Enabling Knowledge Exchanges for E-Business Communities

Yogesh Malhotra

Unsuccessful attempts of E-commerce models have increased interest in online communities as critical enablers of E-business success. This article advances current understanding about global applications of collaborative technologies to address important issues relevant to such new E-business models.

Realization that online communities result in "stickier" E-business relationships is spurring new developments in related collaborative technology platforms. Recent developments in WWW-based collaborative technologies are being heralded as the enablers of the knowledge based E-business enterprises. Research and practice on collaborative technologies for enabling these E-business models can benefit from insights gained from online communities that are sustaining significant active collaborative relationships despite geographical diversity of membership. This is important given that such communities of practice (COP) often evolve *knowledge sharing cultures* of their own that are more relevant to their collaborative relationships and member "stickiness" than regional or technological differences. Such COPs are primarily based on members' *shared interests and concerns* that bind them to the local community and shared culture despite diverse locations across time zones. For knowledge sharing to be effective, shared contextual space for emerging relationships, shared values, and skills are needed regardless of geographical differences in terms

Dr. Yogesh Malhotra is the Chairman and CKO of the e-learning, research, and advisory firm, @Brint.co and its community of practice, the Knowledge Management Think Tank. He is the author of two books on knowledge management and has taught in the Executive MBA programs at the Kellogg Graduate School of Management and Carnegie Mellon University. He is currently a professor at Syracuse University.

of location and culture. In the context of online communities, such virtual spaces are the locus where information and experiences are shared, new insights are developed, and knowledge is transformed and assimilated. Increased digitization of business processes with inter- and extra-enterprise virtual value chains is shifting the locus of knowledge work beyond the formal boundaries of an organization. Organizational transformation is being further accelerated with the emergence of knowledge exchanges that represent marketplaces for deliverables of collaborative knowledge work. Inadequate consideration of these issues may lead to failure of collaborative technologies when they are applied to enable COPs, even when they are adapted to accommodate geographic norms and behaviors. Better appreciation of such issues would enable more efficient rollout of baseline collaborative technologies as they can more quickly achieve critical mass for COP membership despite the diversity of geographical cultures and locations.

Global communities that enable E-business

The role of online communities has become increasingly important to the success of E-business. The E-business enterprise's capability for creativity and ability to leverage the community will determine if it loses or wins in the "marketspace." Commercial success in E-business depends on organizing and exploiting the potential of virtual communities. Their key argument is based on the premise that the knowledge,

content, and resources produced by online communities are extremely valuable commodities. This perspective expands on the earlier role of the potential user or customer primarily in terms of self-service through limited configuration, checkout, and order tracking for the B2C retailer's products or services. The expanded role of the user includes involvement in creation of content, in product and service reviews, and in self-support by asking questions of other users; addressing answers in return to gain recognition and points in terms of goodwill or "starburst ratings" against one's online profiles; and in reviewing the comments posted by others. It is important to note that many of these roles assumed by the community-based user in the online world were traditionally handled by internal customer service representatives or technical support personnel. Hence, virtual communities could be rightfully treated as external extensions of the company's service and support infrastructure.

In an increasingly digitized world of E-business based on information and knowledge value chains, distinctions between *internal* employees and *external* users are increasingly tenuous given their increasing involvement in business processes. Involvement of users or customers in doing knowledge work traditionally done by internal employees, temps, or third-party outsourcing representatives is unraveling the traditional model of organizations. This is notable, given that organizations such as AOL and iVillage once developed their astronomical billion-dollar valuations with most of the value attributed to self-elected volunteers — at one point, AOL employed 12,000 workers, 10,000 of whom were volunteers!

Based on similar observations, subsequent discussion will use the term "community of practice" to represent both internal and external constituents participating in the digitized creation, refinement, validation, packaging, and channeling of knowledge relevant to the company and its products and services. There are distinctions in terms of internal administrative controls for employees and external clan controls relevant to nonemployees. However, for knowledge creation and sharing domains in which the COPs are most critical to E-business enterprises, such differences do not seem to

have any correlation with performance outcomes. While usenet groups, open source software development and support groups and other similar self-selected virtual communities have shown prolific creation and sharing of knowledge and its conversion into new product releases, corporate efforts to engender similar COPs inside corporate boundary walls have met with mixed results. Not surprisingly, recent surveys by Bain & Co., IDC, and KMWorld ranked corporate knowledge management (KM) applications at the lowest level in user satisfaction in electronic management tools; found that enabling knowledge sharing remains the greatest challenge for management; and determined that most challenges to knowledge creation and sharing were human and not technological.
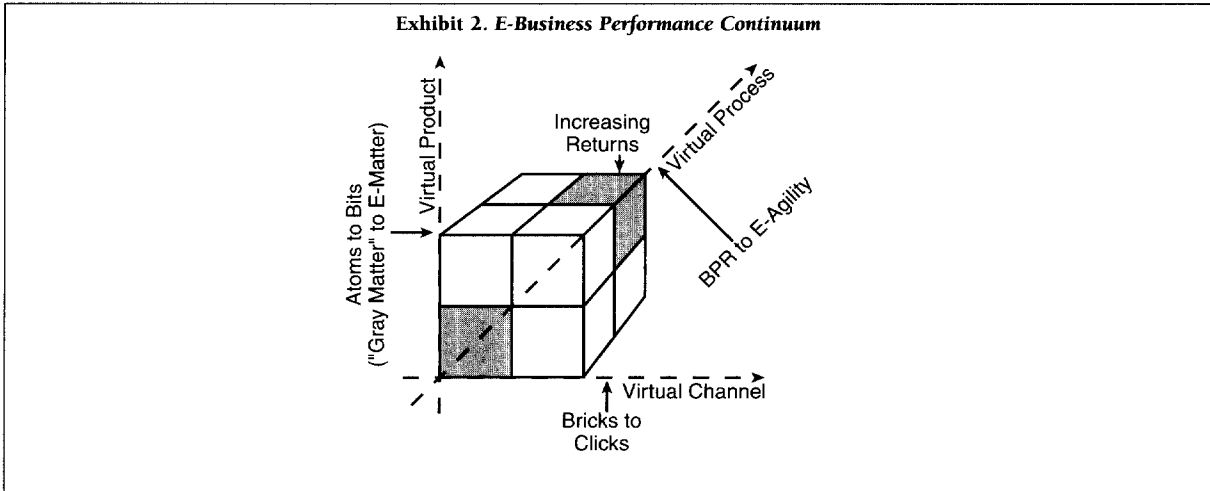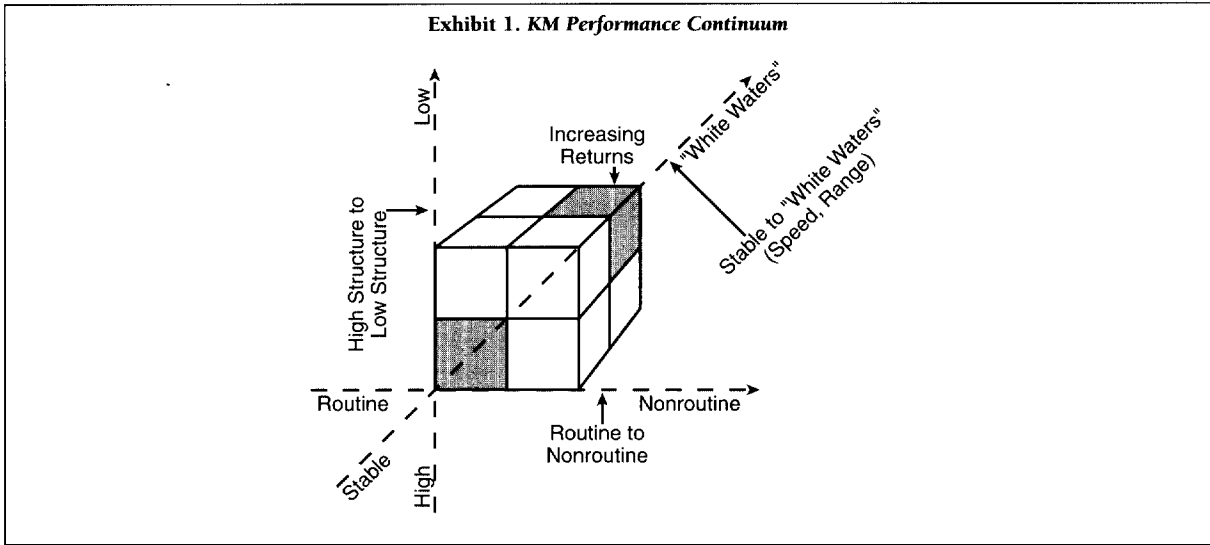
Knowledge management and E-business model innovation

The above discussion highlighted the dual nature of KM in terms of KM by design in case of corporate intranets and KM by emergence in case of self-selected COPs. The key distinction needs to be drawn between the paradigm of *engineering design* and the paradigm of *emergence*, both of which are relevant to the success of collaborative technologies applied in the above contexts. While *KM by design* is characterized by predetermination, prespecification, and preprogramming for knowledge harvesting and exploitation, *KM by emergence* is characterized by creation of cultural infrastructure for enabling continuous knowledge sharing, knowledge renewal, and knowledge creation. While KM by design has represented most prior research and practice in collaborative technologies, new business environments characterized by the fast pace of radical discontinuous change require a better understanding of KM by emergence.

The above contrast can be understood in terms of the depiction in Exhibits 1 and 2 that represent the ongoing transitions across the continuum of knowledge management and E-business models.

The KM performance continuum

In Exhibit 1, KM by design is applicable in areas of relatively high structure, routinization of processes and tasks, and a stable business

Exhibit 1. KM *Performance Continuum*

Low

High Structure to
Low Structure

Increasing
Returns

"White Waters"

Stable to "White Waters"
(Speed, Range)

Routine

Nonroutine

Routine to
Nonroutine

Stable

High

Exhibit 2. *E-Business Performance Continuum*

Virtual Product

Atoms to Bits
("Gray Matter" to E-Matter)

Increasing
Returns

Virtual Process

BPR to E-Agility

Virtual Channel

Bricks to
Clicks

environment — conditions that are conducive for predetermination, prespecification, and preprogramming for harvesting and exploitation of current knowledge. This is the area that represents automation of processes using smart technologies, rationalization to streamline workflows, and reengineering of business processes to achieve highest levels of optimization and efficiencies of production and service processes. Such initiatives generally aim to achieve lower costs, higher quality, and greater market share for existing products and services, generally based on benchmarking of competitive best practices. The diagonally opposite area represents a region of low structure, nonroutine processes and tasks, and a high-velocity environment characterized by radical and discon-

tinuous change. In this region, organizational competence based on core value propositions and core competencies is unraveling as erosion of margins occurs due to market saturation and diminished market growth. At the time of this writing, the server market and the desktop microprocessor market appear to be impacted by these dynamics of the market, putting pressure on companies such as Dell and Intel to reassess their core value propositions and their business models. The innovation needed under these market dynamics is not at the level of business processes, workflows, or individual activities and tasks, but at the level of the business model and the core value proposition. This situation involves high risk as the company tries to morph its internal and external value

chains and market segments; but unless addressed effectively, it may result in continuing erosion of the company's margins and ultimately organizational failure. Incidentally, if the business is effectively able to redefine its business model and accordingly align its processes and workflows, this region also represents areas of significant potential opportunity based on very high levels of knowledge creation and knowledge renewal.
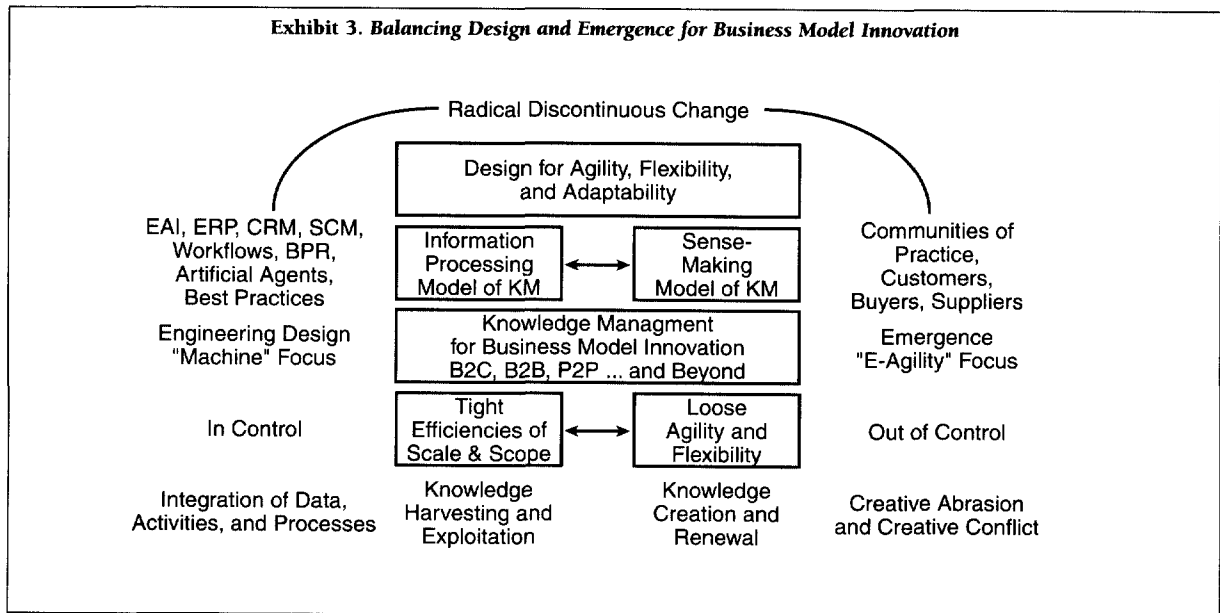
The E-business performance continuum

Exhibit 2 depicts the continuum between a brick-and-mortar organization and its completely digital counterpart characterized by virtual products or services, virtual channels, and virtual processes. Most real organizations are between the two extremes of the continuum — with some E-tailers and B2Cs recently becoming less virtual by adding brick-and-mortar warehouses, inventories, and distribution channels. However, the aspiration for achieving the highest level of increasing returns based on intangible assets and intellectual capital motivates many organizations to redefine their core value propositions in terms of information and knowledge — the ultimate intangibles that can ensure the highest level of increasing returns. The contrast can be illustrated by comparing traditional publishers and distributors of books that needed to package, ship, and deliver paper-based books with "E-matter" distributors that only deal in digital content that

can be uploaded and downloaded from the WWW. Another illustration is that of traditional providers of higher education still encumbered with bureaucratic processes and curricula and textbooks that have fallen behind the need of lifelong learning compared with providers of E-learning that provide learning modules on demand. Such emergent models are motivated by the need for agility and flexibility while harnessing the benefits of the E-business revolution. They are representative of business model innovations that are often based on questioning the company's internal status quo by being tuned to conflicting views from the potential users, customers, buyers, and suppliers.

Balancing design and emergence for business model innovation

Exhibit 3 puts the two worlds of E-business and knowledge management described above in perspective: (1) the world of integration of data, activities, and processes based on engineering design principles to harvest the newly created business models; and (2) the world of community-based interaction that allows creation of new knowledge and renewal of existing knowledge through conflicting interpretations of the company's existing business models and core value propositions. The two worlds exist in tandem in most organizations, as they exploit existing business models while being prepared to obsolete

Exhibit 3. Balancing Design and Emergence for Business Model Innovation

Radical Discontinuous Change

EAI, ERP, CRM, SCM, Workflows, BPR, Artificial Agents, Best Practices — Design for Agility, Flexibility, and Adaptability — Communities of Practice, Customers, Buyers, Suppliers

Information Processing Model of KM ←→ Sense-Making Model of KM

Engineering Design "Machine" Focus — Knowledge Managment for Business Model Innovation B2C, B2B, P2P ... and Beyond — Emergence "E-Agility" Focus

In Control — Tight Efficiencies of Scale & Scope ←→ Loose Agility and Flexibility — Out of Control

Integration of Data, Activities, and Processes — Knowledge Harvesting and Exploitation — Knowledge Creation and Renewal — Creative Abrasion and Creative Conflict

those models based on future anticipation of market needs. While the predictable world of E-business is conducive to benchmarking and best practices and enforcing compliance with those practices based on existing knowledge, the unpredictable world of business leapfrogs the current benchmarks and best practices by redefining the business game based on new knowledge. Not surprisingly, this process is divergent and based on conflicting interpretations of existing knowledge by various COP members operating in a relatively autonomous and self-directed mode.

Capitalizing communities as knowledge exchanges

By extending the collaborative model inherent in the above model of question-answer information exchanges to more complex knowledge deliverables and integrating pricing, bidding, and reverse-auction mechanisms, organizations can develop knowledge exchanges for high-end deliverables. The transition is from routine and structured questions and answers that can be handled through AI bots or manual search queries to more complex knowledge projects. Such knowledge deliverables involve more complex consulting and research deliverables and even turnkey solutions to problems that are sought through posting of RFPs (requests for proposal). In this mode, high-value-adding knowledge work is shifted more and more outside the boundaries of the organization. Related latest generation collaborative technology applications focus on supporting incentive-driven communities to enable the exchange of RFPs and project proposals among its members. Such technologies extend the traditional newsgroup model to enable the exchange of complex knowledge deliverables and knowledge projects by adding e-mail functionality, credibility ratings, and E-commerce functionality.

Some such collaborative applications use automated algorithms to compute a dynamic rating for each member by measuring the quality of questions and answers, number of questions answered, and ratings of deliverables by the buyers to provide better assessment of risk and value involved in collaborating in specific relationships. Using the latest peer-to-peer technologies,

such knowledge exchanges can facilitate the evolution from B2C and B2B to P2P (prosumer to prosumer) relationships where each point in the network participates as a producer and consumer of knowledge. Such collaborative relationships could be further enhanced by the addition of self-publishing functions that allow creation of storefronts and catalogs, posting of RFPs, and matching buyers and suppliers. Some examples of current infrastructure providers in this space include BuzzCompany (buzzcompany.com), Clerity (www.clerity.com), and HelpShare (www.helpshare.com), and current players in this space include Experts-Exchange (www.experts-exchange.com), BrainPower (www.brainpower.com), ExpertCentral (www.expertcentral.com), Exp.com (www.exp.com), AllExperts (www.allexperts.com), and Abuzz (www.abuzz.com).

Coincidentally, such collaborative systems for specifying, refining, matchmaking, rating, pricing, and managing knowledge project workflows and deliverables are evolving along with systems that would allow rapid execution of such deliverables. Related rapid implementation and execution systems are emerging from the ongoing transition of software and hardware vendors from providers of tools and technologies to hosted technology service providers (ASPs) to integrators of technology-based business capabilities (meta-ASPs). The presence of online marketplaces that allow specification, pricing, and management of knowledge project deliverables along with the execution capabilities provided by meta-ASPs would result in further dissipation of collaborative knowledge work beyond the formal boundaries of organizational enterprises.

Conclusion

Many emerging models of such knowledge exchanges represent harbingers of extra-organizational collaborations that will be needed for execution of an organization's knowledge work. Hence, it is timely to understand how collaborative technologies would facilitate such B2C, B2B, and P2P knowledge exchanges. As explained in this article, collaborative technologies would need to account for the dual nature of knowledge management processes. Applications of traditional

collaborative technology applications such as group support systems, shared calendaring applications, document management systems, video and audio conferencing, and the like have been so far understood primarily for improving automation, workflows, and business processes. Characterized by a convergent process of finding the right solutions, and exploitation and harvesting of existing knowledge, such applications have represented the information-processing paradigm of KM by design. There is greater need for understanding how collaborative technology applications can support KM by emergence that is necessary for renewal of existing knowledge and creation of new knowledge — processes that are necessary for business model innovation. Lessons learned from existing applications of such technologies for enabling communities of practice and knowledge exchanges summarized herein could help in this process. ▲

Recommended reading

1. Arthur, W.B. "Increasing Returns and the New World of Business." *Harvard Business Review,* 74, no. 4, 100–109, 1996.
2. Davenport, T.H. and Prusak, L. *Working Knowledge: How Organizations Manage What They Know.* Harvard Business School Press, Boston, MA, 1997.
3. Hagel, J. and Armstrong, A. *Net Gain: Expanding Markets Through Virtual Communities.* Harvard Business School Press, Boston, MA, 1997.
4. Liebmann, L. "Next IT Challenge: Integrating Multiple ASPs." *Information Week,* June 26, 2000.
5. Malhotra, Y. "Knowledge Management for E-Business Performance: Advancing Information Strategy to Internet Time." *Information Strategy: The Executive's Journal,* 16, no. 4, 5–16, 2000.
6. Nonaka I. and, Konno, N. "The Concept of Ba: Building a Foundation for Knowledge Creation." *California Management Review,* 40, no. 3, 40–54, 1998.
7. Ouchi, W.G. "A Conceptual Framework for the Design of Organizational Control Mechanisms." *Management Science,* 25, no. 9, 833–848, 1979.
8. Rayport, J. F. and Sviokla, J.J. "Exploiting the Virtual Value Chain." *Harvard Business Review,* November-December 1995, 75–85.
9. Truex, D.P., Baskerville, R., and Klein, H.K. "Growing Systems in Emergent Organizations." *Communications of the ACM,* 42, no. 8, 117–123, 1999.
10. Wenger, E. and Snyder, W.N. "Communities of Practice: The Organizational Frontier." *Harvard Business Review,* 78 no. 1, 139–145, 2000.