

The KNOWLEDGE Imperative

Success in today's global, interconnected economy springs from the fast and efficient exchange of information. Sustainable competitive advantage is no longer rooted in physical assets and financial capital, but in effective channeling of intellectual capital. The market value of a commercial enterprise is derived not only from its physical and financial assets, but from the intangible assets it creates through knowledge-based activities.

These intangible assets include intellectual property, such as patents and copyrights, as well as the more nebulous assets such as methodologies, practices and customer relationships. These intangible assets are often estimated to be worth many times the book value of a firm. According to renowned economist John Kendrick, in 1929, the ratio of intangible business capital to tangible business capital was 30 to 70. In 1990, the ratio was 63 to 37.

What is Knowledge Management?

Gartner Group defines knowledge management as a discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving and sharing enterprise information assets. Gartner researchers believe that by 2003,



intellectual capital will be the primary way in which businesses measure their value. At most corporations, knowledge becomes embedded not only in documents and information repositories, but in organizational routines, practices and conventions. Knowledge management is the process of gathering that knowledge and making it available to others.

Knowledge management isn't new. Aristotle's twelve-volume *Metaphysics* was largely concerned with demonstrative knowledge—an attempt at understanding why things happen the way they do. He was one of the first philosophers to consider the abstract nature of

metaphysical reasoning, insisting that we must think not only about knowledge per se, but about the processes we employ in our search for truth.

There is a lesson here for today's business leaders as well. Knowledge is largely tacit and resident in people's heads, yet most organizations do not enforce the process of making it explicit. Even as the Internet has fuelled a data and information glut, increasing globalization has led to a scattered enterprise in which knowledge is dispersed and information is difficult to aggregate. Telecommuting and virtual offices deter physical collaboration even further. And although computer networks have become ubiquitous, they are designed to connect people to structured information, while the content generated out of human interactions is largely unstructured.

A recent survey of 239 North



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American corporations revealed that 77 percent of respondents had no network infrastructure management solution in place, preferring instead to keep records on spreadsheets or in their heads. Increasingly, that's a risky prospect. As companies grow, knowledge becomes more dispersed, and "islands of information" become more common. Research has shown that once an organization grows beyond about 200 or 300 employees, it loses grasp of its collective knowledge. Over time, a large quantum of knowledge resides with just a few people within the organization.

Siemens confronted these issues firsthand in its struggle to keep its worldwide consulting organization informed about an

work also uses a resource planning tool to allocate and track its experts throughout the world, giving users an easy way to profile consultants, identify expert skills and discover resource availability.

Today, the knowledge management system has become the digital nervous system of the company, automated by technology that makes each consultant eager to communicate and stay up-to-date.

Building a Knowledge Strategy

If knowledge is omnipresent, as Aristotle reasoned, then knowledge management is the discipline that helps put information in the right context and perspective. Preventing knowledge loss is a big factor in the

chain to satisfy each instance of demand.

Transportation companies can apply these same principles to fleet routing and product delivery. As a leader in the business of providing integrated logistics and transportation management solutions, Ryder's main business is providing truck fleets and transportation services. However, Ryder recently realized the benefits of tapping the knowledge of its in-house experts to offer integrated logistics and transportation management solutions as well.

Ryder's knowledge management solution is based around a centralized knowledge portal that supports collaboration by employees, customers and partners. For example, if a PC manufacturer wants to optimize its distribution network, it can tap into Ryder's knowledge base to determine how many warehouses it should have, what's the right mix of truck and air transportation, and which distribution strategies will minimize the rapid depreciation of its products. The portal demonstrates how a cross-functional team seeking the best solution for a customer's supply chain can come together online and share best practices in a virtual work-space.

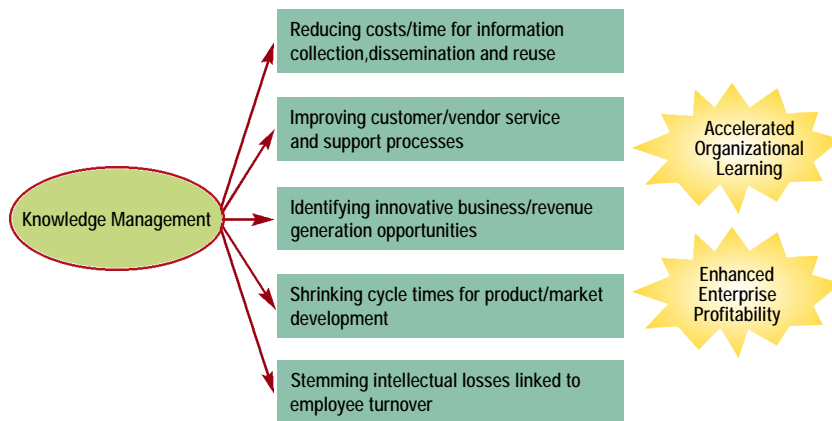
As Ryder learned, the knowledge management process has four distinct steps: knowledge creation, knowledge capture, knowledge application and knowledge measurement. While knowledge creation can result in either tacit or explicit knowledge, it is the process of capturing and sharing this knowledge that makes it available across the enterprise.

Aligning Technology and Business Goals

The focus of knowledge management is not on technology per se but on instigating organizational change. "Knowledge management uses technology as an enabler," says Eric Seubert, a senior principal within Infosys Technologies - Consulting Services. "The value comes in the practices and processes that change the organizational culture and practices."

According to Seubert, real value is derived from tapping into intellectual capital and harnessing the experience of employees. "Companies need to ask them-

Knowledge Management Aims to Enhance the Organization's Return on Intellectual Capital



Knowledge management aims to enhance an organization's return on intellectual capital.

ever-changing set of products and services. As one of the largest electrical engineering and electronic companies in the world, Siemens needed up-to-date information on product functionality so that its consultants could record problems and solutions, and document all learning in one place. Trouble was, Siemens accumulated a variety of disparate communication systems that inhibited effective communication and knowledge sharing between these consultants.

The solution was the Consultant Network, a dynamic knowledge management system that unifies messaging and allows each Siemen consultant to leverage the skills and experience of all its other consultants—anytime, anywhere. This Net-

work knowledge management equation. Ideally, knowledge can be applied and reapplied—anywhere, any number of times—without reducing its usefulness.

The challenge comes with channeling collective learning both within the organization and among its constituents. As companies outsource more and more activities to supply chain partners, competitive advantage is dictated less by physical assets and more by intangibles such as brand equity, rate of innovation, compressed product development cycles, and sophisticated logistics. For example, being able to access a global supply base instantaneously enables manufacturers to construct, deconstruct and reconstruct a unique supply

selves: How can we leverage the intellectual capital of the company to increase revenue and reduce costs,” he continues. “You can put in the best IT systems, but if you can’t capture learning and share knowledge, you will limit the amount of value that can be delivered to the organization.”

Pfizer, the world’s largest research-based pharmaceutical company, took a systematic approach to knowledge capture. In 1993, Pfizer’s USA based Pharmaceuticals Group (USPG) started an exercise to integrate the company’s information sources and leverage them for strategic benefits. The first step was to restructure the organization and merge the IS and Market Research departments to form a Systems and Market Research (S&MR) department to better align technology with business process requirements. Next, they built an information infrastructure that integrated internal and external sources of information and gave users intuitive access and search tools.

To ensure a proper synthesis between the business and technical requirements, cross-functional collaboration was encouraged through cross-disciplinary teams involving experts from the Medical, R&D, Marketing, Regulatory and Financial departments. These teams worked on harnessing knowledge for direct business benefits like reduced cost of health care and better patient response. Then, a sales call repository was created to help track physician level data, present a unified face to the Managed Care Organization (MCO) and improve sales force productivity.

Pfizer is now able to produce a weekly update of critical market knowledge—information that has been analyzed and cast in the company context across its 10 major drug categories. A business intelligence environment was created to further apply the knowledge, allowing Pfizer to predict trends in managed healthcare and strike partnerships with new MCOs.

“To be effective, knowledge management applications should be tied to measurable business goals and linked to overall business strategy,” says Seubert. “A complete knowledge management initiative not only identifies processes for sharing intellectual capital. It also measures the results.”

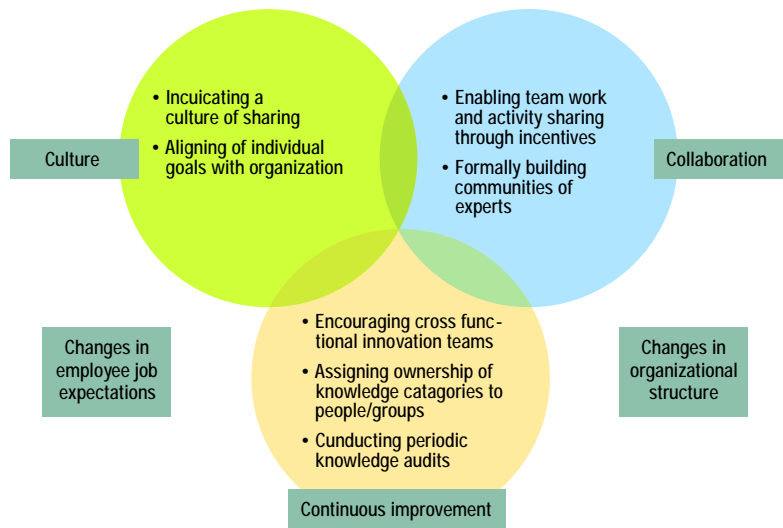
Gaining Perspective: A Knowledge Synthesis

There are two primary types of knowledge: tacit and explicit. Tacit knowledge, resident in individuals, is typically developed from experience. It is unstructured and informal, making it difficult to communicate. Explicit knowledge is formal, structured and well documented. Thus it

Infosys Technologies - Consulting Services. “These cultural and language variations were hindering communication.”

Infosys worked with the CIO of the steel company to establish a conceptual plan for sharing knowledge. The initiative was centered around operational benchmarks that drive the performance of every

Organizational Initiatives For Knowledge Management



Organizational initiatives can be grouped under the three “Cs” of Culture, Collaboration and Continuous improvement.

can easily be communicated. Discrete elements of explicit knowledge and information can be combined and analyzed for gaining perspective.

While both tacit and explicit knowledge can contribute to organizational knowledge creation, it is the interaction between the two that creates powerful knowledge patterns. For example, when the Consulting Services group of Infosys Technologies was engaged at one of the world’s leading steel companies, the focus was on developing an IT roadmap to facilitate knowledge exchange among 12 diverse operating units. The company had grown through mergers and acquisition to establish manufacturing and marketing operations in the US, Mexico, the Caribbean, Canada, Germany, France, Ireland, Russia and Indonesia. “Twelve business units formerly operating independently were now controlled by one holding company, yet each retained its own independent culture,” explains Gopi Sutar, a senior principal within

aspect of the company. “This company had a knack for acquiring business units that were operating at a loss and turning them around,” Sutar explains. “They developed internal benchmarks to quickly identify performance gaps, but they needed help exchanging information so that flailing business units could be brought up to the internal standards.”

To remedy the situation, Infosys spearheaded two knowledge management initiatives: one related to sharing tacit knowledge and the other to sharing explicit knowledge. Explicit knowledge is maintained in a centralized data warehouse that contains financial and operational performance parameters for each business unit, along with best-practice benchmarks. Every business unit has access to the warehouse and can utilize case-based reasoning tools to develop reports and analyze performance. “Business analysts use the warehouse to identify performance gaps and provide feedback to the business units

about how to improve performance in those areas,” Sutar says.

Tacit knowledge exchange is facilitated by intranet-based document management and Web conferencing systems that streamline communication among worldwide experts. In the past, the company held quarterly meetings where experts from each business unit met to exchange ideas. However, due to cultural and language differences, the English-speaking people tended to dominate the proceedings. By setting up a forum for holding these conferences over the Web rather than via face-to-face meetings, many people felt more comfortable expressing themselves. “We found that people were more willing to open up, even to engage in controversial discussions,” Sutar says.

Today, to ensure adherence to its operational standards, periodic conferences are held to discuss specific business domains. Maintenance is a good example. “Steel manufacturing is an asset-intensive business, and maintaining those assets well is critical to attaining profitability,” Sutar relates. “We’re capturing best practices and helping people exchange information, particularly those who have had experience with meeting the operational standards.”

The steel company is now creating global communities of experts for other business domains such as IT, procurement, marketing and logistics. In-house developers are also creating a virtual work space or “e-room” where documents can be easily exchanged. “Implementation of the data warehouse is still

underway, with the lion’s share of development being performed in-house by the steel company,” says Sutar. “But already the knowledge management initiatives are paying off. Even though the steel industry as a whole is currently in a slump, this

dered communication across departments and channels, particularly since most Motorola employees were in the habit of only communicating exclusively with members of their own product groups.

Motorola implemented a knowledge

“Successful companies of the 21st Century will be those that do the best job of capturing, storing and leveraging what their employees know.” — LEW PLATT, FORMER CEO, HEWLETT PACKARD

company is able to run a profitable operation due to its ability to effectively manage operational knowledge.”

Global Best Practices

What’s the take-home point for business managers? While knowledge creation patterns result in explicit knowledge, the process of knowledge capturing and sharing makes it available across the enterprise. Of course, this directive becomes progressively more difficult as an organization grows and expands, with sales, marketing and research teams spread among many different locations. For example, Motorola needed to make information about its customers available to every employee who worked with those customers - across product groups, operational divisions and time zones. The crux of the problem involved data access and delivery: the company was using a disparate mix of network protocols, email systems and a stand-alone document management system. This hin-

management pilot called OneTeam to centralize information about its major customers, with a view to increasing market share. Today, OneTeam members can categorize, publish and retrieve relevant documents from public folders. The system also searches competitor Web sites and indexes that information in catalogs. This information is then emailed to the appropriate employees.

Enhancing Return on Intellectual Capital

For ages, philosophers and thinkers have wrestled with questions of epistemology: of what we know, how we learn, and how we express what we know to others. In the business world, knowledge management has arisen as a disciplined approach to managing the intellectual assets of an organization.

As businesses seek to make headway in a market where intellectual capital is as important as physical assets, channeling collective organizational learning has become one of the key challenges of the Information Age. Knowledge management aims to address this challenge by enhancing an organization’s return on intellectual capital. When properly implemented, the knowledge management process encompasses the entire life-cycle—from knowledge creation to knowledge measurement.

“We help companies identify where knowledge management makes a difference for their organizations,” concludes Seubert. “We look at their industries, examine the complexity of their systems, and analyze their organizational dynamics. The aim is to improve the effectiveness of key business process over time. It’s a journey, not an end game.” •

ABOUT THE AUTHORS

As the stories in these pages illustrate, a cohesive knowledge management initiative springs from ideas—ideas that are executed with a vision for effecting organizational change. Infosys Technologies - Consulting Services is built around a core group of consultants who have put these ideas into practice within a variety of industries.

- Eric Seubert is a senior principal with Infosys Technologies - Consulting Services group, where he is responsible for advising clients on technology enabled business strategies. Mr. Seubert’s consulting experience consists of engagements with international and North American Fortune 1,000 companies that focused on improving performance using information technology

aligned with corporate strategic visions, business processes and organization models.

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