

KNOWLEDGE MANAGEMENT

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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?

Before attempting to address the question of knowledge management, it's 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.

- 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 is 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 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. I would also tend to say that it depends on the knowledge of the interpreter, but I'm probably getting ahead of myself, since I haven't defined knowledge. What I will say at this point is that the extent of my understanding of the collection of data is dependent on the associations I am able to discern within the collection. And, the associations I am able to discern are dependent on all the associations I have 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, 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 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 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 couldn't 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, Rs.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 Rs.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 Rs.5 and add it to my principal and I will have Rs.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 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. 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 one's 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 are the foundation of wisdom. As the partial understanding becomes more complete, one moves along the continuum toward the next phase.

A brief definition of "knowledge" can be a very difficult concept to define. Indeed, a whole branch of philosophy is given over to questions about knowledge.

On the other hand, "knowledge" is a word we all use and understand in everyday life without much trouble. For our purposes, the corporate knowledge base comprises the facts, rules, models and concepts that underpin the day-to-day decisions made at every level

in the organisation. For example:

- facts: felix is a cat, a cat is a mammal;*
- rules: if x is y and y is z, then x is z;*
- models: class hierarchies, classification of animals;*
- concepts: cat, mammal, class, class membership.*

Knowledge can be explicit or tacit, for example:

- explicit: "I like meat, I don't like fish";*
- tacit: "I don't know what I want but I'll know when I see it" (the sought-for concept isn't explicitly identified: it is "in the back" of the mind).*

Sometimes it is very difficult to make tacit knowledge explicit, which you need to be able to do to understand, explain, test or teach it.

Knowledge can be deep or shallow, for example:

- deep: "I gave the patient these pills because he had symptoms which indicate a certain condition that the pills are effective against" (causal explanation of reasoning);*
- shallow: "if you've got a cough, try cough linctus" (a "rule-of-thumb" without explanation);*

Sometimes knowledge in an explicit form may appear very shallow (i.e.; it's an unexplained rule of thumb), but this may be because it's the surface

manifestation of a body of very valuable deep knowledge acquired through long experience.

The deep knowledge has become tacit. Knowledge is formulated in the minds of individuals through experience. People learn, naturally, all the time. Knowledge is shared between groups and communities through shared experience and through the transfer of knowledge, both tacitly and explicitly.

Every individual and community has a pool of "general" and specific knowledge. Every task or skill has specific knowledge associated with it.

Problems with knowledge The major issue about knowledge is that it is:· vital to the continued operation and development of organisations and their plans;· expensive to acquire and valuable once you have acquired it;· but intractable: difficult to understand, assess, obtain, retain, share and protect: difficult to manage.

Organisations suffer from specific characteristic problems associated with knowledge:· knowledge bottleneck: a particular skill or expertise is in short supply causing a bottleneck that restricts the operations that compete for that supply.

Corporate amnesia: organisations fail to retain knowledge acquired and lessons learned in the past. The people who had the knowledge leave and no retrievable record remains.

Sub-optimal decision-making: the best knowledge available fails to be applied correctly leading to sub-optimal decision-making;· wasted resources: since the organisation does not really know what knowledge resources it has it fails to capitalise on potential new initiatives. In business terms:· some knowledge resources are under-utilised or wasted completely;· some knowledge resources are over-stretched.

The organisation is exposed to many kinds of risk;· the growth and development of the organisation is restricted. Despite the vital nature and value of knowledge, its apparent intractability has meant that it has not, in the past, received the direct attention of management that it deserves and needs.

Knowledge has usually been only indirectly managed through human resources and information technology initiatives.

An approach to knowledge management

The major aspects of knowledge management are:

- *The identification of knowledge needs and assets,*
- *Knowledge problems and opportunities,*
- *The design, development, and implementation of knowledge management strategies and solutions.*

Knowledge management is concerned with managing the underlying knowledge development cycle to:

- ✓ *Meet existing and emerging needs.*
- ✓ *Develop new opportunities.*

Knowledge management solutions and strategies encompass:

People aspects.

training, development, recruitment, motivation, retention, organisation, job design, cultural change and encouraging thinking and participation, process aspects: process innovation, re-engineering; both for radical and continuous improvement.

Technology aspects: information and decision support systems, knowledge-based systems and data mining systems. Various kinds of knowledge management initiatives or projects are possible, including. organisation-wide strategic reviews leading to a full implementation strategy. task, process, function or team-specific analysis and design projects.

Projects that address individual aspects in isolation: such as the people, process or technology aspects. In each case a typical “analysis, design, implementation” project framework is usually applicable and should be used alongside change management approaches.

Knowledge management exercises should aim to leave the subject better able to carry on the continuous process of knowledge management: the

correct management infrastructure, tools and techniques should be left in place.

The 'Thinking Organisation' The concept of the "Thinking Organisation" embodies a vision of the standards that represent the best in knowledge management. The Thinking Organisation:· promotes and supports thinking through the use of models, methods, pools and techniques that assist with group and individual thinking;· encourages and rewards thinking through its structure, processes and culture;· continually strives for the best in knowledge management.

The Thinking Organisation operates a strategy for meeting its knowledge needs and exploiting its knowledge assets. Knowledge management is embedded in the organisation as an ongoing management process.

Our approach to knowledge management is scaleable and configurable to suit both strategic and tactical assignments.

Our strategic approach should be :·

Identify key organisational knowledge from the organisation's mission,

Objectives and strategy.

Identify task knowledge through functional and process analysis.

Identify role and individual knowledge through analysis of the organisational structure and analysis of individual roles.

Assess the organisation against the standard provided by the Thinking Organisation.

Identify knowledge problems and opportunities,

Knowledge Management: Beginning not an end in itself !

We managed to survive the Formula Fifties, the Sensitive Sixties, the Strategic Seventies, and the Excellent Eighties to exist in the Nanosecond Nineties and for a time I thought I was headed for the Learning Organizational Oh's of the next decade. The misdirection I was caught up

in was a focus on Knowledge Management not as a means, but as an end in itself. Yes, knowledge management is important.

But knowledge management should simply be one of many cooperating means to an end, not the end in itself;

- **Mission:** What are we trying to accomplish?
- **Competition:** How do we gain a competitive edge?
- **Performance:** How do we deliver the results?
- **Change:** How do we cope with change?

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 Rs.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 Rs.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 don't understand that data doesn't 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 I would refer 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 with which the managed knowledge enables the members of the organization to deal with today's 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.

Information vs. Knowledge

Information	Knowledge
Tangible - informs humans	Human process – thinking/awarenesses
Processing changes representation	Processing changes consciousness
Physical objects	Mental objects
Context independent	Context affects meaning
Entity	Awareness and intuition
Easily transferable	Transfer requires learning
Reproducible at low cost	Not identically reproducible