# Knowledge Management for Organizational White-Waters: An Ecological Framework

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*Based upon the Opening Day Keynote Presentation entitled*
*'Toward a Knowledge Ecology for Organizational White-Waters'*
*at the Knowledge Ecology Fair 98: Beyond Knowledge Management*

Additional Discussion on Key Issues

**Abstract**: Many extant conceptions of organizational knowledge management systems are constrained by their overly rational, static and acontextual views of knowledge. It is anticipated that the notion of knowledge ecology can facilitate development of synergy between the data and information processing capacity of information technologies and the innovative and creative capacity of human beings. This presentation will attempt to develop an understanding of such issues to advance the current thinking from knowledge management based on predictive models to those better geared to organizational white-waters that demand 'anticipation of surprise.'

"Knowledge is information that changes something or somebody -- either by becoming grounds for actions, or by making an individual (or an institution) capable of different or more effective action."

-- Peter F. Drucker in *The New Realities*

## Extant Conceptions of Knowledge Management Systems

Increased realization of knowledge as the core competence coupled with recent advances in information technology such as intranets and the World Wide Web, has heightened organizational interest in the topic of knowledge management. Most such technology-based conceptualizations have been primarily based, however, upon heuristics -- embedded in procedure manuals, mathematical models or programmed logic -- that, arguably, capture the *preferred* solutions to the *given* repertoire of organization's problems.

Technology gurus, as well as hardware and software vendors, have been offering 'out-of-box solutions' that are expected to enable knowledge management. Such off-the-shelf solutions are expected to offer means for storing best practices devised by human experts in information databases. These databases, in turn, may be later used for crunching out *pre-determined* solutions based on *pre-defined* parameters. The convergent and consensus building emphasis of such systems may be adequate for stable and predictable organizational environments. However, such systems -- based primarily on rules and procedures embedded in technology -- seem misaligned with the dynamically changing business environment.

## The 'Hi-Tech Hidebound' Syndrome

Knowledge management solutions characterized by memorization of 'best practices' tend to define the assumptions that are embedded in information databases. Interestingly, such embedded assumptions also get *programmed* in the organization's strategy, reward systems and resource allocation systems. The hardwiring of such assumptions in organizational knowledge bases may lead to perceptual insensitivity of the organization to the changing environment. Institutionalization of 'best practices' may facilitate efficient handling of routine, 'linear,' and predictable situations during stable or incrementally changing environments. However, when this change is discontinuous, there is a persistent need for

continuous examination and renewal of the basic premises underlying the 'best practices' stored in organizational knowledge bases.

The extant knowledge management systems are largely devoid of such capabilities needed for continuous learning *and* unlearning processes mandated by an increasing pace of discontinuous and radical change. Such processes of ongoing knowledge creation are needed for organizational survival and competence in the new world of business.

## Organizational White-Waters of the New World of Business

This new organizational world of *permanent white-waters* demands precognition and adaptation in contrast to the traditional emphasis on optimization based on prediction. It is a world in which organizational theories of business need to be continuously re-examined for their alignment with the dynamically changing external reality. This new world of business is characterized by "re-everything" involving continuous redefinition of organizational goals, purposes, and the tried and trusted 'ways in which things have been done.' The radical and discontinuous change of the new business environment overwhelms the traditional organizational response of predicting and reacting based on pre-programmed heuristics. Instead, it demands what may be characterized as 'anticipation of surprise.' The following observation by Steve Kerr, the Chief Learning Officer of one of the largest US multinationals, would perhaps provide some appreciation of this viewpoint.

"The future is moving so quickly that you can't anticipate it…We have put a tremendous emphasis on quick response instead of planning. We will continue to be surprised , but we won't be surprised that we are surprised. We will anticipate the surprise."

How can one move beyond the current Knowledge Management systems based primarily on predictive models to systems that can facilitate *anticipation of surprise*?

## Toward *Loose-Tight* Knowledge Management Systems

One possible solution may involve developing what I term as *loose-tight* knowledge management systems. These systems do not reject the notion of 'best practices' *per se* but consider the continuous construction and reconstruction of such practices as a *live* process. Such systems are *loose* in the sense that they allow for continuous re-examination of the assumptions underlying best practices and reinterpretation of this information. Such systems are *tight* in the sense that they also allow for efficiencies based on propagation and dissemination of the best practices.

Such *loose-tight* knowledge management systems would need to provide not only for identification and dissemination of best practices, but also for continuous re-examination of such practices. Specifically, they would need to also provide the *reverse* processes that continuously examine the best practices for their currency given the changing assumptions about the business environment. Such systems would need to contain both learning and unlearning processes. These *simultaneous* processes are needed for assuring the efficiency-oriented optimization based on the current best practices *while* ensuring that such practices are continuously re-examined for their currency. Continuously challenging the current 'company way,' such systems are expected to prevent the core capabilities of yesterday from becoming core rigidities of tomorrow.

Within such systems, the best practices would represent optimizations based on past experience, *but* they would not serve as *de facto* benchmarks for guiding the future course of action. The primary purpose of such best practices would be considered as sharing and communication of information. In this view, the best practices stored in organizational

knowledgebases would *not* be viewed as a set of instructions to be followed without questioning. Rather they would serve as ideological devices to define potential, but *not* exclusive, courses of action.

The traditional technology-oriented knowledge management solutions have adequately served the predictable world paradigm based on the pre-defined models and assumptions. The new era of permanent organizational white-waters, however, requires a knowledge ecology that can facilitate the development and sustenance of the *loose-tight* knowledge management systems described above.

## Knowledge Ecology for the Era of Discontinuous Change

Some of the key premises underlying the notion of knowledge ecology may be extrapolated based upon the observations of the natural ecosystems. One would observe the contrast offered by these characteristics of knowledge ecology in comparison with the traditional knowledge management systems described earlier.

- Knowledge ecology primarily focuses on social networks of individuals in contrast to the *overly* technological emphasis of traditional knowledge management systems on computers and information technology networks.
- In a knowledge ecology environment impacted by sudden and pervasive change, mode of survival is adaptation [or more accurately,'anticipation of surprise'] instead of optimization.
- Knowledge ecology is made up of knowledge nodes and knowledge exchanges or knowledge flows. In the knowledge ecology the basis for cooperation and survival is differentiation *and* similarity between the knowledge nodes. Highly differentiated knowledge nodes can collaborate to accomplish specific actions and may dissolve thereafter. However, collaboration between such nodes would require that they be able to 'relate' to one another under an overarching mission or theme.
- Within a knowledge ecology, focus on people does not *only* imply understanding of knowledge exchanges and relationships based on such exchanges. It also implies understanding of how such knowledge influences action or potential for action based on such exchanges.
- Just as natural ecologies thrive based on species diversity, knowledge ecology thrives on diversity of knowledge. Such diversity rests on cooperative competition: the various knowledge nodes collaborate *as well as* compete based on their differentiating characteristics.
- Knowledge ecology treats knowledge creation as a dynamic *evolutionary* process in which knowledge gets created and recreated in various contexts and at various points of time.

The traditional view of knowledge management primarily focuses on information, whereas the knowledge ecology adds the context, synergy and trust necessary for translating such information into actionable knowledge.

## From Information to Actionable Knowledge

The traditional view of knowledge management has treated knowledge in terms of prepackaged or taken-for-granted interpretation of information. However, this static and acontextual knowledge works against the generation of multiple and contradictory viewpoints that are necessary for meeting the challenge posed by wicked environments. As illustrated by case studies of companies that have relied on this concept of knowledge, it may even hamper the organizational learning and adaptive capabilities. The wicked environment of the new world of business imposes the need for variety and complexity of

the interpretations of information. Such interpretations are necessary for deciphering the multiple world views of the uncertain and unpredictable future.

A more proactive involvement of human imagination and creativity can perhaps facilitate greater internal diversity [of the organization] that can match the variety and complexity of the wicked environment. The active meaning-making role of human actors thus occupies a prominent role in the subjective and constructive knowledge processes of the knowledge ecology.

## The Constructive and Dynamic Nature of Knowledge

Information residing in the organizational knowledge bases, procedures, routines and archives -- in the form of pixels, bits or symbols -- needs to be distinguished from the constructive and dynamic view of knowledge discussed above. West Churchman, in his classic treatise *The Design of Inquiring Systems*, had noted that: "To conceive of knowledge as a collection of information seems to rob the concept of all of its life… Knowledge resides in the user and not in the collection." On a related note, Ikujiro Nonaka, the first Professor of Knowledge, has emphasized that only human beings can take the central role in knowledge creation. He has asserted that computers are merely tools, however great their information-processing capabilities may be. More recently, Karl Erik Sveiby has observed that the confusion between `knowledge' and `information' has caused managers to sink billions of dollars in technology ventures that have yielded marginal results. He asserts that the business managers need to realize that unlike information, knowledge is embedded in people… and knowledge creation occurs in the process of social interaction.

Given the increasingly wicked nature of the organizational environment, there seems to be an imperative need for consideration of the subjective human sense-making interpretations. Such human sense-making processes can provide the multiple, diverse, and contradictory interpretations based on information in computer databases. The role of such processes seems relevant in ensuring that the organization is *doing the right thing*, in contrast to the optimization based predictive models that focus on *doing things right*. As observed twenty years ago by Chris Argyris, such processes would facilitate generative learning that emphasizes continuous experimentation and feedback in an ongoing examination of the way organizations go about defining and solving problems. He had argued that the massive technology of various information and control systems is designed for single loop learning. Unfortunately, trouble arises when the technology is not effective and when the underlying objectives and policies must be questioned. Left unquestioned and unexamined, the organization's theories of business [embedded in the organizational information and control systems] get out of alignment with the changing reality of the business environment.

The above argument suggests that the role of human sense making processes in organizational knowledge management is crucial for sustaining organizational effectiveness. At least it seems relevant until the technological systems can become capable of generating not only convergent and consensus-oriented solutions, but also diverse interpretations of information based on previously unpredicted contexts and unforeseen assumptions.

What are the implications for the organizations and their members given the changing business environment that demands increasingly faster cycle of new knowledge creation?

## Toward Communities of *Knowledge Intrapreneurs*

With the redefinition of the employment contract in U.S. and other worldwide organizations, we are observing a shift to the *intrapreneurship* mode of knowledge work. Specifically, regardless of the industry or organization an individual is working in, he or she is expected to act more and more as an internal entrepreneur, or *intrapreneur*. Given the increasing

relevance of the knowledge value chain in the organizational business processes, one can anticipate that most individuals in knowledge-based organizations would be acting as *knowledge intrapreneurs*. The term 'knowledge intrapreneur' seems more appropriate in this context than 'knowledge worker' given the changing nature of organizations and work roles.

The emerging work roles would exploit the informated environment by opening the information base of the organization to members at every level, assuring that each has the knowledge, skills and authority to engage with the information productively. These roles are consistent with Shoshana Zuboff's observation that efficient operations in the informated workplace require a more equitable distribution of knowledge and authority. They are also consistent with the contextual, constructive, dynamic, and action-oriented view of knowledge creation proposed in this keynote. The new work roles demand that every worker act to an extent as a manager as well as an entrepreneur in the organizational knowledge-creation process. Such knowledge intrapreneurs are expected to contribute to the organizational knowledge-creation processes based on developing knowledge relationships and knowledge exchanges within *and* outside the formal boundaries of the organizations. The emerging virtual communities of practice and virtual events [such as this 'virtual fair'] are harbingers of this vision.

## Conclusions

One can anticipate that the new paradigm of knowledge creation and dissemination would have implications for most types of knowledge work with which we are currently familiar. The paradigm shift is anticipated to have implications for traditional channels of knowledge creation and dissemination. It is also anticipated to facilitate the democratization of policy-making processes that influence specific groups and communities.

One cannot discount the importance of technology access and utilization for the individuals, groups, organizations and communities who participate in the knowledge creation and dissemination processes, and are also impacted by such processes. However, the future developments in knowledge management systems have to take into consideration two key issues. First, they need to be based on an integrated understanding of technological design of such systems *and* deep knowledge of how such systems are appropriated by the adopters. Second, they need to be based on an integrated understanding of the information storage, archival and dissemination processes *and* knowledge of how such information is translated into action by the users.

It is anticipated that a balance between the technological and human elements of future knowledge management systems would facilitate both learning and unlearning processes. This balance is anticipated to result in systems that facilitate 'anticipation of surprise' demanded by the permanent organizational white-waters of the new world of business. The resulting *loose-tight knowledge management systems* would balance the emphasis on optimization-based *efficiency* with the double-loop generative learning needed for long-term *effectiveness*. Such systems are anticipated to more explicitly address the proposed notion of knowledge ecology that takes into consideration context, synergy and trust necessary for translating information into actionable knowledge. Such systems would also address the long-term and ongoing knowledge creation needs of the organizations served by knowledge intrapreneurs.

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