The new knowledge management

The future value of knowledge management in a corporate context is dependent on the discipline's ability to overcome many of the limitations of its current guise. Drawing on research conducted for their most recent book, Joseph M. Firestone and Mark W. McElroy discuss eight issues that they feel will define what they call 'new knowledge management'.

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What is the future of KM? If KM is to have a future, it must give better answers to such fundamental questions as what is knowledge, what is knowledge management, where does knowledge come from, and what roles do learning and knowledge play in business performance? We believe, also, that the 'new knowledge management', a perspective we and others have developed over the past few years, answers these questions well, and that the future of KM lies within its vision. While we'd like to present a detailed description of this perspective in this article, the broad range of its various frameworks would greatly exceed the space available. We've decided, instead, to present brief discussions of eight issues that, based on analysis in our new book, *Key Issues in the New Knowledge Management*[1], will be very important over the next five years. We intend that these discussions will provide some of the flavour of the new KM and our very great excitement in developing it. The issues are:

- Freeing KM from the bonds of strategy;
- Transcending the Nonaka and Takeuchi SECI model;
- Developing the enterprise knowledge portal;
- Developing a comprehensive system of KM metrics;
- Developing the open enterprise;
- Creating communities of inquiry;
- Developing value theory in KM;
- Transcending KM standards development.

This article will briefly characterise each issue, evaluate its importance and relate it to the future of KM. But before we get to the issues, we need some background on some important distinctions in the new KM.

First, the new KM makes a distinction between knowledge management, knowledge processing (KP) and business processing (BP) (see *figure 1*). This three-tier perspective is key to the future of KM because it formally specifies the role that KM should play relative to a range of behaviours in organisations that shape knowledge production and integration. Such KP behaviours are always present in organisations, but with KM they can be enhanced. In fact, the new KM says that the purpose of KM is to enhance knowledge processing, which, in turn, enhances knowledge outcomes, and BP performance and related outcomes.

Second, the conventional practice of KM begins with the assumption that valuable knowledge already exists. KM is all about getting the right information to the right people at the right time. Knowledge does not simply exist, however – people create it. And KM can help them do this better through its impact on knowledge making or production.

The new KM focuses on the whole of knowledge processing, both knowledge integration (including sharing) and knowledge production. We refer to approaches to KM that deal only with knowledge sharing and integration as first-generation or supply-side KM. We refer to newer approaches to KM that deal with both knowledge integration and knowledge making as second-generation KM, or demand and supply-side KM.

Second-generation KM, or at least its new variant, provides something essential to KM. By focusing on the sub-process of knowledge production called knowledge-claim evaluation (KCE), one can distinguish knowledge from information. Put simply, knowledge is comprised of those knowledge claims that survive the KCE process. Other knowledge claims are either false or 'just' information. So a focus on knowledge production and on KCE and its outcomes are key to clearly distinguishing both knowledge from information and KM from information management (IM). Therefore, until and

unless we expand the scope of KM to address knowledge production and KCE, KM will be forever seen as little more than IM in disguise. Its value propositions will be discounted accordingly.

Freeing KM from the bonds of strategy

In contemporary theory and practice, KM is subordinate to strategy. This idea is frequently expressed in the form of dicta, which suggest that KM initiatives must always be aligned with and support strategy and, in turn, be supported by management. According to the new KM, however, this perspective has things exactly backwards.

Strategy is a type of knowledge and is itself an outcome of knowledge processing (see *figure 1*). If the purpose of KM is to enhance knowledge processing, then KM precedes strategy and every other knowledge outcome. To argue the reverse is to grant strategy an exception that it does not deserve. Why should strategy be any less subject to knowledge-production processes than other knowledge outcomes? We call the idea that strategy comes first the 'strategy exception error'. If KM is to have a future, we must eliminate this error and recognise strategy as just another set of knowledge claims that flow out of knowledge processing.

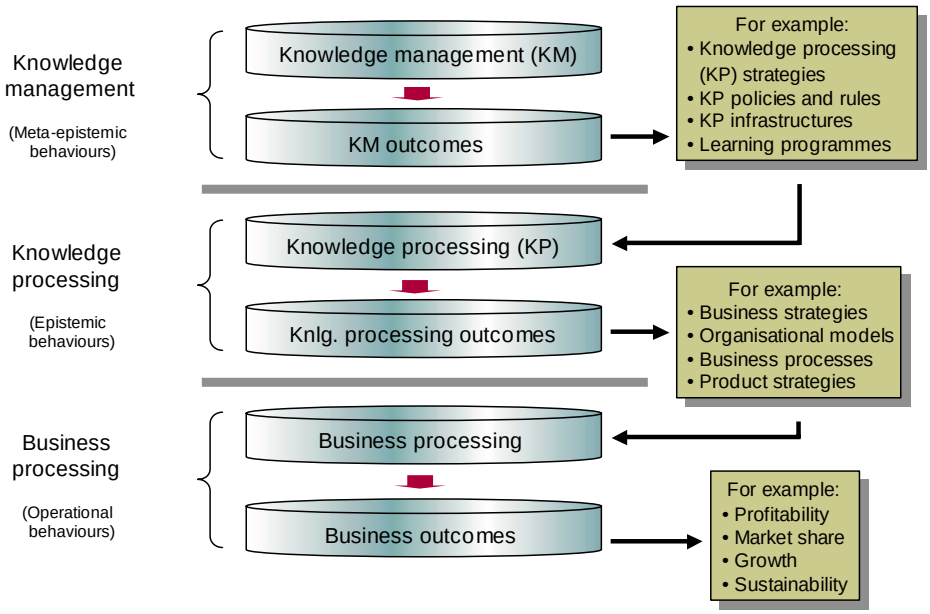

Figure 1 – the three-tier new KM model

The most important form of strategy addresses an organisation's capacity to learn and adapt. Strategies come and go, but in order to survive over the long haul, the quality of an organisation's systemic capacity to learn and adapt must be high and sustainable. This is 'sustainable innovation', the fundamental strategy of every organisation wishing to survive and prosper.

Most of what currently passes for KM initiatives aligned with strategy are really IM (information-management) projects. Their focus is on capture and delivery of information required to support strategy. While valid and useful, these are not KM initiatives *per se*. The purpose of KM is to enhance knowledge processing, which, in turn, enhances an organisation's capacity to produce strategies. It is IM that afterwards must be aligned with and support strategy, not KM.

In our vision of the future of KM, there will be two kinds of strategy: knowledge-processing strategy and business-processing strategy. Today, only the latter receives attention and KM is mistakenly seen as its servant. Once firms rise to the challenge of enhancing their capacity to learn and adapt, the relevance and importance of KP will come into full view. Only then will KM be recognised as the precursor to strategy that it is, and not its dependent slave.

Transcending the Nonaka and Takeuchi SECI model

Among the many important implications of the new KM is that the still popular SECI (socialisation/externalisation/combination/internalisation) knowledge-conversion model put forth by Nonaka and Takeuchi in *The Knowledge Creating Company*[2] suffers from at least two important limitations. First, SECI has flaws in its psychological and cognitive theory. It neglects to include consideration of implicit knowledge and in the process provides us with an ambiguous account of tacit knowledge. As Polanyi points out, tacit knowledge consists of that which one can know but never tell. It is inexpressible. Implicit knowledge, as Polanyi also says, however, can be converted to explicit form. But Nonaka and Takeuchi do not define implicit knowledge, even though their discussion refers to similar beliefs as one type of tacit knowledge. Had they distinguished implicit knowledge, SECI would have defined more modes of conversion. This suggests that SECI model is incomplete.

SECI also fails to distinguish between knowledge predispositions and situational orientations. The distinction between tacit and explicit knowledge may either be interpreted as applying to predispositions or to orientations, or both. If it's applied to predispositions, it has no meaning because there are no explicit predispositions. On the other hand, if tacit knowledge is applied to orientations, then it is clear that much of the tacit knowledge referenced in examples, such as the ability to ride a bicycle, doesn't fit a situational interpretation of tacit knowledge, because abilities are predispositions.

Second, the new KM distinguishes between subjective knowledge in minds and objective knowledge in artefacts. This, too, materially expands the range of possibilities from which knowledge can be converted. Instead of just tacit, implicit and explicit beliefs, we now have all three and both subjective and objective forms of knowledge to consider. Therefore we have up to five conversion possibilities to deal with in considering a new model, not just two. This takes us from a two-by-two matrix with four cells, to a five-by-five matrix with 25 possible conversions, though closer analysis shows only 17 viable ones. This means that all those KM practices and practitioners who have based their knowledge conversion efforts on SECI have been overlooking 13 modes of conversion. Also, there can be no conversion of truly tacit knowledge or predispositions to explicit knowledge. At best, those applying SECI in this regard have been 'capturing' implicit knowledge, not tacit knowledge.

For these and other reasons we could not cover here, SECI must be reformulated with a broader, more complete conversion model. One of the concerns of the new KM in

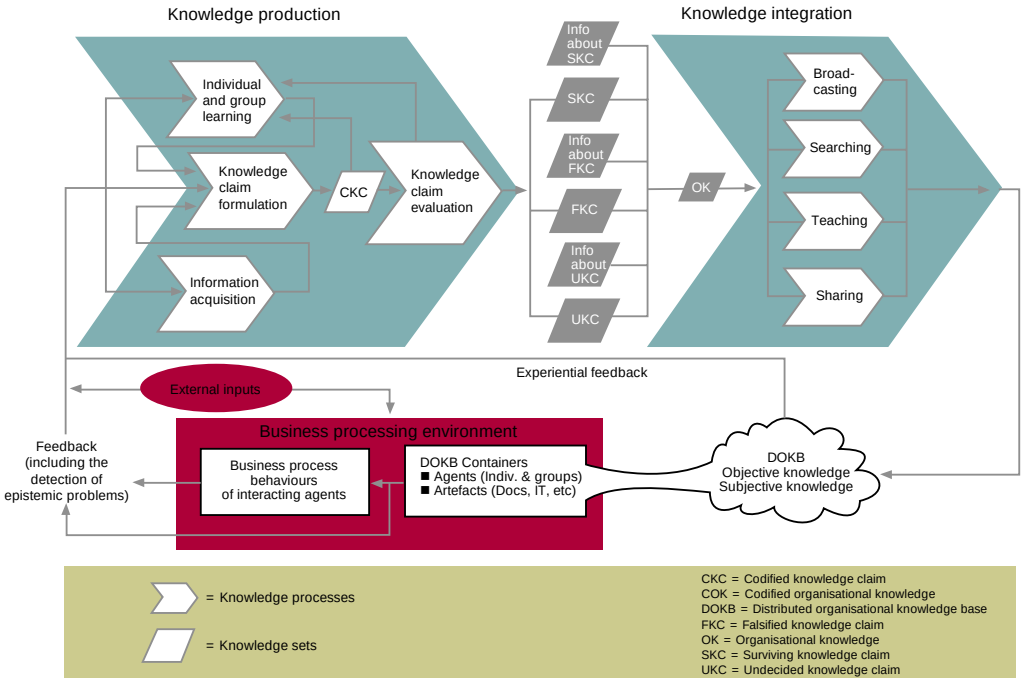

Figure 2 – the knowledge lifecycle

the short term will be to produce this model and bring it into common practice.

Developing the enterprise knowledge portal

Though vendors and writers on the subject claim that enterprise knowledge portals (EKP) already exist, if by EKP we mean a software application that comprehensively supports knowledge processing and KM, then today's applications fall far short of this goal.[3] The EKP is an application on the verge of development. The technology it requires is in existence now. The cost of its development is low as software applications go, since its implementation is largely a matter of systems integration, with the exception of its intelligent-agent component, which must be developed.

On the other hand, the benefits associated with the EKP are great. They amount to nothing less than the realisation of the promise of the enterprise information portal (EIP) to achieve increased ROI, competitive advantage, increased effectiveness and accelerated innovation. EIPs are risky because, generally, they fail to evaluate the information they produce and deliver for quality and validity. Nothing, including EKPs, can ensure certainty about information, models or knowledge claims, but EKP applications incorporate a systematic approach to knowledge-claim testing and evaluation that eliminates errors and produces quality-assured information. In the category of portal technology, they, not EIPs, are the best we can do. They, not EIPs, are necessary for supporting the open enterprise (see below). They, not EIPs, are the future of portal technology.

Developing a comprehensive system of KM metrics

KM needs improvement in metrics development. KM metrics have focused on intangible assets and sometimes on impact analysis, but a comprehensive approach is lacking, because a framework underlying such an approach has not so far become available. A systematic metrics framework is needed to continue to make progress in KM. The present *ad hoc* approach is too slow and uncertain, since the absence of a metrics framework also hampers evaluation of the validity of proposed metrics. A measure labelled a 'KM metric' is not necessarily what it claims to be. To evaluate whether it measures what it purports to measure, we need a broader theoretical context in which the new metric, as well as other metrics to which it relates, are incorporated.

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The three-tier model in *figure 1* provides a framework for classifying metrics as well as for viewing the scope of KM more generally. *Figure 1* is easily specified to provide a more granular map of KM metrics. At the levels of business processing and business outcomes, a variety of metrics developed for use with balanced-scorecard, quality-based approaches, and sales and marketing measurement systems may be used to produce detailed sub-categorisations for the map. At the level of knowledge processing and knowledge outcomes, sub-categories are provided by the knowledge-lifecycle (KLC) framework (see *figure 2*). The KLC sub-process categories include information acquisition, individual and group learning, knowledge-claim formulation, knowledge-claim evaluation (KCE), knowledge and information broadcasting, search and retrieval, teaching, and sharing. The KLC outcome categories include organisational knowledge and the distributed organisational knowledge base (DOKB).

Sub-categories at the KM process level include symbolic representing, building external relationships with others practising KM, leading, KM-level knowledge production, KM-level knowledge integration, crisis handling, changing KP rules, negotiating for resources with representatives of other organisational processes, and allocating resources for knowledge processes and for other KM processes. Outcomes at this level include knowledge processing outcomes and socio-technical outcomes.

Developing the open enterprise

Because most contemporary approaches to KM fail to make the all-important distinctions

among KM, KP and BP, they usually do not provide us with any visions of how knowledge processing might be improved as a consequence of KM strategies and interventions. Instead, they tend to focus on streamlining individual processes of information retrieval and use, but not so much on learning or knowledge production. We believe that the goal of KM should be achieving and maintaining sustainable innovation in knowledge processing, and that to accomplish this organisations need openness in knowledge processing, including openness in all sub-processes of the KLC. We call the resulting normative model, or target knowledge-processing environment, the 'open enterprise' (OE).

From a new-KM perspective, the most effective knowledge-processing environment for learning and innovation is one in which problems are openly recognised, knowledge claims are openly formulated, tested and evaluated on a continuing basis by all stakeholders, and transparency, trust, inclusiveness and other correlates and outcomes of openness prevail. In the OE image of the future, ideas, strategies, processes and plans in business are valid only if they survive our tests and evaluations, and not simply because of their source. We disagree with the Nonaka and Takeuchi position, for example that the justification criteria for knowledge in organisations should be set by top management, as though truth is simply a function of what management happens to think or say. Rather, we believe that truth is independent of rank or title in organisations, and that the advice offered by Nonaka and Takeuchi and others, that justification criteria should flow from the top, is a recipe for more Enrons and Global Crossings.

This is not to say that management should be democratic in the OE. Not at all. We make a sharp distinction between operational decision making (the province of management) and knowledge making (the province of us all). We envision organisations where managers continue to wield command-and-control authority in committing resources of the firm to action, even as their ideas and those of others are subjected to open testing, evaluation and criticism. In the OE, however, knowledge processing will be a transparent and inclusive affair. The protection of openness will rise to the level of fiduciary duty, which will rest with the board. Indeed, in the OE, KM will very likely report to the board of directors, a position that fits the criticality of knowledge processing in most organisations.

Creating communities of inquiry

Communities of practice (Cop) frequently facilitate knowledge sharing. Practitioners in the Cop area often believe that they are useful for knowledge production, too. But new-KM perspectives raise the concern that knowledge production in Cops is likely to be characterised by the use of consensus as a criterion for validating knowledge claims. That is, knowledge outcomes, as opposed to information outcomes, may in certain Cops be determined by community opinion about which knowledge claims are most strongly supported by evidence or other evaluation criteria.

This communitarian form of knowledge production is inconsistent with new KM's commitments to anti-justificationism and falliblism, the ideas that no knowledge claim can be justified, only criticised, and that no knowledge claim is certain. In addition, communitarianism is also opposed to the new KM's fundamental idea that knowledge grows by eliminating errors in knowledge claims through testing and evaluation, and that testing and evaluation involves applying multiple criteria. In the future, KM will need to develop an alternative to the communitarian Cop construct, specifying the attributes and characteristics of communities dedicated to knowledge production and the discovery and elimination of errors in knowledge claims. Such communities are better called communities of inquiry rather than Cops. They are the counterparts of the OE at the group or community level.

Developing value theory in KM

Problem recognition, as well as every sub-process of the KLC, involves making value judgements. However, the sub-process where value judgements seem most controversial is the KCE sub-process, the key to distinguishing knowledge from information. In developing our model for KCE, we included a category of criteria called pragmatic priority.[1] All our other criteria fall into the category of traditional epistemic criteria for comparatively evaluating factual knowledge claims. But pragmatic priority takes account of the valuational consequences of rejecting knowledge claims as false, and relying on surviving knowledge claims as a basis for action.

> "If the processes defined and managed by standards-making organisations are not viewed as acceptable bases for KM standards, how can standards developed under their auspices be viewed as defensible by the KM community?"

The risks we take are a combination of the likelihood that our evaluations rejecting particular knowledge-claim networks are in error, and the benefits and costs associated with such errors. If we are in error we must suffer the cost and benefit consequences predicted by the true knowledge-claim network we have rejected. To take account of these risks in estimating pragmatic priority, we must formulate knowledge claims that provide a value interpretation of our descriptive knowledge-claim networks. So to estimate pragmatic priority we have no choice but to formulate a value theory, and to use it in making our estimates and in comparatively evaluating factual knowledge claims. The implication of the role of value theory in KCE just outlined is that objective inquiry, and our views about truth and falsity, require formulating and also testing and evaluating value theory along with our theories about fact.

Transcending KM standards development

One of the more profound ironies in contemporary KM can be found in the area of standards. There are many KM standards initiatives under way around the world, all of which seem to suffer from the same internal problem. Even as they purport to be aiming at the development of standards for enhancing knowledge processing in organisations, they show no compunction whatsoever, much less acknowledgement, about adopting the existing standards of the very organisations under whose auspices their efforts are unfolding. Thus, if the knowledge-processing systems and practices of, say, the American National Standards Institute (ANSI) are acceptable for purposes of developing standards for KM – a form of knowledge – why not just adopt the ANSI's approach to knowledge making and call it a day?

Here, again, we can see a basic failure to make the fundamental distinction between KM and knowledge processing. For if this distinction were widely made, it would be clear to all that standards-making organisations have, first, already specified a standard approach for knowledge making

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and, second, are themselves engaging in KM. Therefore, their approaches to both realms of activity, if considered acceptable to those who would develop standards for either KM or knowledge processing or both, ought to be considered themselves as KM standards as such. After all, what is a standards-making organisation and its procedures if not a KM-enabled knowledge-processing system?

And if the processes defined and managed by such standards-making organisations are not viewed as acceptable bases for KM standards, then how can KM standards developed under their auspices be viewed as defensible by the KM community? Wouldn't the KM standards developed via an unacceptable KP system that is managed by an organisation whose KM practices are seen as being at odds with how KM should be done be suspect, even invalid, themselves?

The irony and contradictions here are obvious. Our response to the questions raised above is that most of the current standards-making efforts in KM are, for the reasons we suggest, confused, and that the processes enforced by the standards organisations involved are epistemologically biased in the wrong direction. At base, they are communitarian or consensus-based systems, according to which a claim passes for knowledge through a kind of popularity contest. Never mind what the best outcome might be; if an idea manages to capture the majority vote, it wins.

KM standards adopted under such a procedure don't deserve our respect. They unwittingly condone an approach to determining truth based on an appeal to authority: in this case, an appeal to the authority of the majority. If KM is to have a future worthy of our respect, it must rise above these deficiencies in conventional KP. Before we can have standards in KM, we must have standards in knowledge processing. Standards-making efforts of that kind, however, are nowhere to be found. In our vision of the new KM, they will be everywhere.

The new knowledge management

Our purpose in this article has been to provide some of the flavour of the new KM by discussing eight issues that reflect its view of the future of KM and some of its conceptual perspectives. But the ideas discussed here are not all there is to the new KM perspective. Nor do they exhaust the issues that may be important in the future.

Our discussion of the SECI model begins to hint at the unified theory of knowledge and its basic distinction between subjective and objective knowledge. This theory extends to a new approach to error elimination in value theory. In addition, the new KM provides a broader organisational learning perspective than other frameworks, synthesising it with evolutionary epistemology, complex-adaptive-social-systems theory, motivational psychology and cultural analysis. In this way it foreshadows our belief that the future of KM will see the development of general theory synthesising the frameworks of the many disciplines that contribute to knowledge management. ■

References

1. Firestone, J.M. & McElroy, M., *Key Issues in the New Knowledge Management* (KMCI Press/Butterworth-Heinemann, 2003)
2. Nonaka, I. & Takeuchi, H., *The Knowledge Creating Company* (OUP, 1995)
3. Firestone, J.M., *Enterprise Information Portals and Knowledge Management* (KMCI Press/Butterworth-Heinemann, 2003)