Second-Generation Knowledge Management

By Mark W. McElroy

At a recent conference on knowledge management (KM), some attendees were heard grumbling about what they felt was the event’s obsession with technology. “Document management and imaging—that’s all I’ve seen and heard about here,” one man complained. He then amplified his discontent and shared his general disappointment with knowledge management as a whole: “…an idea that amounts to little more than yesterday’s information technologies trotted out in today’s more fashionable clothes.” Point well taken.

Indeed, at the heart of most KM strategies to date can be found data warehousing, groupware, document management, imaging, and data mining. By continuing to promote that kind of narrow, technology-centric brand of thinking, the nascent field of knowledge management places its own credibility at risk. Merely re-labeling yesterday’s technologies in the sexy new name of today’s KM brings nothing new to the table. And customers won’t stand for it. As reported above, evidence of the backlash is already apparent. We, the community of KM practitioners, can do much better than that.

As an advocate and strong supporter of KM, I and many others hold an entirely different view of the field compared to what we typically see in the press and in trade shows. Recently, a new name for this hopefully more-enlightened brand of KM has emerged: “Second-Generation KM.” Unlike first-generation KM, in which technology always seems to provide the answer, second-generation thinking is more inclusive of human resource, process, and social initiatives. I believe we should embrace this term, along with its expanded perspectives, as a way of differentiating the new KM from its technology-minded ancestry. A comparison of these two competing frameworks follows below.

The Fundamentals

The arrival of second-generation KM includes the introduction of some new terms, new concepts, and new insights that together give second-generation KM some real depth and distinction when compared to first-generation models. These ideas, unique to second-generation thinking, fall into the following nine (9) categories:

1. The Knowledge Life Cycle
2. Knowledge Claims
3. KM Versus Knowledge Processing
4. Supply-Side Versus Demand-Side KM
5. Nested Knowledge Domains
6. Containers of Knowledge
7. Organizational Learning
8. The Open Enterprise
9. Self Organization and Complexity Theory

Each of these concepts is defined and discussed in more detail below.
The conventional practice of knowledge management – if there is such a thing – is often associated with the following common phrases:

- **It’s all about getting the right information to the right people at the right time**
- **If we only knew what we know**
- **We need to capture, codify, and share valuable knowledge**
- **We need to capture our tacit and explicit knowledge before it walks out the door**

Most of us in KM have heard these expressions many times before. In a very real way, they speak volumes about our assumptions concerning the purpose and value of KM, as well as the scope of it. In particular, the unspoken assumption behind each of these statements is that *valuable knowledge exists* – all we need to do is find it, capture it, codify it, and share it. According to this view of knowledge management, the practice of KM begins sometime after knowledge is produced. Ergo, the purpose of KM is not to enhance knowledge
production; rather, the purpose of KM is to enhance the integration of knowledge into practice (i.e., its diffusion throughout an organization and into the minds of individuals and groups who need it). This is a view of KM that we shall call ‘first-generation KM.’

While practitioners of first-generation KM tend to begin with the rather convenient assumption that valuable knowledge already exists, practitioners of second-generation KM do not. Instead, they – or we – take the position that knowledge is something that we produce in human social systems, and that we do so through individual and shared processes that have regularity to them. We can describe this process at an organizational level in the form of what is now being referred to as the knowledge life cycle, or KLC (see Figure 1). This is perhaps the single most important foundation of second-generation thinking, since all that we do in KM, according to this view, is designed to have impact on the KLC. If it doesn’t have impact on the KLC, or if it is not intended to have impact on the KLC, then it is not KM. This is a view of KM that we shall call ‘second-generation KM.’

The KLC shown in Figure 1, and referred to variously throughout the remainder of this text, was conceived of and developed by a handful of active members at the Knowledge Management Consortium International (KMCI), especially by Joe Firestone and myself. In presenting this model, we often take care to point out that the KLC is actually not a ‘model,’ but is a ‘framework,’ instead. What we mean by this is that the KLC can be thought of as a ‘framework of models,’ in which many different competing views of how knowledge is produced and integrated in organizations can be organized and positioned relative to one another. Moreover, management strategies and programs for enhancing knowledge production, diffusion, and use can be seen in context when viewed against the backdrop of the KLC.

But the KLC is not just a neutral conception, or framework, of how knowledge is produced and integrated in human social systems. It does reflect a particular point of view. Some of the claims embodied by this view include the following:

- People tend to engage in learning as a result of experiencing gaps in their current and goal states. Detections of these gaps constitute the emergence of ‘problems,’ which involve a lack of knowledge of what actions to take in order to achieve desired outcomes.
- The detection of problems by individuals, or agents, in a system triggers learning activity which eventually leads to the formulation of ‘knowledge claims.’ Knowledge claims are conjectures, assertions, arguments, or theories about which potential actions might lead to desired outcomes in ways that will close the gap between current and goal states.
- In learning and developing new knowledge claims, individual agents sometimes co-attract one another and form groups in which they collectively, and often informally, share ideas and subject them to peer review. In these and other ways, they vet and evaluate their claims and ultimately validate them to their own satisfaction. At an individual and group level, this may be as far
as things need to go before being placed into practice, but at an organizational level, validation must also occur in the eyes of a wider audience, if not in the minds of a controlling group or authority structure (e.g., management). This process of knowledge claim formulation and evaluation can be thought of as ‘Knowledge Production.’

- Not all knowledge claims formulated by individuals and groups succeed in becoming validated at an organizational level. Those that do can be thought of as ‘surviving knowledge claims’; those that don’t fall into either of two categories: ‘undecided knowledge claims,’ or ‘falsified knowledge claims.’ Information records about these outcomes are also produced as a consequence of the Knowledge Production process, which, themselves, are knowledge claims.

- As knowledge claims are evaluated and validated at different levels of organizational scale, attempts may be made afterwards by managers and others to share their content and value with other members of the group or organization, in which case efforts are made to integrate them across a wider population of agents. This process of managed diffusion can be thought of as ‘Knowledge Integration.’

- As knowledge is successfully integrated throughout an organization, it manifests itself generally in two forms: mentally held by individual or group agents (people) in their minds, or artfactually held in the form of explicit linguistic expressions (documents, computer files, etc.). Here, we find the language of the great twentieth century philosopher Karl Popper to be useful, according to which he distinguished between ‘world 2’ knowledge (knowledge in minds) and ‘world 3’ knowledge (knowledge encoded in linguistic expressions). Popper also referred to these two forms of knowledge as subjective knowledge and objective knowledge, respectively. The combination of subjective and objective knowledge in an organization may be thought of as an organization’s ‘Distributed Organizational Knowledge Base,’ or DOKB.

- In discrete form, the components of a DOKB manifest themselves in what we can think of as two kinds of ‘containers’: agents and artifacts. More specifically, they may take the form of knowledge claims held in the minds (individuals, teams, groups, communities, departments, divisions, etc.) – these are subjective forms of knowledge. But knowledge may also be held in the form of linguistic expressions and/or encodings in objects, such as files, documents, computer systems, microfilm, disks, videos, tapes, books, articles, papers, essays, etc. – these are objective forms of knowledge.

- The knowledge life cycle, strictly speaking, begins with the detection of problems by agents in the context of knowledge processing (i.e., as they experience gaps in their knowledge of how to move from current states to goal states), and ends with the choice of newly validated knowledge claims in the DOKB and its containers. Knowledge use, which later follows, occurs within the context of business processing, not knowledge processing, and it is in the midst of knowledge processing, in turn, that new problems arise and are detected. Nonetheless, in Figure 1 we show the relationships between the
KLC and the Business Process Environment, since the two realms of processing do indeed connect and interact with one another.

These and other claims, discussed variously below, comprise the theoretical foundations of second-generation KM. Of particular importance is the view that valuable knowledge does not simply exist. In fact we produce it, and we produce it as a consequence of engaging in knowledge processes that have regularity to them. Once we learn to recognize and expect this regularity, we can then have impact on an organization’s capacity to produce and integrate knowledge by making a variety of interventions aimed at supporting, strengthening, and reinforcing related processes. This, then, is the fundamental outlook held by practitioners of second-generation KM, and the KLC is their most important touchpoint.

Knowledge Claims

Knowledge, according to second-generation thinking, consists of mental and linguistic formulations of claims about the world, beauty, and truth. When knowledge can be expressed (which it cannot always be according to some interpretations of ‘tacit’ knowledge), it usually takes the form of assertions, propositions, hypotheses, arguments, allegations, and other forms of linguistic claims about the world, beauty, and truth. And all of these claims, in turn, are subject to analysis, refutation, evaluation, and even falsifiability. All too often we find that today’s truth is tomorrow’s falsehood. All claims, therefore, can be accompanied by evidence of their truth or falsity – that is, by their validation records or their pedigrees, which attest to their having stood the test of criticism, or not, over time. The validation record of a claim can be thought of as information about the claim, also known as ‘metadata.’

In the KLC, we depict metadata in the form of ‘Information About…’ knowledge claim status as a consequence of the Knowledge Claim Evaluation sub-process in Knowledge Production. Consciously or not, we all rely on the content of metadata whenever we make choices about actions to take on the basis of our knowledge. Our understanding of the metadata associated with one claim versus another is the basis upon which we make decisions and take actions, and formulate our expectations of outcomes. My decision to stop my car at a red light (action) is based upon the strength of the knowledge claim (drivers should stop at red lights), which is, in turn, predicated on the strength of the metadata that accompanies the claim (evidence suggests that stopping at red lights yields better results than not stopping a red lights).

So, holding the claim that stopping at red lights is appropriate behavior could be thought of as a knowledge claim which has survived the Knowledge Claim Evaluation process (for me, at least) over time. Indeed, it is the relative strength of the metadata that accompanies the claim, stopping at red lights is appropriate, that makes it a ‘knowledge claim,’ and not just an ‘information claim.’ Knowledge, according to this view, consists of claims that have been successfully evaluated against other competing claims, and whose validation
status is highest when compared to the rest. Those claims that carry the highest rankings, if you will, tend to be the ones that we later put into practice by choosing actions that are consistent with their meanings. Knowledge, then, which takes the form of claims, can be thought of as validated information.

With this in mind, all of the so-called DOKB ‘Containers’ shown in the KLC in Figure 1 are, in fact, filled with knowledge claims. These claims, then, are precisely the ones that underlie behavior and action in the Business Process Environment until, of course, their use leads to problems. A ‘problem’ in this sense would either be the receipt of unexpected results from action taken on the basis of existing claims, or it may be that no claims exist of a satisfactory sort for decision-making or action. In either case, the ‘problem’ we speak of in this context is a knowledge claim problem, and the arrival of one always triggers the KLC.

Once we understand the role that knowledge claims play in business processing, and in life in general, we can start to better appreciate the importance of the KLC and the reality of the role it plays in helping individuals, groups, and organizations to produce and integrate their knowledge.

Moreover, this discussion should also make it clear that there are no absolute truths in life, only relatively more or less validated ones. ‘Truth’ is nothing more than a claim whose metadata is currently more convincing to us than others, but whose metadata could change in the future just as readily as it may have changed in the past. The Knowledge Life Cycle is really just a knowledge claims processing system, whose outcomes consist of assertions accompanied by metadata with varying degrees of strength.

**KM Versus Knowledge Processing**

Armed with an understanding of the knowledge like cycle, we can now make the very important distinction between knowledge processing and knowledge management. At an organizational level, people and groups engage in the kinds of activities encompassed by the KLC. We call this ‘knowledge processing.’ Knowledge processing includes Knowledge Production and Knowledge Integration, the two major areas of activity within the KLC, as well as their sub-processes. In fact, we can also think of knowledge processing as occurring within the lower levels of scale encompassed by the KLC, namely individual and group learning. Individuals and groups also engage in knowledge processing and experience their own knowledge life cycles, accordingly. In this sense, their KLCs are nested within the organizational KLC (discussed further below).

Knowledge management, then, is a management discipline that seeks to have impact on knowledge processing (see Figure 2). While the distinction between KM and knowledge processing is a critically important one, the two are constantly being confused with one another in the marketplace. Designing a portal to enhance knowledge sharing is an act of knowledge management because it seeks to have impact on an aspect of knowledge processing as defined by the KLC, namely Knowledge Integration. But knowledge sharing is not the same as knowledge management. Nor is engaging with others in, say, a
community of practice is a form of Individual & Group Learning, a sub-process of Knowledge Production, which is, in turn, a form of knowledge processing.

This distinction between KM and knowledge processing is crucial to understanding the meaning and perspective of second-generation KM because without it, there really is no differentiation between first- and second-generation thinking. In first-generation thinking, there is no KLC, no foundational view of knowledge processing, no social process with regularity to it that accounts for Knowledge Production and Integration in firms, and no conception, therefore, of KM as something which *has impact on* knowledge processing. What there is, by contrast, is an assumption that valuable knowledge exists, and the sooner we get it into the hands of people who need it the better.

Ironically, when viewed from the perspective of the KLC, first-generation thinkers are essentially focusing only on the Knowledge Integration side of the cycle, even though they might not think of their work in these terms. Moreover, they tend to think of the problem as one of how best to capture, codify, and deploy valuable organizational knowledge. Victory is seen as that pivotal moment in the performance of a business process, when a worker suddenly
develops a need for information, and is quickly able to find it, thanks to the quality of the ‘KM system.’ It’s all about making the delivery of information successful in support of individual decisions. First-generation KM is very transactional, in this sense.

Unfortunately, this interpretation of KM has done nothing but confuse the business world for years now, since what’s really going on in the scenario above is just information integration (i.e., information capture, deployment, and retrieval), and not knowledge management, much less knowledge processing. As discussed earlier above, knowledge differs from information by virtue of the strength contained in the metadata associated with claims. If a system lacks metadata of a sort that can tell us what the value, context, or veracity of information or claims are, even as it purports to be a ‘knowledge management system,’ it really is no more than an information processing system. And all efforts to build and deploy it, therefore, are merely acts of information management, not knowledge management.

If on the other hand, a system is developed in such a way that the information or claims contained in it are accompanied by evaluative metadata, the presence of such information can give users access to the arguments behind the claims, in which case we’re now dealing with a knowledge processing system. All efforts to build systems of that kind can be fairly described as knowledge management efforts, but the systems themselves are knowledge processing systems, not knowledge management systems.

Does this mean that information processing and information management have no role to play in knowledge processing? Of course not. Researching and accessing information (i.e., Information Acquisition) plays a significant role in Knowledge Production as clearly shown in the KLC in Figure 1. But we should not confuse knowledge processing as information processing, and we should certainly not view the knowledge manager’s work as ‘done’ simply because we’ve made information more generally accessible through technology interventions and otherwise. All of that in the absence of validation information is nothing but information management and information processing. Knowledge managers should never forget this.

Supply-Side vs. Demand-Side KM

As I have discussed, the hallmark of first-generation KM is its overwhelming emphasis on the capture, codification, and distribution of existing knowledge throughout an organization. This accounts for the heavy use of technology in most first-generation initiatives. Groupware, information indexing and retrieval systems, repositories, data warehousing, document management, and imaging systems are all classic answers to the prevailing ailment first-generation KM strategies are designed to address: inadequate knowledge sharing.

All of these measures are seen as far superior to serendipity and manual efforts when it comes to propagating knowledge from one part of the organization to another. Enhance the transfer of knowledge, first-generation KM practitioners
say, and better organizational performance will follow. This is fundamentalist supply-side dogma in action.

Demand-side KM takes a distinctly different point of view. Rather than place its bets on the downstream effects of codifying and sharing existing knowledge, demand-side advocates suggest, instead, that accelerating the production of new knowledge is a far more valuable proposition. Demand-side KM initiatives, therefore, focus on enhancing the conditions in which innovation and creativity naturally occur.

Helping organizations to create new knowledge faster (i.e., to accelerate their rate of innovation) is seen by demand-side thinkers as a powerful new way of increasing a firm’s competitive stance in the marketplace. This message has not been lost on practitioners of second-generation KM. In fact, whereas first-generation KM can be thought of as equivalent to supply-side thinking only, practitioners of second-generation KM embrace both supply-and demand-side KM, thereby bringing a considerably more balanced view to the table (see Figure 3).

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Figure 3 - The Generational View of KM

When viewed from the perspective of the KLC – which all forms of KM must be because their purpose is to have impact on it – demand- versus supply-side KM can be seen as having impact on the production and integration of knowledge, respectively (see Figure 4). When we speak of supply-side KM,
then, we are talking about KM interventions aimed solely at the Knowledge Integration side of the KLC. When we speak of demand-side KM, we are focusing only on the Knowledge Production side. Supply-side KM seeks to enhance the supply of existing knowledge to a population of workers. Demand-side KM, on the other hand, seeks to enhance an organization’s ability to satisfy its demands for new knowledge. Our supply- versus demand-side terminology was coined on the basis of this distinction, and with the KLC explicitly in mind.

Nested Knowledge Domains

The Knowledge Life Cycle shown in Figure 1 is ‘expressed’ at the level of an organization. In other words, it depicts the dynamics of knowledge production, integration, and use at a whole-organization level. Embedded within the organizational process, however, are individuals and groups who also learn, and whose patterns of learning may also be described as a KLC. Indeed, Individual & Group Learning, per se, is explicitly shown as a sub-process in Knowledge Production since their learnings contribute in material and often determinative ways to the direction of organizational learning.

Some KM strategies focus on knowledge making (demand-side) while others focus on knowledge sharing and use (supply-side)

Figure 4 - Supply-Side Versus Demand-Side KM
What this means is that there are really three levels of learning, or *knowledge domains*, in an organization: the top level organization; sub-groups within the organization; and individuals, some of whom may be members of groups while others are not. Groups are nested in organizations, and individuals are nested in groups (see Figure 5). As a result, the Individual & Group Learning sub-process in Knowledge production actually contains many lower-level KLCs, which in some organizations may number in the thousands, if not more. Second-generation KM is primarily concerned with the KLC operating at the level of the top-organization, but it recognizes the presence of lower-level KLCs and explicitly takes them into account in the formulation of its strategies and interventions.

![Diagram of Nested Knowledge Domains](image)

*Figure 5 - Nested Knowledge Domains*

Further, it is not only true that each knowledge domain in a system has its own KLC, but also its own independent conclusions. In other words, what’s true for me may not be true for you, because we each have our own separate KLCs, and my validation criteria may differ from yours. Savvy knowledge managers know this. When crafting KM strategies at an organizational level, it is often helpful to begin by acknowledging the presence of multiple KLCs, each of which may have its own Knowledge Claim Evaluation criteria. How can we expect people and groups in organizations to agree with one another without at least
attempting to rationalize our KLCs and the potentially conflicting criteria we use in evaluating knowledge claims — even the same knowledge claims? Here again, use of the KLC as a reference model for planning KM interventions can really pay off, since if it were not for the presence of the Knowledge Claim Evaluation sub-process in the context of nested knowledge domains, we might fail to even acknowledge the issue as one that we should be focusing on.

Containers of Knowledge

As noted above, the DOKB shown in Figure 1 manifests itself in the Business Process Environment in the form of what we can think of as ‘containers’ of knowledge. These containers are made up of agents (individuals and groups) and artifacts (documents, books, computer systems, etc.). Knowledge held by agents is subjectively held in minds, whereas knowledge held in artifacts is objectively held in the form of explicit, encoded linguistic expressions. When we view knowledge in this way, we can think of everyday expressions of knowledge in organizations in the ways shown in Table 1.

<table>
<thead>
<tr>
<th>Instantiations of Knowledge</th>
<th>Examples</th>
<th>Objective</th>
<th>Subjective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Personally-held Beliefs In An Individual (Mind)</td>
<td>An Opinion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Mutually-held Beliefs In A Group (of Minds)</td>
<td>A Business Process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Mutually-held Beliefs In An Organization (of Minds)</td>
<td>A Business Strategy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Claims Expressed In Written Form</td>
<td>A Report</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>5. Claims Expressed In Computers</td>
<td>An E-mail</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>6. Claims Expressed In Audio-Visual Form</td>
<td>A Documentary</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7. Claims Expressed Orally In Person</td>
<td>A Speech</td>
<td>✓</td>
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</tbody>
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Table 1 – ‘Containers’ of Knowledge

The significance of containers of knowledge, when viewed from this perspective, is that they hold and reflect the knowledge claims we produce in our KLCs. In addition, they can be seen as the interface between knowledge processing outcomes (the DOKB), and the Business Process Environment in
which decisions and actions are taken by people in their work. The ‘containers’ perspective is also important because it can serve as a basis for discovering and mapping knowledge.

Organizational Learning

Perhaps the most striking distinction between first- and second-generation KM is the explicit connection now being drawn between knowledge management and organizational learning (OL). Popularized by Peter Senge in his hugely influential book, *The Fifth Discipline* (1990), OL has attracted an enormous following and is widely regarded as a reference to the only sustainable advantage in business: *the ability to learn faster than your competitors*. Second-generation KM is all about beefing up an organization’s ability to do just that – to learn, and to learn effectively and in sustainable fashion.

I like to think of second-generation KM, then, as a management discipline that focuses on organizational learning. In other words, second-generation KM is an *implementation strategy for organizational learning*. Knowledge management and Senge’s OL movement have much to gain by embracing this convergence of thinking, the combination of which is much greater than the sum of its parts. What a fitting tribute to Senge’s OL ideas, which after all, highlight holistic *systems thinking* as the *fifth* discipline he speaks of. Treating the entire KLC, not just some of its parts, is nothing if not systems thinking in the finest tradition. But rather than using systems thinking *for* learning in the Sengian sense, second-generation KM uses it to describe a vision of learning. The KLC is a systems-thinking representation of how learning happens in human social systems.

The Open Enterprise

Because second-generation KM is a management discipline, as opposed to a normative prescription for knowledge processing, practitioners of its tenets are free to guide and steer organizations in a variety of directions as they see fit, depending upon their goals and needs. Second-generation KM has more to do with understanding the manageable dynamics and leverage points for organizational learning than it does with advocating a particular outcome of one sort or another. Knowledge Production and Integration is a social process, we argue, and we can have impact on it by crafting our strategies and choosing our interventions, accordingly.

What this means is that there are many different implementations of second-generation thinking. Some might harness its principles in the service of greater knowledge production; others might care more about knowledge sharing; others, still, might try to fine-tune the system to enhance the production of intellectual property, or for some other pecuniary purposes. In all cases, different practitioners with different goals are, nevertheless, working with the same fundamental creature: a *knowledge life cycle* that has regularity to it, and which can be influenced in a variety of ways by tinkering with the same set of variables.
One particularly interesting application of second-generation KM is now in the early stages of development by members of the KMCI, including myself, Joe Firestone, and Mark Notturno. We call it the ‘Open Enterprise,’ or OE, for short. To be sure, the idea of the OE is firmly rooted in the thinking of the great twentieth-century philosophy Karl Popper, whose notion of the ‘Open Society’ followed from his adherence to what he called ‘Critical Rationalism,’ an approach to learning and knowledge production that stresses the fallibility of knowledge. And since all knowledge is fallible, Popper felt that we should be *rationally open* to criticism of the views that we hold, and never constrain inquiry. As another great twentieth-century philosopher, C. S. Peirce, put it, “Do not block the way of inquiry.” Think of this as the motto of the Open Enterprise.

In his very fine book, *Science and the Open Society*, Mark Notturno explains the ethic of openness this way:

“We are rational to the extent that we are open to criticism, including self criticism; and to the extent to which we are willing to change our beliefs when confronted with what we judge to be good criticism.”

Turning back to organizations, even businesses if you like, we can ask ourselves what openness would look like in the conduct of commercial affairs. As I write this essay, the United States is reeling from the largest bankruptcy in American history, the collapse of Enron Corporation. While time will tell what really happened there, early indications suggest that far from a surprise, Enron’s over-reliance on dubious accounting practices were known by several executives in the firm, but were suppressed by others in higher positions of power. ‘What if the broader population of Enron’s executives, workers, and stockholders had been privy to its shenanigans?’ one might ask. Would things have gotten as far as they did? Or would the behaviors that ultimately cost the company its survival, and its employees and stockholders their nest eggs, have been nipped in the bud early on?

In the wake of Enron’s demise, talk of new regulatory interventions aimed at preventing this sort of thing from happening again is boiling in the press with intensity. And while most of the ideas being considered will in all likelihood lead to constructive outcomes, they at the same time arguably fail to address the core problem that led to Enron’s collapse – closedness in its KLC! Again, as Mark Notturno put it, “We are rational to the extent that we are open to criticism…” And so we might speculate that Enron, from a cultural point of view, was irrational to the extent that it failed to allow itself to benefit from the well-meaning criticisms of its own people. Indeed, accusations have been made that management there went so far as to deprive its own people of access to information concerning its management decisions, even within the ranks of management itself.

In response to the Enrons of the world, we at KMCI have started working on the development of a set of policies and programs that would seek to ensure openness, not in the decision-making process of a firm, for that would unduly interfere with its operation, but in its knowledge-making process. In other words,
we are starting to formulate a normative model for openness in the KLC. Of particular interest to us are steps that could be taken by management and the board of directors in a corporation to ensure that there is openness in the Knowledge Claim Formulation and Knowledge Claim Evaluation sub-processes of the KLC. Openness, in this sense, would not in any way undermine the authority or a management regime, but would merely subject its ideas and plans to the bright light of day. Workers, stockholders, and other stakeholders in a firm would have access to not only the knowledge claims held by managers, but to the knowledge processes, as well, through which management knowledge is produced.

Examples of concrete steps that companies could take in pursuit of the OE would include the implementation of ‘free employee presses,’ or FEPs. An FEP would be a publication in which employees’ views on opinions held, and decisions made, by managers could be constructively criticized in an open way. Access to the FEP would be possible for all employees, as well as by board members and stockholders, whose vested interests in the quality of management thinking and decision-making would be well served by such institutions. And further, of course, this kind of visibility of management should help to prevent the suppression of information and the temptations of unscrupulous managers to keep illicit or dubious behaviors secret, in the first place.

But then there’s the problem of retribution. How would we prevent managers from taking retaliatory actions against those of their subordinates who openly disagree, or criticize them in print, as it were? In a recent exchange on this very question, Joe Firestone made the following very interesting proposal:

“The Managers, the Board and the stockholders must all agree to accept and support the defining specifications of the OE. Among the defining characteristics will be agreement on the part of Managers, the Board and stockholders, that they will maintain and support a hands-off policy toward interference with, or punishment of, peer-group-directed communications in any venue (Communities of Practice, FEP, List Serve, Chat Room, etc.) designated as an OE venue when it first receives management approval. Management should specifically be denied the authority to manage such venues once they are formed, and a specific institution reporting directly to the Board and the stockholders, the Ombudsman’s office, should be established with enough resources to study the pattern of punishments and rewards given to participants in the knowledge-making venues, as compared with the pattern of punishments and rewards given to non-participants.

The CKO Ombudsman should also have the duty of, as well as the resources for, hearing complaints for retributive actions performed by managers, and for binding arbitration of such disputes. The Ombudsman, who would have the authority to recommend dismissal of Managers for violation of the non-retribution policies to higher management, to the Board, and even to the stockholders, would not be
responsible to Management in any way for his/her employment, but would serve only at the pleasure of the stockholders, as the Board does.”

One of the elements of Joe’s proposal that I particularly like is its implication that the KM function might report to the board in a corporation, and not to its management hierarchy. I have been making this point, myself, in recent years, and have pointed out that a management hierarchy, itself, along with all of its strategies, operating models, and policies, are nothing more than a collection of knowledge claims that are temporal – and fallible – in scope. To subject knowledge management to the control of a current management regime is a little bit like putting the Pope in charge of enforcing our right to freedom of religion. Management and strategy follow from knowledge processing, not the reverse. The KM function should be positioned, accordingly.

Another aspect of an OE, one that is already practiced by many companies around the world, might be to populate the board with one or more employee representatives that are elected by their peers. Here again, the objective is openness in knowledge production, and by permitting employee representatives to sit on its board, a company can also avail itself of the knowledge claim contributions of the vast majority of its working members – a population that is often disenfranchised from the Knowledge Production process, altogether.

It will be interesting to see where the KMCI’s conception of the OE ends up in its final form. Again, it is still very much in its seminal stages. Nonetheless, it does point to the potential for a very real benefit that second-generation KM can bring to the table, but which first-generation thinking cannot: higher quality knowledge processing in commercial firms, and a reduction in management malpractice and deceit.

Self Organization and Complexity Theory

What many people may find surprising is that most of the ideas expressed in this paper are firmly rooted in complexity theory. Now seen as a valuable source of insight in understanding how living systems function – including human organizations – the science of complexity has a great deal to say about the nature and role of cognition in the conduct of human affairs. Indeed, second-generation KM owes much of its seminal thinking to complexity theory.

Of particular relevance in the science of complexity is a body of thought known as complex adaptive systems theory, or CAS theory. CAS theory holds that living systems (i.e., organizations made up of living, independent agents, such as people) self-organize and continuously fit themselves, individually and collectively, to ever-changing conditions in their environment. They do this, the theory says, by (in our terms) formulating and testing their knowledge claims as a way of solving their problems and getting on in life (see Figure 6).

Knowledge, according to CAS theory, can be represented by rules that agents follow in their ongoing quest to adapt themselves successfully to their environment. Rules, in this sense, are roughly equivalent to our notion of
‘knowledge claims,’ CAS theory, then, is one of the important theoretical foundations behind second-generation KM and its conception of the Knowledge Life Cycle, Knowledge Processing, Knowledge Claims, and Containers of Knowledge. Moreover, living systems are nothing if not Learning Organizations. Understanding how knowledge forms at the level of individual agents and then rises to the level of the collective to become shared organizational knowledge is a lesson taken directly from complexity theory. So, too, is the notion of Nested Knowledge Domains, which CAS theory sees as organisms or groups within groups, each of which is capable of evolving its own sets of rules through its own KLC.

Figure 6 - Complex Adaptive Systems

The application of complexity theory to a broad range of business and organizational development issues is widening in practice. Examples include the New England Complex Systems Institute in Cambridge, MA, whose members have been actively studying the application of complexity and CAS theory to the management of human organizations for years now. Major corporations have also risen to the occasion by investing in dedicated resources, such as Citibank’s Complexity and Organizational Behavior Project, to explore and embrace ways of applying complexity’s lessons to the management of their affairs. Even the Wall Street Journal, thanks to the pioneering efforts of journalist Tom Petzinger, has closely followed the trajectory of complexity theory as practiced by business since the mid-‘90s.
But it wasn’t until 1997, when the Knowledge Management Consortium International was formed (KMCI) that the profound connections between complexity theory and knowledge management were aggressively embraced. By simply agreeing to treat human organizations as living systems – consistent with CAS theory’s definition of complex adaptive systems – all of the theory’s insights on how knowledge happens in such systems were suddenly seen as entirely applicable to business and industry. Readers of this text should make no mistake about it: practitioners of second-generation KM believe that people in organizations tend to self organize around the production, diffusion, and use of knowledge, and the KLC is the pattern of organizational behavior that follows. It’s an emergent property of human social systems. This insight, coupled with the influence of organizational learning on KM, accounts for the strikingly new and different brand of second-generation knowledge management that we now see before us – a practitioner’s framework firmly rooted in the study of complexity in living systems.

References

1. Firestone, Joseph M., Ph.D. – The quotation from Joe Firestone re: the CKO Ombudsman concept was taken from an e-mail posting of his on 2/18/02 on the KMCI ‘Virtual Chapter,’ which is an on-line discussion group moderated by KMCI at ‘kmci-virtual-chapter@yahoogroups.com.’

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