Fortune 500 business problem. Small companies need formal approaches to knowledge management even more, because they dont have the market leverage, inertia and resources that big companies do. They have to be much more flexible, more responsive and more right (make better decisions)-because even small mistakes can be fatal to them.

Roadblocks to adoption of knowledge management solutions: There have been many roadblocks to adoption of formal knowledge management activities. In general, managing knowledge has been perceived as an unmanageable kind of problem-an implicitly human, individual activity-that was intractable with traditional management methods and technology.

We tend to treat the activities of knowledge work as necessary, but ill-defined, costs of human resources and we treat the explicit manifestations of knowledge work as forms of publishing-as byproducts of real work. As a result, the metrics associated with knowledge resources-and our ability to manage those resources in meaningful ways-have not become part of business infrastructure.

But it isnt necessary to throw up ones hands in despair. We do know a lot about how people learn. We know more and more about how organizations develop and use knowledge. The body of literature about managing intellectual capital is growing. We have new insights and solutions from a variety of domains and disciplines that can be applied to making knowledge work manageable and measurable. And computer technology-itself a cause of the problem-can provide new tools to make it all work.

We dont need another paradigm shift , but we do have to accept that the nature of business itself has changed, in at least two important ways:

Knowledge work is fundamentally different in character from physical labor.

The knowledge worker is almost completely immersed in a computing environment. This new reality dramatically alters the methods by which we must manage, learn, represent knowledge, interact, solve problems and act.

You cant solve the problems of Information Age business or gain a competitive advantage simply by throwing more information and people at the problems. And you cant solve knowledge-based problems with approaches borrowed from the product-oriented, print-based economy. Those solutions are reactive and inappropriate.

Applying technology blindly to knowledge-related business problems is a mistake, too, but the computerized business environment provides opportunities and new methods for representing knowledge and leveraging its value. Its not an issue of finding the right computer interface-although that would help, too. Because we simply have not defined in a rigorous, clear, widely accepted way the fundamental characteristics of knowledge in the computing environment.

Knowledge Management:
a Cross-Disciplinary Domain: Knowledge management draws from a wide range of disciplines and technologies.

Cognitive science: Insights from how we learn and know will certainly improve tools and techniques for gathering and transferring knowledge.

Expert systems, artificial intelligence and Knowledge Base Management Systems (KBMS). AI and related technologies have acquired an undeserved reputation of having failed to meet their own-and the marketplaces-high expectations. In fact, these technologies continue to be applied widely and the lessons practitioners have learned are directly applicable to knowledge management.

Computer-supported collaborative work (groupware). In Europe, knowledge management is almost synonymous with groupware ... and therefore with Lotus Notes. Sharing and collaboration are clearly vital to

organizational knowledge management-with or without supporting technology.

Library and information science: We take it for granted that card catalogs in libraries will help us find the right book when we need it. The body of research and practice in classification and knowledge organization that makes libraries work will be even more vital as we are inundated by information in business. Tools for thesaurus construction and controlled vocabularies are already helping us manage knowledge.

Technical writing: Also under-appreciated-even sneered at-as a professional activity, technical writing (often referred to by its practitioners as technical communication) forms a body of theory and practice that is directly relevant to effective representation and transfer of knowledge.

Document management: Originally concerned primarily with managing the accessibility of images, document management has moved on to making content accessible and re-usable at the component level. Early recognition of the need to associate metainformation with each document object prefigures document management technologys growing role in knowledge management activities.

Decision support systems: According to Daniel J. Power, Researchers working on Decision Support Systems have brought together insights from the fields of cognitive sciences, management sciences, computer sciences, operations research and systems engineering in order to produce both computerised artifacts for helping knowledge workers in their performance of cognitive tasks and to integrate such artifacts within the decision-making processes of modern organisations. [See Powers DSS Research Resources Home page.] That already sounds a lot like knowledge management, but in practice the emphasis has been on quantitative analysis rather than qualitative analysis and on tools for managers rather than everyone in the organization.

Semantic networks: Semantic networks are formed from ideas and typed relationships among them-sort of hypertext without the content, but with far more systematic structure according to meaning. Often applied in such arcane tasks as textual analysis, semantic nets are now in use in mainstream professional applications, including medicine, to represent domain knowledge in an explicit way that can be shared.

Relational and object databases: Although relational databases are currently used primarily as tools for managing structured data-and object-oriented databases are considered more appropriate for unstructured content-we have only begun to apply the models on which they are founded to representing and managing knowledge resources.

Simulation: Knowledge Management expert Karl-Erik Sveiby suggests simulation as a component technology of knowledge management, referring to computer simulations, manual simulations as well as role plays and micro arenas for testing out skills.

Organizational science: The science of managing organizations increasingly deals with the need to manage knowledge-often explicitly. Its not a surprise that the American Management Associations APQC has sponsored major knowledge management events.

Thats only a partial list. Other technologies include: object-oriented information modeling; electronic publishing technology, hypertext and the World Wide Web; help-desk technology; full-text search and retrieval; and performance support systems.

Business Strategies Related to Knowledge Management: As you explore other explanations of knowledge management-Bo Newmans Knowledge Management Forum is a good starting point-youll detect connections with several well-known management strategies, practices and business issues, including:

- Change management
- Best practices
- Risk management
- Benchmarking

A significant element of the business community also views knowledge management as a natural extension of business process reengineering, a fact underscored by the recent announcement that John Wileys Business Change and Reengineering will become Knowledge and Process Management in March, 1997. See (http://www.mgmt.utoronto.ca/~wensle/journal1.htm)

There is a common thread among these and many other recent business strategies: A recognition that information and knowledge are corporate assets and that businesses need strategies, policies and tools to manage those assets.

The need to manage knowledge seems obvious and discussions of intellectual capital have proliferated, but few businesses have acted on that understanding. Where

companies have take action-and a growing number are doing so-implementations of knowledge management may range from technology-driven methods of accessing, controlling and delivering information to massive efforts to change corporate culture.

Opinions about the paths, methods and even the objectives of knowledge management abound. Some efforts focus on enhancing creativity-creating new knowledge value-while other programs emphasize leveraging existing knowledge.

Categorization of Knowledge Management Approaches:
The term knowledge management is now in widespread use, having appeared in the titles of many new books about knowledge management as a business strategy, as well as in articles in many business publications, including The Wall Street Journal. There are, of course, many ways to slice up the multi-faceted world of knowledge management. However, its often useful to categorize them.

In a posting to the Knowledge Management Forum, Karl-Erik Sveiby identified two tracks of knowledge management:

Management of Information: To researchers in this track, according to Sveiby, ... knowledge = Objects that can be identified and handled in information systems.

Management of People: For researchers and practitioners in this field, knowledge consists of ... processes, a complex set of dynamic skills, know-how, etc., that is constantly changing.
(From Sveiby, Karl-Erik, What is knowledge management)

Sveibys characterization is on target, but it may not capture the full flavor of the important distinctions in approaches to organizational knowledge management. At Knowledge Praxis, we have adopted a three-part categorization: (1) mechanistic approaches, (2) cultural/behavioristic approaches and (3) systematic approaches to knowledge management.

Mechanistic approaches to knowledge management:
Mechanistic approaches to knowledge management are characterized by the application of technology and resources to do more of the same better. The main assumptions of the mechanistic approach include.

Better accessibility to information is a key, including enhanced methods of access and reuse of documents (hypertext linking, databases, full-text search, etc.)

Networking technology in general (especially intranets) and groupware in particular, will be key solutions.

In general, technology and sheer volume of information will make it work.

Assessment: Such approaches are relatively easy to implement for corporate political reasons, because the technologies and techniques-although sometimes advanced in particular areas-are familiar and easily understood. There is a modicum of good sense here, because enhanced access to corporate intellectual assets is vital. But its simply not clear whether access itself will have a substantial impact on business performance, especially as mountains of new information are placed on line. Unless the knowledge management approach incorporates methods of leveraging cumulative experience, the net result may not be positive and the impact of implementation may be no more measurable than in traditional paper models.

Cultural/behavioristic approaches to knowledge management: Cultural/behavioristic approaches, with substantial roots in process re-engineering and change management, tend to view the knowledge problem as a management issue. Technology-though ultimately essential for managing explicit knowledge resources-is not the solution. These approaches tend to focus more on innovation and creativity (the learning organization) than on leveraging existing explicit resources or making working knowledge explicit.

Assumptions of cultural/behavioristic approaches often include: Organizational behaviors and culture need to be changed ... dramatically. In our information-intensive environments, organizations become dysfunctional relative to business objectives.

Organizational behaviors and culture can be changed, but traditional technology and methods of attempting to solve the knowledge problem have reached their limits of effectiveness. A holistic view is required. Theories of behavior of large-scale systems are often invoked.

Its the processes that matter, not the technology.

Nothing happens or changes unless a manager makes it happen.

Assessment: The cultural factors affecting organizational change have almost certainly been undervalued and cultural/behavioristic implementations have shown some benefits. But the cause-effect relationship between cultural strategy and business benefits is not clear, because the Hawthorne Effect may come into play and because we still cant make dependable predictions about systems as complex as knowledge-based business

organizations. Positive results achieved by cultural/behavioristic strategies may not be sustainable, measurable, cumulative, or replicable ... and employees thoroughly Dilbertized by yet another management strategy may roll their eyes. Time will tell.

Systematic approaches to knowledge management: Systematic approaches to knowledge management retain the traditional faith in rational analysis of the knowledge problem: the problem can be solved, but new thinking of many kinds is required. Some basic assumptions:

Its sustainable results that matter, not the processes or technology ... or your definition of knowledge.
A resource cannot be managed unless it is modeled and many aspects of the organizations knowledge can be modeled as an explicit resource.

Solutions can be found in a variety of disciplines and technologies and traditional methods of analysis can be used to re-examine the nature of knowledge work and to solve the knowledge problem.

Cultural issues are important, but they too must be evaluated systematically. Employees may or may not have to be changed, but policies and work practices must certainly be changed and technology can be applied successfully to business knowledge problems themselves.

Knowledge management has an important management component, but it is not an activity or discipline that belongs exclusively to managers.

Assessment: Unrepentant rationalists in the business world are taking a systematic approach to solving the knowledge problem. Youll also find evidence of such approaches-as well as a less formal use of the term systematic knowledge management-Karl Wiigs Knowledge Research Institute Web site and Gene Bellingers Systems Thinking Web pages. Systematic approaches show the most promise for positive cumulative impact, measurability and sustainability.

CONCLUSIONS

Where do we stand at the moment and where do we go from here? As attested to in numerous articles in the popular press, knowledge management has already been embraced as a source of solutions to the problems of todays business. Still it has not been easy for this science to construct for itself that royal road of self validation. On the contrary, I believe that it is still, at least for the majority of the practitioners and their customers, in the stage of blind groping after its true aims and destination.

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