

A Balanced Approach to Knowledge Management and Worker Productivity

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Why We're Compelled to Manage Knowledge

It was management guru, Peter Drucker, who raised our awareness of the importance of organizational knowledge and its relationship to change, innovation, and competitive advantage. In his book, *Post-Capitalist Society* (1993), he redefined our world as a “knowledge society” where the basic economic resources are no longer capital, natural resources, or labor, but knowledge. Well into the new millennium, no one argues this fact. But now Drucker throws out another gauntlet. He warns us that “knowledge-worker productivity is the biggest of the 21st century management challenges; in the developed countries, it is a *survival requirement*” (Drucker 1999, p. 157).

Rooted in approaches to productivity based upon controlling labor and capital, organizations have bought into the belief that knowledge can be managed and the process integrated into a company's strategy and its execution. Similar to every other business problem, technology is considered a tangible and immediate solution to the challenge of managing knowledge. And just as with every business process, an industry and a multi-faceted practice have emerged around it. Knowledge management has become a buzz word used in conjunction with everything from organizational learning to business intelligence tools and spending on related technology has reached over \$4.5 billion (Gilmour 2003). In a survey of knowledge management practices, 94 percent of responding executives believed that they could do a better job of leveraging the existing knowledge in their organizations (Gilmour 2003). Such a finding indicates that, in spite of the spending and attention, enhancing knowledge-worker productivity is still an elusive goal.

For the purpose of this discussion, knowledge management is defined as a system for managing the gathering, organizing, refining, analyzing, and disseminating of knowledge in all of its forms within an organization. It allows an organization to obtain the greatest value from the knowledge available to it while addressing the needs of the

individual within a purposeful context (Jackson 2001). In other words, knowledge management leverages knowledge-worker productivity and creates more knowledge. Knowledge includes the experience and understanding of organization members and codified information, such as documents, reports, and data, within the organization and external to it. Knowledge management technology enables and supports this system. The functional attributes of knowledge management technology are described in the appendix/inset.

However, technology alone is not the answer to increasing productivity. We've learned that lesson from the pricey, and often disappointing, solutions for the management of the traditional assets, resources, and processes of business. A key factor in many unsuccessful technology implementations is that they fail to address the system as a whole and, as a result, devalue the interdependencies of the processes being automated with organizational strategy, culture, and relationships. Knowledge management is a discipline that integrates and balances business strategy and process, organizational community and culture, collaboration, learning, expertise, and technology. Without this balanced approach, most KM programs will not meet expectations.

As a practice, knowledge management is still very new, making it a virtual frontier for both organizational development and technology practitioners. Proponents are still arguing about where it belongs in the organizational structure. Should it be a function of operations, IT, HR, or a separate group assigned specifically to KM responsibilities? In most studies, such as the one mentioned above, the task has been delegated to IT because many decision-makers still believe technology is the core of the solution. Starting with the tools is not an entirely inappropriate approach. However, as any CIO who has learned the lesson will tell you, applying technology to a poorly-defined methodology has a low probability for success. Therefore, knowledge management strategy and processes must drive the technology decisions that support knowledge creation and sharing within an organization.

An Approach to Mapping KM Strategies to Process and Technology

Given that the organizational goal to create and leverage knowledge is gated by the development of knowledge management practice, a feasible way to address

knowledge management and technology may be to apply the six factors that Drucker believes determine knowledge-worker productivity (Drucker 1999).

Knowledge-worker productivity demands that we ask the questions: “What is the task?”

What is that we are attempting to accomplish with knowledge management? What knowledge do we want to manage? Typically, every company wants to get the most out of its smart people and facilitate the flow of ideas. The actionable knowledge most coveted by organizational strategists is *tacit* knowledge – what the knower knows, derived from experience. Tacit knowledge is personal, context-specific, and difficult to formalize and communicate compared to *explicit* knowledge which can be represented (or codified) in formal, systematic language. Though both forms are mutually complementary and important for organizational effectiveness, knowledge is *created* by the mobilization and conversion of tacit knowledge. (Nonaka and Takeuchi 1995) The processes by which knowledge is transformed between people and media are shown in Figure 1.

<p>Tacit to Tacit <i>Socialization</i></p> <p>Example Team meetings: Experience is shared</p>	<p>Tacit to Explicit <i>Externalization</i></p> <p>Example: Team dialog: Questions answered</p>
<p>Explicit to Tacit <i>Internalization</i></p> <p>Example: Read a report</p>	<p>Explicit to Explicit <i>Combination</i></p> <p>Example: E-mail a report</p>

Figure 1. Four modes of knowledge conversion

The socialization and externalization processes occur between people through shared experience and, to be effective, require common culture, community, and collaboration. The internalization process requires individuals to create their own tacit knowledge by “re-experiencing” what others have learned through reading documents and integrating it with their own tacit knowledge. The combination process is the most common means of knowledge creation and, in addition to sharing through media, includes education and training.

The first step in making a decision about knowledge management technology is to determine which of these processes the organization needs to support to achieve its objectives for productivity and knowledge creation. In many cases, this will depend upon the stage of organizational development, nature of business, innovation vs. reinvention, and the availability and expertise of the people with the knowledge. For example, a startup turning a concept into reality needs tools that will support the collaborative sharing of expertise (socialization/externalization). A startup initiative in a mature organization needs similar tools, but it can get additional support from technology that helps locate needed experience. In contrast, a support engineer in an ISP call-center needs access to a knowledge repository containing algorithms of problem symptoms to assess the caller’s needs and recommend next steps. The knowledge the organization needs must drive the process and supporting technology.

The responsibility for knowledge-worker productivity is that of the individuals themselves.

Drucker goes on to say that knowledge workers have to manage themselves and they must have autonomy. This factor speaks to the role individuals have in the knowledge management process. Successful knowledge management requires knowledge sharing,. Without the willing participation of the people with the knowledge, any attempt to manage it will fall short. Christy Silver (2000) relates the story of a Pillsbury scientist working to solve a problem with waffle consistency. He knew the knowledge to remedy the problem was somewhere within the company, so with IT’s help he established a virtual space for a discussion on “batter consistency”. The community space was launched, the scientist submitted his initial questions, and people were invited to join the

dialog. Six months later, no one had shown up. The application was shut down and labeled a failure – not because the knowledge didn't exist, but because there was no incentive to take the time to contribute.

An assessment of the state of knowledge sharing by the worker's themselves reflects the aforementioned executive conclusion that things could be a lot better. A poll of over 500 professional, managerial, and technical knowledge workers in companies with at least 1000 employees revealed that knowledge is not flowing despite the availability of tools (Gilmour 2003). Two-thirds believed that there were people in the company that could help them do their jobs better and thirty-nine percent didn't know where to find those individuals. Fifty-four percent thought that opportunities to innovate were missed because the right people were not getting together and half of the participants blamed wrong decisions on the inability effectively tap employee knowledge. So what is the underlying problem and what can they/we do to get workers involved and knowledge flowing?

Individuals with experience and information to share are often reluctant to do so for various reasons. Willingness to share knowledge can depend upon the recipient, the perceived value, privacy, the ability to express the knowledge (verbally or in writing), the responsibility for its use and currency, or how open the individual is to sharing (vs. hoarding) information, to name the most common issues. Successful knowledge management practitioners motivate workers to share their knowledge with incentives that *increase* and *acknowledge* their value to the company, while allowing them to retain their choice to do so. Using the Pillsbury waffle batter example, if a scientist in the pancake group had known that the waffle division was experimenting with a new ingredient she was testing, she would have *wanted* to participate in the discussion to compare notes. In addition to creating a common space, this model requires a tool that identifies common information threads that workers can pursue privately (Gilmour 2003).

When the sharing required is tacit to explicit, employers can encourage and reward contribution to knowledge repositories as part of performance reviews. Consultants at a major firm are evaluated across five dimensions, one of which appraises knowledge sharing through their “contribution to and utilization of the knowledge assets of the firm” (Hansen, Nohria et al. 1999, p. 113). The incentives to energize worker

commitment to knowledge sharing are also a function of the type of knowledge managed and the processes and tools applied.

Continuing innovation has to be part of the work and the task.

Innovation is knowledge creation (Nonaka and Takeuchi 1995). When the modes of knowledge conversion that are strategic to an organization are supported by the proper tools and incentives, knowledge flows through an open and continuous process that increases value to individual and company.

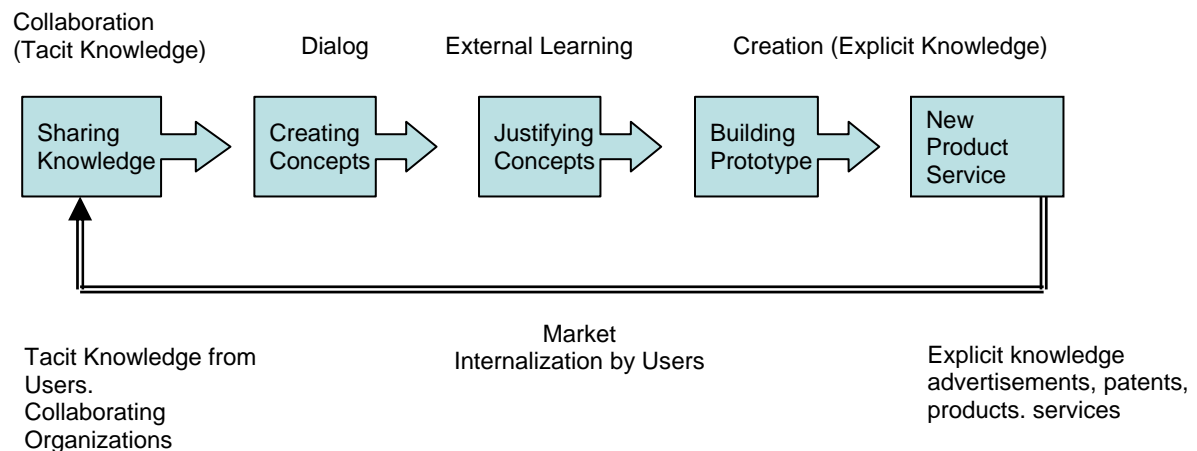


Figure 2. Five phase model of the organizational knowledge-creation process (Nonaka and Takeuchi 1995)

Figure 2 is an adaptation of Nonaka's knowledge creation process. Instead of the terms for knowledge conversion (socialization, externalization, internalization, and combination), the stages are labeled using the knowledge management processes and/or the function of the supporting technology. The framework also attempts to illustrate how created knowledge combines with information from users and partners to become the new organizational experience (tacit knowledge) that inspires continuous innovation. Knowledge management technology must encourage this flow and ensure that the process is open to external sources.

Knowledge work requires continuous learning and equally continuous teaching on the part of the knowledge worker.

This productivity factor takes knowledge-worker responsibility and incentives to another level and substantiates the process diagramed above. The conversion of existing knowledge to new knowledge begins with sharing knowledge and the basic rule of reciprocity applies. However, mapping this factor to knowledge management extends learning and teaching beyond the content to the processes. No one understands how information flows through the organization better than the individuals who define and benefit from that flow. When knowledge workers are not learning (to be able to teach), they must inform the process of what's missing or impeding the flow.

Organizational culture influences worker willingness to affect change when it becomes necessary. Executives participating in the KM practices survey cited culture and changing behaviors as top two impediments to knowledge transfer. If "how things get done" does not include learning and the removal of obstacles to innovation and community, workers will be reluctant to challenge the process and/or the technology.

Productivity of the knowledge worker is not only a matter of quantity but also quality.

The effectiveness of knowledge management is the qualitative component and, like any qualitative outcome, is difficult to measure, but not impossible. The quality of knowledge is subject to the requirements of the person needing it, regardless of the level of expertise (Marwick 2001). Since knowledge creation occurs through its transfer, the quality of knowledge managed can be based upon the quantification of its use. Knowledge management technology needs to include metrics for the analysis of how sources are accessed.

Knowledge-worker productivity requires that the knowledge worker is both seen and treated as an "asset" rather than a "cost".

Maybe the most important outcome of the knowledge management movement is the recognition of the value of workers and their knowledge to its successful implementation. "If we have learned nothing else in four years of observing the knowledge management vanguard, we have seen clearly the importance of getting the

approximately 50/25/25 people/process/technology balance right from the outset” (Ruggles 1998 p. 88).

Finding the Knowledge-Worker Productivity Road Map

The challenge to achieving productivity through knowledge management is the dynamic interrelationship between the knowledge, its content and context; the process and technology applied; and the people, the catalysts of learning and knowledge creation. Drucker’s six interdependent factors for knowledge-worker productivity suggest a systemic process that focuses on the importance of people. Pundits of KM acknowledge that process and people, not technology, are the components needing better execution. This is not news to technology decision-makers. But connecting the theories and advice of knowledge economy thought-leaders like Nonaka and Drucker, organizational strategists have a roadmap to continuous knowledge creation, improvement and growth where technology simply serves as vehicle.

Appendix/Inset

Functions of Knowledge Management Technology (Silver 2000)

Agents/Push: A program that gathers information or performs some other service without your immediate presence and on some regular schedule. Typically, an agent program, using parameters provided, searches all or some part of a domain (Internet, Intranet), gathers information, and presents it on a periodic basis. E-mail is a form of push technology.

Categorization: The classification, indexing, and grouping of content according to pre-determined taxonomy hierarchies in near real time such as tagging news feeds for distribution throughout an organization.

Clustering: The process of dynamically grouping collections of documents, based upon common themes or patterns.

Collaboration: The effective means of sharing knowledge between individuals, groups, or the enterprise independent of physical location, and in both synchronous and asynchronous modes. Includes messaging and groupware.

Communities: Enabling individuals who share common practices, interests, or goals to collaborate in order to share their knowledge. This can include communities of practice, discussion groups, and bulletin boards.

Content management: Identification, definition, security, and management of types of content, how content is maintained (including owners/creators and other properties), and how content is published and distributed.

Conferencing/white-boarding: Enabling real-time sharing of documents, text, or video among a group. Conferencing can support both scheduled and spontaneous sharing of information, ideas, knowledge, and expertise.

Data mining: Data mining is sorting through data to identify patterns and establish relationships using algorithms to analyze the aggregation of data and meta data.

Data warehouse: A data warehouse is a central repository for all or significant parts of the data that an enterprise's various business systems collect.

Decision support: Applications that analyze business data and present it so that users can make business decisions more easily.

Distance learning: Distance education is a formalized teaching system specifically designed to be carried out remotely. The students and the teacher are in different locations and lectures are transmitted through some type of technology such as closed-circuit or public television or an interactive Web site.

Document management: Applications that facilitate the management of compound documents, including storage/archiving, cataloging/indexing, search and retrieval, analysis, workflow, routing, aggregation, diffusion and distribution.

Expertise/skills location: Enabling people to find sources of expertise available to the organization, internal and external, on a given subject. The systems usually include expert/skills inventory databases, yellow pages or directories, project participation, or a person's activity.

Groupware: Programs that help people work together collectively while located remotely from each other. Groupware services can include the sharing of calendars, collective writing, e-mail handling, shared database access, electronic meetings with each person able to see and display information to others, and other activities.

Linguistic/semantic analysis: The breakdown of existing full text indexed repositories on the basis of word meanings and associations at the document, repository, and global levels.

Messaging: Tools enabling users to engage in dialogs, file transfers, or other information sharing in real time.

Meta-data management: The management of data about data; the capture of data such as title, author, location, and date of creation to add context to the information.

Natural language query: Enables users to pose questions to a system as they would to a person.

Personalization: Providing information to a user based on that user's preferences and interests.

Search: A query-based approach to discovering content across multiple sources.

Taxonomy/mapping: The process of guiding, inventorying, and categorizing complex documents, information, or knowledge sources through hierarchy of words, meanings, and associations.

User profiling: The chronicle, collection, and administration of information about a user, such as job title, department, expertise, authorship, access rights, or roles in process. This information is used to feed agent technology, document management, etc.

User interface/portal: The access capability, entry point, and presentation of the corporate memory. Typically, access is offered through portals, intranets, and extranets.

Visualization: The graphical representation of information that links the interrelationship of content.

Workflow management: Tracking/managing, task-based work processes.

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