



Beyond Knowledge Management:

New Ways to Work and Learn

Practices associated with knowledge management and organizational learning have begun to make substantial contributions to companies' financial statements—more than \$600 million at both BP Amoco and Ford Motor Company. Results like that have spurred 80 percent of companies to launch KM efforts, including the creation of a chief knowledge officer or chief learning officer in 25 percent of companies.

While many KM strategies have been made possible by technology, IT-centric approaches have had limited success. Rather, informal employee networks and other workplace practices have been more successful at turning knowledge into action. The active participation of both IT and HR in knowledge management initiatives will be critical for success in the bigger payoff—deeper customer relationships with a fully engaged workforce.

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About This Report

This report is based on a Conference Board survey sponsored by PricewaterhouseCoopers and a Working Group of executives from 12 companies. The survey describes the current state of knowledge management and organizational learning from the perspective of senior line and staff executives. Two hundred senior executives at 158 global companies responded; their companies have an average of 40,000 employees, with 90 percent reporting revenues over \$1 billion and 68 percent with revenues over \$5 billion. Their headquarters are based in North America (85 percent), Europe (13 percent), and Asia-Pacific (2 percent).

There was no significant difference in responses among functional groups or between line and staff executives.

About the Author

Brian Hackett is a program manager in the capabilities management and human resources strategies research division of The Conference Board. He joined the Board after a career conducting research for a global consulting firm. He has conducted and presented research on various areas of human resources and organizational effectiveness.

Mr. Hackett helped form The Conference Board's Learning & Knowledge Management Council, a network of senior executives responsible for learning, knowledge management, and leadership development.

Survey Participants



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by Brian Hackett

Contents

- 5 Executive Summary
- 6 Linking Learning and Knowledge Management
- 7 Barriers and Opportunities
- 10 Why Do Organizations Need to Learn?
- 14 New Tools and an Old Notion
- 15 Implementing KM and OL
- 16 Integration of KM and OL
- 17 Finding Common Ground
- 19 Challenges to the Internal Organization
- 24 Approaches and Tools for KM and OL
- 25 Common Tactics
- 28 Common Tools
- 33 Knowledge Leadership
- 34 Relating and Sharing Values
- 36 The CEO's Influence on Knowledge Leadership
- 36 Chief Knowledge Officers as Leaders
- 38 Human Resources and Knowledge Leadership
- 46 Overcoming Barriers: Lessons Still Being Learned
- 47 Knowledge-Sharing Culture
- 49 Watch Your Language
- 50 Measuring the Impact on Business Results
- 54 The Future of Learning and Knowledge Management
- 56 E-Commerce and Web-Enabled KM
- 58 Company Experiences
- 58 BP Amoco
- 60 Shell Oil Company
- 61 Sonera Corporation
- 63 PricewaterhouseCoopers
- 66 U.S. Postal Service
- 68 Weyerhaeuser
- 69 Appendix: Recommended Reading and Web Sites

About the Working Group

Much of the material in this report is based on presentations made at The Conference Board's Working Group on Linking Learning and Knowledge Management.

Working Group Organization and Members

ABN AMRO

[Judith A. Davenport](#), Senior Vice President and Director of Training

[Paul Ferdinandusse](#), Vice President

[Hans Kamphuis](#), Vice President

BP Amoco

[Dave J. Ledet](#), Director, Shared Learning

British Telecom

[Mark Auckland](#), Chief Knowledge Manager

[Richard Betts](#), Systems Engineering Manager, Business Markets

[Daniel Moorhead](#), Head of Organisational Learning

Clarica Life Insurance Company

[Bob Forrester](#), Learning Architect

Deere & Company

[Karen J. Lekowski](#), Project Manager, Enterprise Business Applications

[Harry Litchfield](#), Project Manager, Learning and Development

IBM Corporation

[Fred Schoeps](#), Program Director, Knowledge Management

KLM Royal Dutch Airlines

[Anna Kortenoever](#), Manager, Corporate Training

[Arina de Jager](#), Manager, Organizational Development

[Pim Stam](#), Manager, Management Development

PricewaterhouseCoopers

[Karen Vander Linde](#), Partner

[Jeffrey Schwartz](#), Partner

[Kathleen Ujakovich](#), Knowledge Manager for Management Consulting Services

Shell Oil Company

[Scott Beaty](#), Director of Knowledge Management

Sonera Corporation

[Leenamajja Ojala](#), Competence Development

U.S. Postal Service

[Nancy F. James](#), Manager, Product Development and Evaluation

[William A. Stef](#), Manager, Employee Development

Weyerhaeuser Company

[Roger Harris](#), Manager, Strategic Planning, Information Technology Applications

Working Group Presenters

Arthur Andersen

[Aravind Menon](#), Researcher

[Johan de Gelder](#), Consultant

Cap Gemini

[Boyd Henriks](#), Consultant

Celemi

[Margareta Barchan](#), President and CEO

The Hackett Group

[Greg P. Hackett](#), President

Innovation Strategy

[Jane M. Lump](#), Consultant

Kenniscentrum CIBIT

[Rob van der Spek](#), Consultant

Probe Consulting

[Bob Guns](#), Senior Partner

[Veronica Guns](#), Principal

U.S. Army

[Major Bob Phelan](#)

[Colonel Nick Justice](#)

The World Bank

[Alberto Bazzan](#), Leadership Development

Executive Summary

Companies around the world have begun to make real business contributions through practices associated with knowledge management (KM) and organizational learning (OL). These knowledge and learning initiatives at leading firms such as BP Amoco and Ford Motor Company have resulted in gains of more than \$600 million each. Buckman Labs credits its 12-year-old knowledge-sharing system with keeping the company alive and growing beyond industry norms. Behind such leading organizations are many companies in virtually every industry with increasing focus on KM and OL programs and practices. The Conference Board survey of 200 senior executives shows that:

- 80 percent of companies have some KM efforts under way;
- 6 percent use KM enterprise-wide and 60 percent expect to in five years;
- 25 percent have a chief knowledge officer or chief learning officer (although half are not supported with dedicated budget or staff); and
- 21 percent have a communicated KM strategy.

For companies where learning is being inculcated into the culture, top management leadership has been extremely important. In addition to BP Amoco and Ford, the CEOs at Chevron, Coca-Cola, Ford, General Electric (GE), IBM, Monsanto, Steelcase, and Xerox have made knowledge management and learning a clear top management concern. Yet the perceived need for KM is a major barrier that still needs to be overcome, as suggested by the low level of CEO involvement in surveyed companies:

- Only 13 percent of CEOs initiate and direct the shared learning culture;
- 33 percent are active participants; and
- more than 50 percent have only a limited involvement.

Knowledge management and organizational learning have different distinctions and approaches at the strategic level, but they are increasingly similar in terms of the tactics and tools they employ. While much of KM has been made possible by technology, many IT-centric approaches have had limited success. Rather, the most successful methods for turning knowledge into action are the result of informal employee networks and other workplace practices. For long-term success, the underlying cultural factors and support systems are key factors. And while IT-centric KM systems get media attention, changes in workplace practices and customer focus appear to be the areas where KM gets results.

While a number of firms have assigned responsibility for KM or OL to a chief knowledge officer or a chief learning officer, the active participation of human resources and information technology leaders is also critical. R&D, sales, marketing and customer service are areas where innovative use of KM and OL has begun to deliver measurable business benefits.

Implementing KM or OL on an enterprise-wide basis can be expensive and politically sensitive. It should also be viewed as a long-term investment that involves all segments of the business. Leading KM and OL practitioners and observers believe that the current efforts are only a prelude to a bigger payoff—building deeper customer relationships with a fully engaged workforce.

Linking Learning and Knowledge Management

The differences between knowledge management (KM) and organizational learning (OL) approaches are converging around common tools and practices.

Leading practitioners with expertise in each field are increasing opportunities to make individual experiences and lessons learned part of the structural capital of their firms.

Prior to the merger with BP, Amoco used the term “shared learning” to portray what many firms are finding—that KM and OL are often two sides of the same coin.

The Conference Board and a Working Group of 12 global companies approached this study with the intent to define common ground for KM and OL by looking at practices that companies employed and the current barriers and future opportunities that senior executives are facing. Although each firm has evolved its own approach and methodology for managing learning and knowledge, increasingly they share comparable goals and a similar understanding of the barriers and opportunities to achieve business results.

“The age-old levers of competition—labor, capital, and land—are being supplemented by knowledge, and the most successful companies ... will be those that ... exploit knowledge about customer behavior, markets, and economies, and technology faster and more effectively than their competitors. They will use knowledge to adapt quickly, seizing opportunities and improving products and services, of course, but just as important, renewing the way they define themselves, think, and operate.”

—Louis V. Gerstner, Jr., Chairman, IBM

Barriers and Opportunities

The major obstacles to successful KM are internal barriers, not issues of the market, customers, suppliers, or competitors. The main obstacle is that the need to manage knowledge is not clearly articulated (Chart 1). Of the 80 percent of companies with KM activity, only 15 percent had specific, stated goals for their KM objectives. Many executives have had little training or experience that prepares them for understanding how sharing knowledge relates to the bottom line. An organization must have a working definition of knowledge and learning before it can attempt to manage it. This lack of understanding is expected to decrease over time.

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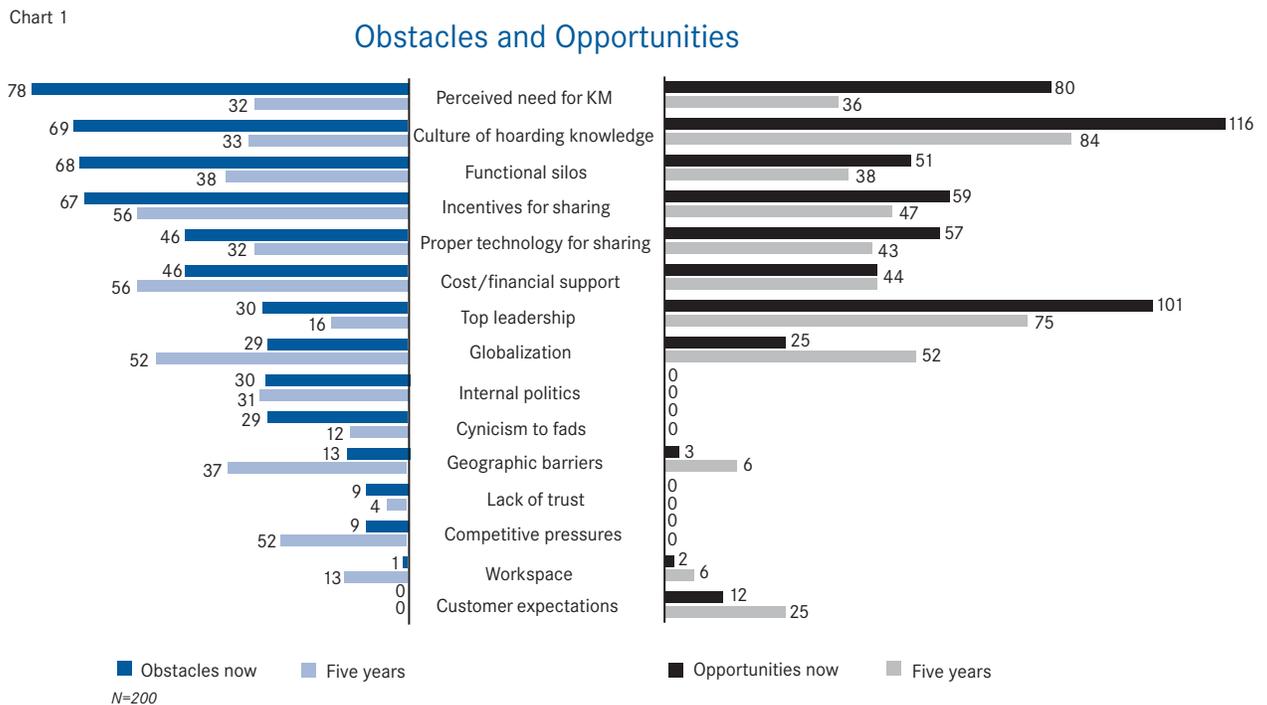
Louis V. Gerstner, Jr., Chairman, IBM

A culture of hoarding knowledge is the second biggest barrier to successful KM efforts. However, as Chart 1 shows, overcoming that barrier is the top priority for the future, followed closely by top leadership support. (See “Knowledge-Sharing Culture” on page 47 for a related discussion of cultural issues.)

Functional silos are the third most frequently cited obstacle to sharing knowledge. A primary reason KM has grown so quickly is that it offers the means to work across functional, business unit, regional, and hierarchical boundaries. The leading practitioners of KM initiatives are working to find all the pockets of knowledge-sharing activity often hidden throughout the company. They also use KM tools and techniques to break down the walls and ceilings that often limit communication and knowledge flows. For example, GE is seeking a “boundaryless” organization with the help of a chief learning officer.¹

Some firms have established a strategic KM team with representatives from HR, IT, and at least one strategic business leader. IBM has taken a KM leadership network approach, where KM leaders and KM executive champions are assigned to each business group and enterprise process. This team is responsible for integrating KM within their divisions as well as across IBM. Anchored by a corporate KM project office, the network defines common cross-business projects that are then jointly developed and implemented by the KM leaders across the business.

Rewarding and recognizing knowledge-sharing behaviors is also a major concern. A combination of tactics including performance management, communications, and education are being used to combat the problems of knowledge hoarding and the “not-invented-here” syndrome.



¹ See *HR Executive Review: Leveraging Intellectual Capital*, The Conference Board, Vol. 5, No. 3, 1997, p. 13.

According to Fred Schoeps, Program Director, KM, IBM,

“Too often, incentives are interpreted as monetary. Incentives have to be of the form that you cannot meet your performance objectives without demonstrating KM supportive behavior. When we introduced our new performance management system a number of years ago, teaming was introduced as an essential part of our personal business commitment, which included 360-degree peer input. How well people share with others and mentor others is measurable. Successful execution, however, requires managers to fully understand the importance of teaming and setting well-defined goals to fully take advantage of it.”

Scott Beaty, Director of Knowledge Management, Shell Oil Company, says,

“The industrial model broke down work into its simplest elements and linked it together in complex processes. The knowledge component was removed from workers and reserved for management, while workers were provided with just enough knowledge to “do their job”—a mental model that is deeply imbedded in the tacit assumptions, policies, rewards, and evaluation systems of almost every corporation in the United States. Breaking down that model and restoring the knowledge creation and sharing function to all employees requires executive commitment to reexamine business processes, HR policies, and IT infrastructure.”

Money Is Not Always the Best Incentive

For many cultures, motivation through pay will not work. Buckman Labs, an early leader in KM, provides an example of that kind of culture. K’Netix, the Buckman knowledge network, brings together more than 1,200 associates in over 80 countries to share knowledge in solving customer needs. It was CEO Robert Buckman’s commitment to solving customers’ needs that led to the creation of a broad-scale knowledge transfer capability. The ideas and solutions of one person or a group can be rapidly shared with associates wherever they are located so that customer response is fast and accurate. According to Mark Koskiniemi, Vice President, HR, “We do not use a lot of cash payment incentives because it

Source: Mark Koskiniemi, Vice President, HR, Buckman Labs

is hard to track the quality of interactions. And we do not want to pay out on quantity necessarily. The rewards, recognition, and incentives are that people will be able to expand their sphere of communication, their sphere of influence in turn, and potentially their sphere of responsibility through promotion. People succeed as they use the tools to credibly advance the efforts of our company and our customers. We are moving more toward a meritocracy with this system. People who want to have a positive global impact on the company now have another outlet for that to happen. Our knowledge-sharing systems also allow their work to be seen by management around the world.”

“The only knowledge that matters is knowledge in action.”

Tom Brailsford, Research Manager, Knowledge Leadership, Hallmark Cards

Why Do Organizations Need to Learn?

The survey and interviews revealed an important point: There is no significant difference as to the issues surrounding KM, regardless of whether The Conference Board supplied a definition of “knowledge management.” The significance is that the issues companies are facing and the activities they are undertaking for creating and sharing knowledge are similar, whether the executives were familiar with the specific concepts of “KM” or not.

While definitions of knowledge management and organizational learning are still debated, they have become common terms that span varied initiatives, new processes, and in some cases new management functions. Some organizations see KM as little more than information management, while others see it as something far more complex, involving management of knowledge in all its forms. Practitioners of KM and OL are united in their belief in the potential to increase productivity, quality, and innovation by changing the way that work gets done. Regardless of their definitions, KM and OL will have a greater impact on organizations in the near future (Chart 2).

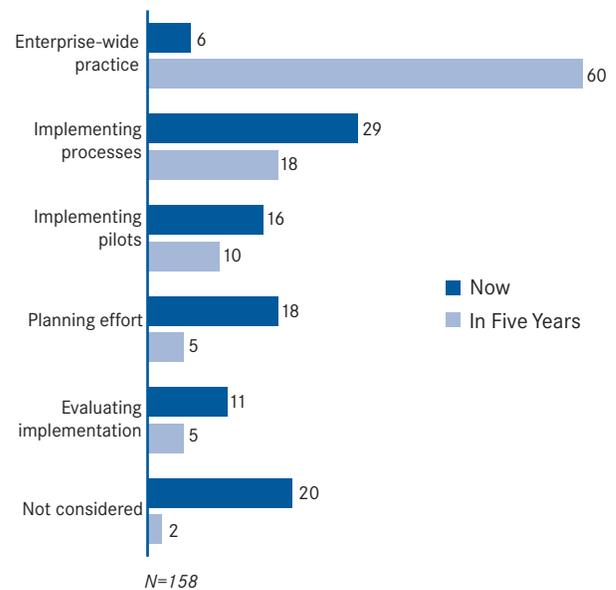
What Is Knowledge Management About?

Knowledge management is an integrated, systematic approach to identifying, managing, and sharing all of an enterprise’s information assets, including databases, documents, policies, and procedures, as well as previously unarticulated expertise and experience held by individual workers. Fundamentally, it is about making the collective information and experience of an enterprise available to the individual knowledge worker, who is responsible for using it wisely and for replenishing the stock. This ongoing cycle encourages a learning organization, stimulates collaboration, and empowers people to continually enhance the way they perform work.

Source: *Army Knowledge Online—An Intelligent Approach to Mission Success*, U.S. Department of the Army, Washington, D.C., 1999.

Chart 2

Present and Future State of KM or OL



Organizational learning is the process that enables an organization to adapt to change and move forward by acquiring new knowledge, skills, or behaviors, and thereby transform itself. In successful learning organizations:

- individual learning is continuous;
- knowledge is shared;
- the company culture supports learning;
- employees are encouraged to think critically and to take risks with new ideas; and
- all individuals are valued for their contributions to the organization.²

Organizations have organizational knowledge—the ability to accomplish collective tasks that individuals acting alone cannot, tasks designed to create value for the organization’s stakeholders. Organizational knowledge is both explicit, such as the knowledge contained in technical drawings, manuals of procedures, and computer memories, and tacit, including judgment, “feel,” and deep understanding. Tacit knowledge is an essential part of “knowing how” and “knowing why” and is essential to making knowledge useful.³

² Peter Senge, *The Fifth Discipline: The Art & Practice of the Learning Organization* (New York: Doubleday/Currency, 1990), *The Discipline Fieldbook: Strategies and Tools for Building a Learning Organization* (New York: Doubleday/Currency, 1994), and *The Dance of Change: The Challenges of Sustaining Momentum in Learning Organizations* (New York: Doubleday/Currency, 1999).

³ Ikujiro Nonaka and Hirotaka Takeuchi, *The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation* (New York: Oxford University Press, 1995).

Beyond “Best Practices”

Turning tacit knowledge into explicit knowledge is part of the continuous cycle of learning, sharing, reflection, and use of that knowledge. Yet, most KM efforts focus on efficiency and sharing internal “best practices.” Best practices often do not transfer. Having poor or inadequate criteria for making a best practice portable can cause such failures. Too much formalization of the “best way” could actually lead to less creativity and innovation.

Current KM efforts focused on repositories of best practice may become less and less important for four reasons:

- Best practices are very specific to context (most learning may be learning from mistakes).
- The repository is easier to fill than to access and reuse, for both technical and psychological reasons.
- In a world of greater speed, firms need to look to knowledge flows more than knowledge stocks, and therefore more toward linking of people (e.g., employees, customer, and suppliers).
- Repositories almost by definition do not link to end-to-end processes, where managers and employees can see the impact and integrate them.

Source: Dan Moorhead, Head of Organizational Learning, British Telecom

KM and OL Goals

KM and OL touches on the organization's strategy, culture, values, structure, processes, and customer relationships. Its practices are widespread, spanning multiple sectors, such as financial services, manufacturing, oil and chemical production, pharmaceuticals, consulting, and other service industries.

Companies report that when they better utilize knowledge, they can:

- make decisions faster and closer to the point of action;
- overcome internal and external barriers;
- provide more opportunities to innovate;
- reduce product development time; and
- enhance customer relationships.

The most common KM goals are focused on internal practices—sharing practices and increasing efficiencies (Chart 3). However, the focus on innovation and customer knowledge are expected to be the areas where breakthroughs and future growth will emerge.

KM and OL Results

For economic reasons, many firms have used KM to increase efficiencies for immediate gains. For example, in 1998 BP (now BP Amoco) “brought \$260 million to the bottom line—documented savings attributed to KM—plus \$400 million more likely but not yet booked. Nearly \$700 million.”⁴ Other reported gains from KM include:

- Buckman Labs increased its new-product sales by 50 percent.
- The Dow Chemical Company saved \$40 million a year in the re-use of patents.
- Ford Motor Company saved more than \$600 million in the past three years.
- Hewlett-Packard reduced its cost per call by 50 percent.
- Rank Xerox reduced its dispatches by 15 percent.
- Roche sends out its products for FDA approval six months faster.
- Sequent registered 10 percent higher sales for new sales reps after six months.

⁴ Thomas Stewart, “Knowledge Management at Work—Telling Tales at BP Amoco,” *Fortune*, June 7, 1999, pp. 220–21.

All levels of management and employee groups are sharing knowledge systematically: BP oil rig workers, British Telecom (BT) systems engineers, GE division heads, Hallmark store owners, IBM client teams, and Xerox service technicians. Virtually any group of employees that can benefit from closer collaboration and continuous improvement are creating systematic ways to share knowledge.

KM and Discontinuous Change

In many ways, KM initiatives are in tune with new ways of doing business and the drivers of competition in a global economy:

Diffusion of technologies. The e-mail/intranet/Internet infrastructure, combined with powerful database software and groupware, has made it possible to increase the span of communication. Ideas, experiences, and

problems can be shared more quickly, more often, less expensively, and more widely than ever before.

The marketplace. The Internet and globalization have made discontinuous change a competitive fact. The rules guiding customer relations, competition, and the employment relationship change daily. Firms must operate as adaptive systems and anticipate change under that new set of market conditions.

The customer. Sharing knowledge with customers, potential customers, suppliers, and in some cases competitors is becoming a growing business practice. For many firms sharing knowledge with regulators, the media and the community are equally important.

The workforce. Today's workers are more technology literate, more mobile in their careers, and more engaged in learning as their roles and knowledge needs change.

The organization. With the spread of technology infrastructures and the move to globalization, the roles of headquarters and common workspace have been greatly reduced as the repositories of knowledge. Cross-functional teams and cross-organizational projects are an increasing part of how work gets done.

The way most people work is continuously changing. Ubiquitous and portable communications technology is a major factor in that change. People can now communicate anytime, almost anywhere, and at a relatively low cost. Work groups can capture that communication in simple-to-use but sophisticated databases. When done well, companies can mine that information so the right people can use it when they need it.



“Knowledge management is common sense, but not common practice.”

Rob van der Spek, Principal Consultant, Kenniscentrum CIBIT

The technology that allows people to share knowledge has also put more information into the customer’s head. Companies can no longer compete primarily on price. Real growth and real profit are coming from deepening the customer connection and building customer loyalty. The customer relationship can be developed most quickly and sustained most effectively if the entire workforce is engaged in and understands the value of building and keeping customer loyalty.

Creating a workplace where knowledge is shared and where people are encouraged to learn and to take action on those lessons learned, is the surest way to compete in a market-driven economy. A knowledge-sharing workplace can create more opportunities and can make retention and other workforce issues less problematic and, consequently, a relative problem for the competition.

Some Things Never Change

“The aim is to use worker’s knowledge more productively, to involve workers in decisions affecting their jobs, and to provide greater individual identification with organizational goals. By attempting to manage their human resources in different, nontraditional styles, firms seek to make their organizations significantly more productive, more competitive, and more adaptable.”

Source: S. Lusteran, *Trends in Corporate Education and Training*, The Conference Board, Report 870, 1985, p.2.

New Tools and an Old Notion

Another important factor in the adoption and effectiveness of KM is the growing experience and better understanding of the notions underpinning the learning organization. While the practice of employee participation has been used for decades, new KM tools and techniques have given companies new ways to take further action incorporating older organizational learning principles.

Some executives feel that KM is “old wine in new bottles.” The old wine they refer to are the notions of teamwork, commitment, loyalty, and trust. While this old wine of knowledge sharing has been around for a long time, it has not been let out of the bottle in all organizations. As Rob van der Spek, Principal Consultant, Kenniscentrum CIBIT, puts it, “Knowledge management is common sense, but not common practice.”⁵

⁵ Van der Spek attributed his remarks to Elisabeth Lank, Chief Knowledge Officer, ICL, Ltd.

Implementing KM and OL

According to the survey, 21 percent of companies have a formally communicated knowledge-sharing strategy. Among them is a diversity of strategies and approaches. Most knowledge strategies are currently based on increasing efficiencies mainly because it is easier and more immediate to exploit what is known. Few firms have a strategy focused on innovation, knowledge creation, or customer loyalty.

A knowledge strategy is a function of the business strategy. Organizations with certain attributes and business challenges will opt for a certain type of knowledge strategy. For instance, in a highly decentralized organization, it would be incongruous to launch a highly centralized knowledge strategy. At IBM, the services business is rooted in competing on competence. As a result, knowledge networks, project knowledge management, and intellectual capital management are critical elements for a services knowledge strategy. Other sectors of IBM's businesses will be driven by different key processes, which can be enabled by managing transactional and operational knowledge. Basic components of any knowledge strategy, however, include the process of discovering and identifying gaps in those knowledge assets—explicit and tacit—that provide the business with its competitive advantage.

Integration of KM and OL

Very few firms have integrated their organizational learning and knowledge management initiatives. Nor have they succeeded in linking individual learning or career development to their OL or KM efforts. Patrick Wright, Chair of the Department of HR Studies, Cornell University, points out that “there is no universal consensus regarding what knowledge management is. That allows firms and local units to define it for themselves in a way that is useful to their particular context. However, there needs to be more of an understanding within firms regarding the relationship between KM and OL, both distinguishing between them and describing their interrelationships.”

To adapt and anticipate the forces of discontinuous change, organizations must learn. A knowledge management strategy without the link to individual and organi-

zational learning can become a “conservative” tool if it results in standardizing and codifying current best practice. In some cases it may become an incremental change tool, such as TQM, which can limit the chance for breakthrough thinking. Hubert Saint-Onge, Senior Vice President, Strategic Capabilities of Clarica Life Insurance, states:

The connection between learning and knowledge management is generally not well understood because the two fields have been kept separate from an organization structure point of view. Yet learning can best be served by a comprehensive knowledge strategy that includes learning modules as well as other sources of knowledge, including knowledge databases, documents, and policies. The knowledge interface we recently created allows individuals to run a search that calls upon all learning materials, as well as these other sources of knowledge. Contrasting KM and OL may not be all that helpful. In fact, a knowledge-driven organization and a learning organization will ultimately end up looking very much alike. Is After Action Review a learning method or a KM approach? Are the criteria that knowledge management is online and learning is face-to-face? A knowledge strategy might be the most effective means to transform an organization toward a team-based, empowered, and customer-centered approach. Such a transformation is more effectively portrayed as a state that the knowledge strategy will contribute in creating. Knowledge strategy is a very powerful lever to make this transformation happen.

Dave Ulrich, Professor of Management, University of Michigan, describes the value of a learning organization by looking at the multiplied effect of two factors: generate * generalize. Generate means a firm has the capacity

to acquire new knowledge, and generalize means that a firm shares knowledge across boundaries. Ulrich concludes that “most firms generated better than they generalized. They are doing innovative work somewhere, but are not as able to share that work as they should. And when firms do both well (the “*” effect), they score much higher on an overall competitive index.”

David Owens, CKO and VP, Learning and Development, The St. Paul Companies, describes the link between OL and KM:

Knowledge is the fuel that provides the energy for corporate innovation, wealth creation, and workforce productivity. Business is all about putting ideas into action. Knowledge needs to be created or identified, and it needs to flow among workers, workgroups, and business groups, and across the entire enterprise. Traditionally, the classroom has been a dominant method of transferring knowledge. Today, with global operations, widely dispersed workforces, and the continuing need for instant access to updated knowledge, the classroom has to be supplemented, perhaps supplanted, by a much more diverse range of knowledge-transfer methodologies. Though the classroom and other formal instructional programs can be efficient ways to share knowledge, most learning and knowledge sharing occurs in the workplace as people tackle real business issues. Our challenge is to create work environments that enable and encourage learning and knowledge sharing to take place whenever and wherever it is needed for productive and competitive performance. Learning and knowledge sharing must be inextricably intertwined if we are to develop agile organizations that can respond to the ever-changing demands of competing in a global, knowledge-driven economy.

Margareta Barchan, President and CEO, Celemi, an organization that helps firms understand how to manage their intellectual capital, adds:

When training fails, try learning. There is a necessity to create real learning opportunities that are directly linked to the business and to move away from training driven by other objectives. If any learning initiative is to succeed, there must be a clear understanding among everyone about the necessity of creating, sharing, and managing knowledge for specific business objectives. The right learning interventions provide frameworks and guidelines that allow people to make the right daily decisions. Wasn't that what was missing in reengineering?

Finding Common Ground

The exhibit on page 18 depicts how KM and OL have been viewed in traditional compartmentalized terms, and indeed as they are empirically observed to differ in most corporate implementations. Dan Moorhead of BT points out that “treating these concepts and activities separately may lead to the organizational fragmentation that some KM practitioners and many KM advocates are trying to overcome. To treat them together in the domain of complex, controversial, and conflict-laden business problems will require a KM tool kit and conceptual base far in advance of the current state of the art.”

At BT and most large firms, the KM community of practitioners and the OL community of practitioners work on different problems, use different tools, rely on different authors, and base their work in different concepts.

As Moorhead says, “Unless and until we clarify our language, KM, OL, and HR will not reach their goals. Many business people view KM as IT-mediated, computer driven, and network driven. They point to Moore’s Law as the driving force behind KM and the reason for its emergence. KM, as it is known in this group, is a creature of powerful new database technology, cheap storage, intelligent search agents, and the need for efficient optimization of lower-level business processes. In practice, KM seems to pay little heed to foundational theories of knowledge, old or new. However, computer-based solutions have just about nothing to say to the sorts of organizational “hard problems” that are the subject of organizational learning as Senge and his school treat it.”

“Regarding the link between knowledge management and learning,” says Janet McAllister, former Vice President, Global Learning, IBM, “other than professional services firms, the focus on KM comes from strategy and marketing executives and the focus on learning comes from corporate training and HR staffs. These groups do not really speak the same language, making the connection difficult. The KM movement may help overcome these old corporate politics and roadblocks that only CEOs or senior line management can break.”

Arian Ward, CEO and Principal Consultant, Work Frontiers International, and former leader of collaboration, knowledge and learning, Hughes Space & Communications adds:

Traditional KM and OL Characteristics

	Knowledge Management	Organizational Learning
Purpose and Benefits	Knowledge creation and re-use Increase productivity innovation customer connection speed	Manage complexity and change Increase robust decision-making deal with complexity adaptation capability embed learning: in teams, organization, systems
Tools	Groupware/Connections Repositories of best-practice personal knowledge sharing (tacit knowledge)	Systems thinking Mental models Aspiration
Processes	Create, clarify strategy Diagnose critical knowledge Knowledge gap analysis Create, store, connect knowledge	Link reflection and action Test assumptions Dialogue, inquiry Re-frame issues, conflicts Causal loop analysis
Typical Applications	Wired Online	Face-to-face dialogue (AAR)

“It is interesting how KM and OL efforts within an enterprise take on the culture, language, and focus of the sponsoring organization. I have seen KM sponsored most by IT, but also by the CEO/senior management, strategy, research, marketing, quality, HR, divisions, product lines or their equivalent, and the corporate library. In each case, it assumes the flavor of the sponsoring organization. For example, KM sponsored by IT usually has a strong technology focus, by quality a strong process focus, and so on. I have never seen an OL program sponsored by anyone other than HR/organization development/training & development, except when sponsored by the CEO or another senior officer. Because of this, too many OL efforts are just reconstituted or renamed training and development programs. Only an interdisciplinary approach, sponsored by someone without a strong functional bias, can overcome this tendency to color the approach to match the sponsoring function.”

Challenges to the Internal Organization

When integrating KM, OL, and traditional training, many companies face fundamental obstacles. In the box below, Anna Kortenoever, Manager, Corporate Training, KLM Royal Dutch Airlines, summarizes issues that KLM and most large global organizations are facing:

“Companies with the most KM and OL experience started with small projects in areas where there was some understanding of, and enthusiasm for, putting knowledge into use. Having early, visible results served two purposes: it encouraged others in an organization to learn how KM affects their part of the business, and it showed skeptical managers that there is value in new ways to create and share knowledge.”

Making the Transition

From

Closed organizational culture
 More of the same does not work
 Positional leadership
 Fragmented learning
 Classroom teaching
 Consultants create change
 National human resources
 My world is KLM
 Staff has no change role

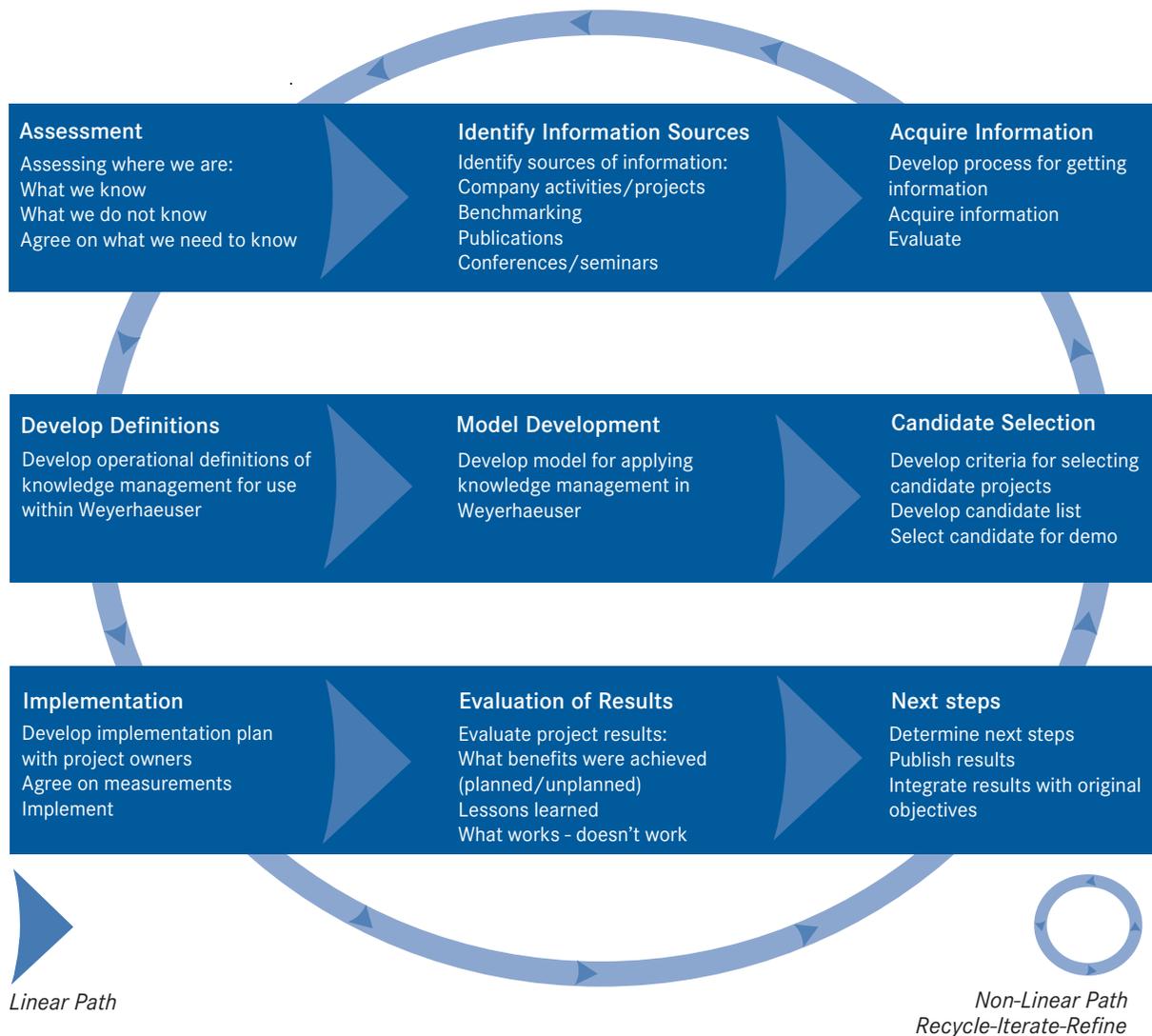
To

Open, fluid culture
 New working methods
 Inspiring leadership
 Structural learning
 Sharing experiences + knowledge + experiments
 KLM employees create change
 International human resources
 The world is my working area
 Staff role is change catalyst

Lessons From Weyerhaeuser

Weyerhaeuser formed a team to evaluate how or whether to pursue KM. While their findings and opinions may be unique to Weyerhaeuser, many of the issues are similar to other firms (Exhibits 1&2).

Exhibit 1:
Weyerhaeuser's Knowledge Management Roadmap



Lessons From Weyerhaeuser

General Findings

1. Tightly link KM to a priority business objective.
2. KM entails an integrated approach to people, processes, and technology; it is not a project.
3. KM should not be a separate staff function.

People and Culture

1. Senior management needs to set the tone and show support. Day-to-day reinforcement and coaching must come from mid-level.
2. Learning and sharing are equally important.
3. Trust is essential: It must be built to overcome the effects of “not invented here” and “knowledge is power.” You must trust your employees. Employees must trust that sharing enhances employment status and does not undermine the business’s need for them.
4. Human interaction cannot be replaced. It is especially needed to transfer tacit knowledge.
5. Rewards/recognition linked specially to KM must be carefully evaluated. They can have unexpected and unintended consequences.

Processes

1. Key KM processes must be defined. These include: capturing, sharing, and applying knowledge; developing new knowledge; and protecting knowledge assets.
2. There is no one best process for KM. Process design must include: content, scope and speed; intended use; and expected outputs.
3. Connectivity is more effective than capture: Facilitating the connections between people is more successful than trying to capture and sort knowledge for all potential accesses. Enabling/expecting people to learn, share, refine, and apply knowledge is the key. Multiple channels of knowledge transfer must be supported.

Technology

1. Technology is an enabler: it is not KM.
2. Make the technology fit the work, not vice versa.
3. Technology does not eliminate the need for people to meet. It may increase the need for contact to: build trust, and freely interact in problem solving.
4. New techniques are not needed. Old methods can be just as effective, such as teamwork, process management, benchmarking continuous improvement.

Top-Down vs. Bottom-Up Approach

The varieties of KM visible in theory and in practice may shed some light on the key findings of this study: the lack of perceived need for KM, the lack of formal planning, and the prevalence of formal KM in certain corporations but absence in others. Knowledge in an organization may be analogous to oxygen in the human body: critical to sustaining life, but not necessarily a subject for explicit management, unless the natural organic systems are failing.

Very simply, KM may be implemented in two basic ways:

- emergent, self-organizing, “bottom-up” model; or
- centrally designed commonly shared architecture, “top-down” model.

There may be said to be “hard” and “soft” varieties of KM as well, resulting in a two-by-two matrix for KM implementations (see exhibit).

Hard System–Bottom-Up

The first knowledge management network for BT Systems Engineers (SEs) in the global multi-national sales units was a spontaneous and organic creation of SEs who wanted to share best practices, tips, and suggestions among themselves. A surplus PC was liberated as a server for a simple e-mail system with a growing distribution list. Eventually this skunk works system became a victim of its own success: The time to maintain it became burdensome to the engineers who were doing it in their spare time, and it was abandoned.

Hard System–Top-Down

Most KM literature seems devoted to IT-mediated KM systems with defined properties, planned objectives, and explicit scope and reach that require compatible technologies within that design space—centrally led and generally non-skunk works projects. Many consultants and vendors of KM “solutions” have a vested

interest to focus on this end, KM, as they need a fairly centralized client concept of knowledge management before they have an “owner” to sell to.

Soft Systems–Bottom-Up and Top-Down

A high-tech firm such as Microsoft, with intense competitive spirit and knowledge workers, is no stranger to technology. The company has several soft systems for knowledge management—project-release post-mortems and “lessons learned” reports, a culture of self and mutual critique, a project team design that encourages skills overlap and competitive marketing of ideas, and concurrent engineering daily builds that serve as quick feedback loops. It also co-locates its teams in one space whenever possible for intense face-to-face interaction. Despite its more-than-accidental access to KM tools, however, Microsoft is not known as a big advocate or user of distributed development, cross-team knowledge sharing, or sharing large databases of codified best practice.

Varieties of Business Knowledge

Top-Down	Social Architecture	Formal Knowledge Management
Bottom-up ('emergent')	Casual Knowledge Sharing of office politics	Skunk Works knowledge exchanges
	Soft (non-IT-mediated)	Hard (IT-mediated)

Furthermore Peter Drucker, one of the foundational thinkers of the knowledge worker, is dismissive of the idea of a CKO and sees learning and knowledge as distributive properties of each individual manager and knowledge worker.

What Does It All Mean?

Either the top-down or bottom-up implementation method may work and sustain positive results if it is aligned with organizational culture and local performance drivers. If there is a mismatch, however, the

outcomes may be detrimental. If the culture is conditioned to have central leadership, for example, then the absence of mandate and structure typical of the emergent approach will tend to paralyze the work groups, who will be waiting for permission to act. If the various company units are historically independent silos or internally competitive (as with sales forces, for example), the emergent systems invented locally will not be compatible with each other.

If the emergent knowledge management is done on a skunk works basis, but the larger organizational units tighten budgets to drive out waste, then local initiatives not seen in the larger planning priorities may be closed off. The volunteer burnout syndrome is often a similar unintended result.

Speed issues are multi-level and somewhat paradoxical: The highly distributed and diverse emergent approach will assist rapid evolution by “natural selection” and will speed deployment of KM initiatives in the short term, but may slow their deployment in the intermediate term due to lack of inter-operability. Homegrown and skunk works products will probably look and feel that way. Big company users who are accustomed to more professional tools or elegant solutions may avoid their use.

If the KM arrives as a pre-defined package from the center, when the organization culture is more autonomous, then the positives can be supplanted with negatives:

- Psychological ownership is rejected: “This is your system, not mine.” “Not invented here.” “That might work for you, but it will never work here.”
- The system may fall to the classic problem of “a technology in search of a problem.”
- The taxonomy of best practice may not match the local needs and common language.

- The platform imposed from the top may not match local history, preference, or outside sharing potential.
- A centrally led effort often looks to financial incentives to spur use and overcome resistance, while the locally invented skunk works version was entirely voluntary and motivated by intrinsic rewards only: professionalism, the ability to contribute, peer recognition, and being part of something larger than yourself.
- Not only do cash incentives cost money, they appeal to the wrong sort of drivers for knowledge workers who should be the biggest users and beneficiaries and may ask, “Why pay me to share knowledge?” The intrinsic rewards are deeper, more lasting, and less open to manipulation and gaming behaviors.
- As Rob van der Spek indicated, a real barrier to sustained knowledge sharing is not posting knowledge to a system, but rather drawing down and using the knowledge available from the system. In other words, it is not the sharing but the receiving of the knowledge that must also be understood.

The top-down, center-led approach may be especially prone to a one-size-fits-all approach, contrary to the existing scope and priorities of the job. For example, the system engineers work across several bids, while the account managers do not. By common perception, the system engineers are more collaborative and more motivated by high-quality engineering design, while the account managers are highly competitive with each other and are screened, hired, and rewarded for individual achievement, not sharing.

Source: Dan Moorhead

Approaches and Tools for KM and OL

Knowledge management and organizational learning may have different definitions and approaches at the strategic level, but they are increasingly similar in terms of the tactics and tools they employ. Rapid deployment of technology (including common desktop platforms and universal access to the Internet/intranets), coupled with rapid changes in the work patterns of large companies (e.g., cross-functional teams, remote teams, interorganizational projects), has provided a fertile ground for weaving KM and OL approaches into the fabric of the enterprise.

In the process, advanced KM is increasingly becoming a matter of orchestrating a package of practices that are received in their own right as having value separate from their justification as part of a learning culture or leading to best practices.

Following are some of the more common tactics and IT-based tools being employed as knowledge sharing spreads in the enterprise.

Common Tactics

Communities of Practice

The notion of a community of practice came from research at the Institute for Research on Learning and Xerox PARC in Palo Alto, California. The research discovered that learning takes place in and around communities of practice.⁶ As people find a reason to work together, they share stories and lessons learned. In short, they teach each other the practice.

Communities of practice have proven to be one of the most valuable forms of knowledge sharing, yet they:

- lack a formal structure, although they can fit within an existing organizational structure or may be converted to a formal structure at some point;

⁶ J.S. Brown and P. Duguid, "Organizational Learning and Communities of Practice: Toward a Unified View of Working, Learning and Innovation," *Organization Science*, Vol. 2, No. 1, 1991, pp. 40–57. See also Etienne Wenger, *Communities of Practice: Learning, Meaning and Identity* (Cambridge, United Kingdom: Cambridge University Press, 1998).

⁷ Adapted, with comments by Arian Ward, from Robert H. Stambaugh, "The Death and Life of HRIS: How Engineering and ERPs are Suffocating HR Innovation and Knowledge Creation in the Modern Corporation," *IHRIM Journal*, December 1998, pp. 23–32.

- are not standardized, although they can choose to set and follow standards for themselves;
- are hard to locate and define, but organizational ethnography and anthropology can help find them;
- have an exclusive membership defined by the community; and
- are early warning systems and drivers of changes in the organizational "ecosystem" if properly cultivated, not managed.⁷

Rather, a community of practice is a group of people who share a particular practice, interest, or discipline and who share information and tacit knowledge. They may be HTML programmers, service technicians, a sales team, etc. Scott Beaty of Shell Oil Company communicates this notion to Shell employees as "like people doing like work." Other firms use the term networks to describe communities of practice, in order to avoid jargon.

But not everyone agrees that a community of practice cannot be defined. IBM's Fred Schoeps says:

We invest very systematically in communities of practice. Each has a competency leader and a core team of practitioners. We manage intellectual capital and organizational knowledge through these communities. Membership in the community includes both trained practitioners who have access to methodologies and extended members. Decisions about training requirements, certification, methodologies, community tools, and management of the communities' intellectual capital are within the purview of the competency leader and the core team. Furthermore, communities are moving onto the intranet, using a suite of Web and Lotus applications to support the members of the community.

As part of a systematic learning effort, companies can provide resources, such as free time and meeting spaces, to support communities of practice. They can also provide opportunities for bridging across communities or even to customers or suppliers. This is done face-to-face and is supplemented with intranets, e-mail, or video conferencing.

The value of communities of practice can go unrecognized by senior and middle management. One key role for executives is to foster such communities and explain their value, but avoid getting in their way. One example is to give the manufacturing team access to the sales forecasting information. By taking that step, the company is doing more than shortening time-to-market; it is creating a new bridge across communities.

Other ways of aiding communities of practice include:

- recognizing, acknowledging, and training the key support roles, such as facilitators, knowledge stewards, and knowledge/relationship brokers;
- helping identify communities of practice that do or could exist in the organization and supporting their attempts to cultivate an effective group with visible commitment and extra resources;
- building the cultivation and nurturing of these communities into business strategies;
- leading the cultivation and nurturing of external communities, including customers, suppliers, and the investment community;
- tapping the knowledge and potential for key projects; and
- leveraging the power of communities for driving organizational change efforts.

After Action Reviews

The U.S. Army defines After Action Reviews (AARs) as a professional discussion of an event, focused on performance standards, that enables participants to discover what happened, why it happened, and how to sustain strengths and improve on weaknesses. AARs integrate learning and action to collectively analyze decisions made at all levels. They combine use of information with careful facilitation to create a nonhierarchical environment for inquiry and team learning. Formal AARs are scheduled after each mission and can last a few hours; informal AARs are run consistently after other events, even if it is a five-minute review to build on lessons learned. The ability to lead an AAR is critical for Army leaders. The process entails asking three consecutive questions: What happened? Why did it happen? What should we do about it? Clear ground rules encourage candor, total involvement, and focus on objectives.

Learning Histories

A learning history is a retrospective history of significant events in a company's recent past, described in the voices of people who took part in them. Researched through reflective interviews and quote-checked scrupulously, the learning history uses storytelling to help a company evaluate and accelerate its progress in learning.

Managers, hourly workers, union leaders, senior executives, suppliers, consultants, and customers are all included in the circle—identified only by position, as anonymously as possible. In this way, the document creates a record that allows people to recognize their own blinders and to see their own point of view in the context of a larger, shared understanding.

The value of the learning history comes not so much from the document itself, but from the consultation process that is built around it—the conversations in which people create shared meaning, deepen their understandings, and talk through possibilities for more effective action.

Knowledge Fairs

Knowledge fairs are forums where various company units congregate to demonstrate their knowledge-sharing efforts and learn from each other. This can be done face-to-face or online through knowledge Web pages.

Talk Rooms and Work Villages

Many firms are using physical workspaces specifically designed to foster reflection, interaction, and collaboration. They generally provide open space for people to run into each other. Whiteboards and other tools for sharing and recording ideas are available. Alcoa, Nickelodeon, Nortel, and Steelcase are examples of companies with these types of workspaces in some of their offices. However, they are generally present at headquarter locations and less often utilized at regional or manufacturing locations.

Collaborative Conversations

These facilitated conversations revolve around questions that matter to the organization. This involves making conversations a core business process. One type of collaborative conversation is strategic conversations that serve as the platform for developing a future-oriented mindset and direction for the organization. Open-space meetings are one approach to this.

Futurizing

Futurizing, or future search conferences, is an approach to large-scale involvement that starts with a focus on the past (who we are and how we got here). Individuals analyze their history, identifying and interpreting patterns and themes in their organization. Next, the group brainstorms an ideal community of the future in which they would like to live and work. Then they are facilitated in a large group to produce a mindmap of the present system and vote on the trends they think are most important. Finally, they prepare a consensus list of elements they think ought to be in the future vision.

Action Learning

There are a host of different tools and approaches to this. The value of most action learning initiatives is the common language and common sense of purpose that results from such methods. Coaching and mentoring are key tools for facilitating action learning.

Workplace Digital Storytelling

Storytelling has always been the means for passing on the lessons learned. The use of video, digital recording, and other technologies includes methods of telling and transferring stories that, in turn, transfer lessons learned and offer key insights and cultural understanding.

Organizational Ethnography and Archaeology

Included in this approach are tools and techniques for gathering knowledge about an organization by observing its knowledge behaviors and by studying the knowledge artifacts utilized and produced.

Research Outposts

A research outpost is the establishment of an R&D facility in a hotbed of innovation such as Silicon Valley, Silicon Alley, or in a key market. The purpose is to gather knowledge of either hot new emergent ideas or technologies or of customers living and working in the area where the knowledge resides or is being created.

Suggestion Programs

Suggestion programs have always been at the essence of knowledge sharing. However, it is rare to see them cited as examples of knowledge management. The notion that every employee can contribute their unique ideas, experiences, and abilities to improve how work gets done and innovate has been discounted by the current KM movement. Much can be learned by looking at Toyota, Dana, and other firms that make suggestion programs work.

Common Tools

Electronic Mail and Messaging, Group Calendaring, and Scheduling

The fundamental tool kit for KM is increasingly built upon the corporate infrastructure for normal computing. It includes messaging infrastructures and combining e-mail utilities with products for calendar, meeting, and resource coordination. As corporations have moved to a single standard for computer networks with a common desktop deployed to employees, the ability to move text, images, and data has been multiplied. The tools for rapid exchange of knowledge based on common document formats and directories have removed many of the technical barriers to sharing knowledge and have increased the likelihood that a significant exchange of ideas can take place.

Skills Inventories, Yellow Pages, and Subject Experts

These online databases contain information on “who’s who” and “who knows what”—a vehicle to find expertise from people throughout the firm who might otherwise never learn what each other knows. As with the best practices databases, expert databases or corporate yellow pages can be extremely useful if designed and managed correctly. Generally, large databases created centrally are underutilized. However, databases of expertise developed locally and then expanded tend to have more success. The information is more relevant and more current, and there is a higher level of connectedness between participants.

Electronic Meeting Systems

These products support small groups of people usually working in the same room at the same time (although distributed and any-time access are also supported), each with a PC. The groups use the software to brainstorm on issues, categorize responses, and create instant surveys and vote. Input can be offered anonymously and a facilitator generally assists these sessions.

Software for virtual meetings on the Internet or intranet allows multiple structured, focused, online discussions and meetings for everything from employee forums to process improvement teams to corporate conferences. It can also be used for focus groups or customer surveys. Sessions can be real-time or ongoing, and groups can make use of different tools (brainstorming, organizing, voting, surveying, or chat.)

Increasing use is being made of tools for conferencing: “Net Meetings Desktop” and real-time data sharing connected with common intranet and telephony are becoming affordable as part of the common desktop and shared network. Products in this category

store documents and/or allow others to see and work on documents simultaneously, on each other's screen, or on a whiteboard. The products are often linked by audio and sometimes by video. Using a PC and the Internet/intranet, people can now hold conversations—a “Net meeting” with others who can link into it from wherever they can connect to the Internet/intranet. The meeting can be enhanced by adding a camera to the PC or by using audio sound cards to hold an audio conference. Failing this, employees can just connect by a telephone audio conference and then use the screen multi-point data

conferencing features, which let them collaborate with a group of people in real time.

Non-real-time conferencing or asynchronous conferencing is most like a bulletin board, where a group of people with a similar interest carry on a conversation, leaving and responding to messages over time. This is known as “threaded” messaging. These messages can be public (as in a bulletin board system) or private (as in a groupware discussion database).

Making Conferences More Productive

Currently on trial at one working group company is an innovative conferencing system aimed at filling the gap between existing audio and video conferencing services. It uses the PC on people's desks to enhance audio conferences through the use of a virtual meeting room displayed on the screen. This supports:

- graphical display of the other participants;
- microphone and speaker muting;
- optional floor control by a chairperson;
- whiteboarding, application sharing, file transfer, and chat facilities;
- invitation of additional participants (including audio-only participants); and
- single-click joining of conferences.

Conferences are more productive: They empower the users to tackle a range of business activities with the consequent savings of time and money. Examples of likely applications are:

- Meetings. The whiteboard or a shared word processor can be used to capture issues, brainstorm, or take minutes and make them visible to all.
- Team briefings. Slide presentations can be imported into the whiteboarding tool and shown to all during a briefing. Annotations can be added during the presentation.
- Collaborative working by sharing a word processor or spreadsheet. Members of a distributed team can work together on a document or set of figures without meeting face to face.

Virtual Communities

Virtual communities are being supported with a package of capabilities including highly evolved bulletin boards, chat capabilities, and computer conferencing. This is an important concept for connecting to the marketplace; more and more companies are creating an Internet environment that facilitates connection to and interaction with their current and potential customers and suppliers. An important aspect of connecting to a virtual community is the providing of knowledge to the community regarding their products and services and how to effectively use them, and the gathering of knowledge from the community about their needs and behaviors. Ad Hoc Community Creation allows people to find documents in a chosen area as well as connect with other people who have produced or read documents in the same area of interest.

One variation on conferencing is EventWare—a class of products that allows people to participate in virtual conferences where a remote speaker gives a talk and shows slides; both media are accessed via the participant's Web browser. They can type comments on slides or ask questions either by typing or by audio connection.

Document Management and Creation/Workflow

Documents are the most common repository of explicit knowledge. There is a wide range of software that aids in the capturing, storing, retrieving, and filtering of knowledge stored in documents. Increasingly, these tools are being used as shared repositories of enterprise information or for special work groups.

Basic tools have been in place for nearly 20 years to route documents and data from one in-basket to the next. They are becoming increasingly sophisticated in all areas of content creation and distribution, and their use has grown exponentially in Web-based publishing applications.

Workflow tools include process diagramming and analysis tools, workflow enactment engines, and electronic forms routing products. Coupled with document management technologies, they are becoming the engines for corporate-wide content management, where more and more encyclopedic information is becoming available.

Workgroup Utilities and Groupware Development Tools

These development tools include utilities to support group working and remote access to someone else's computer, and specific tools for workgroup applications development. These provided the initial foundation for many KM applications. Systems based in Lotus Notes, for example, have been widely used for nearly a decade in multinational accounting firms and elsewhere with considerable success. Their advantages include the ability to design very rich functionality and targeting of special information needs of particular work groups, and to create knowledge maps of the enterprise. Although they entail high initial learning and development costs, they are gaining new momentum once coupled with intranet applications. Many more generic Web authoring and look-up tools are becoming the backbone of some of the most advanced KM systems. Collaborative functions are moving to the Internet using Internet browsers as the input and output connections while still using traditional groupware on the LAN.

While most corporate intranets are still primarily used as top-down controlled media for corporate information distribution, some firms are dedicating the same resources to foster collaboration. For example, the NBC Corporate Communications Web site intranet is run by “Franchise Holders” in different divisions, with “information providers” shaping the material for Web publication that has been provided by “content providers.”

Information Distribution and Push Products

These products search for and place up-to-date information on a Web browser according to pre-determined categories or categories determined with a growing knowledge of the user’s interest as determined by prior searches on the Internet or intranet. They are increasingly integrated with content management systems.

Intelligent software agents for Internet/intranet users:

- know and represent a user’s interests in his or her profile;
- modify a user’s profile based on what he or she looks at on the Internet;
- search the Internet to find information of interest to their users;
- automatically communicate with other users to share information;
- summarize information for local storage; and
- extract key words for indexing and later retrieval of information.

Intelligent Search Engines and Taxonomies

These IT-based tools connect to concepts around word and phrase searches. They can:

- track competitors;
- develop strategic plans based on relevant data and insights;
- reveal insights about one’s industry;
- tap into employees’ knowledge about the market, products, competitors, etc;
- share information with key stakeholders; and
- develop a knowledge base of people, documents, Web sites, and contacts in an easily accessible visual format.

Data Visualization and Knowledge Mapping

Data visualization is used to display a graphic view of concepts related to a user query. By delivering information graphically, the software allows users to view query results in context and find relevant data quickly and easily. When a collection of information changes, the software dynamically reflects the change in its concept map.

KM Product Categories at IBM

IBM has devised the following KM product categories by which it focuses on products and services required to integrate KM into the business. As part of an overall enterprise knowledge portal strategy, all of these applications must be accessible through the Web. However, they may not be Web-resident applications. In addition, there are essential KM services, such as developing the knowledge strategy, organizational designs, and behavioral change management, which together with various KM products yield KM solutions.

Collaboration. In its simplest form, collaboration is e-mail supplemented with groupware applications as well as synchronous messaging. This includes e-mail, instant messaging, e-meetings, Web conferences, and group team-rooms with calendaring and scheduling; calendaring and scheduling for the individual and tied to the team calendaring; spaces for communities of practice to congregate and transfer knowledge; and electronic messaging systems.

Desktop and real-time conferencing. This part of e-meetings allows IBM employees to share remotely applications on the desktop as well as engage in whiteboard activity. It also includes event-ware such as video jukebox, whereby someone can replay an event on their desktop.

Knowledge transfer. This is a group of applications by which e-learning is conducted and includes distributed learning applications such as LearningSpace, computer-based training, and live collaboration via electronic media. IBM provides more than 1,000 computer-based training offerings to employees directly online. Employees are electronically linked to IBM's education and training service, Global Campus, to enroll in distributed learning as well as classroom offerings.

Business intelligence. This set of applications includes data/text mining, information warehousing, and OLAP. IBM recently used it to look for patterns in write-in responses on its global employee survey across tens of thousands of participants.

Knowledge discovery and mapping. This encompasses search, classification/navigation, and document-management applications, including discovery of knowledge objects within documents.

Expertise. These applications include expert networks, visualization, and affinity identification, as well as yellow pages and directories.

Source: Fred Schoeps, IBM

Knowledge Leadership

“Increasingly, the art of management is managing knowledge. That means we do not manage people per se, but rather the knowledge they carry. And leadership means creating the conditions that enable people to produce valid knowledge and to do so in ways that encourage personal responsibility. I’m interested in action, and not simply knowledge for the purpose of understanding and explaining...[but] for understanding and explaining in order to act.”⁸

⁸ Joel Kurtzman, “An interview with Chris Argyris,” *Strategy & Business*, First Quarter 1998, p. 88.

Relating and Sharing Values

Besides fundamentally transforming the way work is organized and carried out, knowledge management and learning helps change the way organizations view leadership. As IBM's Fred Schoeps puts it, "KM is about shifting time to higher value activities, and having the right dialogue just in time with the right experts to systematically leverage expertise. Taking full advantage of collaboration, teaming, and moving away from the self-centered rugged individual."

While there will always be hierarchy and some form of command and control, shared values are becoming the anchor for generating commitment and cooperation. When values are created together and truly shared, order is achieved and decisions are made without position power and excessive rules. When the vision is articulated as a shared set of values, people have the level of trust needed to share and receive knowledge.

Leadership is changing from personal and interpersonal to relational, from dominance to meaning making. And leader development is changing from preparing the leader to exercise power to increasing the capacity of the community to work smarter through collaboration.

Relational leadership is a key issue at IBM. According to Schoeps, "Project managers must learn to be knowledge managers and systematically leverage knowledge assets. Every manager has a role as knowledge manager responsible for the human capital entrusted to him or her, as well as intellectual assets within his or her domain of responsibility. To this end we are integrating skill development for KM into our leadership development programs."

Establishing New Leadership Principles

W.L. Gore, a company known for innovation and being an employer of choice, uses four operating principles to help operationalize this type of leadership.

1. The *Freedom* principle encourages associates to grow in knowledge, skill, and scope of responsibility.
2. The *Waterline* principle states that mistakes made "above the waterline" are not a serious offense. However, mistakes "below the waterline" can sink the ship. Therefore, before taking a serious risk or bridging an ethical standard, associates need to check with other people.
3. The *Commitment* principle indicates that associates are expected to keep any commitment they make.
4. The *Fairness* principle mandates that associates be fair to everyone, including suppliers and customers.

These principles generate leadership that is not positional. Instead, leadership is expected of everyone and natural leaders are then defined by their followers. This has also helped to transfer ownership of the customer relationships to individual employees who are closest to the front lines.

The Role of the Leader

In large corporations, at least three leadership roles should be considered when moving toward a collaborative culture and KM.

- Local line leaders who own a specific business problem (e.g., costs, productivity, innovation, customer contact). They are the most effective champions of any change initiative. Whether a plant manager, a division chief, or unit managing director, the local line leader has the vested interest, motivation, and direct access to the levers of change. These leaders need the freedom to lead change and to get the credit they deserve when they succeed.
- Internal networkers and facilitators who knit together the idea leadership in the firm. Whether drawn from HR, strategy, IT, or elsewhere, they are the seed carriers who work horizontally to bridge all the separate pockets of innovation and nurture new experimentation. They are usually the unsung heroes of this or any other large-scale change initiative. Traditionally thought of as a powerless group, they are for that very reason free to move about the organization and develop influence based only on the clarity of their ideas and the depth of their passion.
- The CEO or chairman. Peter Senge and his colleagues advise against putting too much emphasis on the top executives in a company. It is simply unrealistic, and a prescription for later disillusionment, if all the leadership roles are combined and the burden is laid at the CEO's door. It

is a recipe for frustration and real disempowerment for managers to wait for the CEO as a modern knight in shining armor to come riding along and slay the old culture dragon.

This is not to say those who hold such positions escape leadership obligation for this and other change. Clearly they do not. But their role has to be limited. They should champion KM vigorously when they have the opportunity. They will probably have the most impact when they focus their attention on knowledge reuse in projects, solutions, and research. When new projects and challenges are assigned, they should make certain the team or executive owner seeks out and incorporates the appropriate lessons from history. At the end of every good news story, leaders should ask, "Who else would benefit from learning these lessons? How are you going to share this with them?"

Admittedly harder, but having more of an impact, is the learning embedded in an *unhappy* news story. People learn more from their partial victories and mistakes than from sailing through obstacles in triumph—if they can escape the traditional blame culture to reflect honestly and benefit from the experience. Accountability must be emphasized, but if people fall short of expectations in one area or have to burn more resources to get to where they need to go, this must be recognized as part of necessary risk-taking in a fast-moving and complex business environment. Questions to be asked include: Was the risk well thought through? What was our original intent? What were our results? Why the variance? What have we learned?

Source: Dan Moorhead, BT

The CEO's Influence on Knowledge Leadership

Some of the strongest learning and KM gains have come through active championing by the CEO. There is a strong commitment at the top to change the organizational culture and begin to create values that lead to knowledge sharing across organizational boundaries. In organizations where these boundaries are very strong, CEO commitment is essential to share knowledge across the enterprise. In the absence of that commitment, even well-executed and conceived practices may remain locked within a single organizational unit for the duration of a project.

Monsanto is perhaps the best example of a company that has come closest to transforming itself into a knowledge-based company by making dramatic strategic changes and changes to the way work is organized and carried out. Monsanto looks at creating value at the individual level to improve the capability of each person. It is attempting to change the organizational culture so that the shared values of individuals lead to increased organizational capabilities. Many senior managers were skeptical about this new strategy—the most enthusiasm for the knowledge-sharing projects came from the lower levels of the company.

The organizational transformation began with Robert Shapiro's leadership in 1995. Among the changes was the establishment of a KM program and infrastructure. A director for KM helped create global learning centers and systems connecting employees to focus on innovation and growth. Shapiro's strategy called for making Monsanto more connected and able to act like a small company. The company grew from 4 to 14 business units. To increase connections and remain decentralized, several information repositories were created on the intranet.

Monsanto's KM culture is focused on creating value by understanding how people convert information into insight. Its approach called for clearly defined roles for members of self-directed teams, particularly for the team leader, who must ensure that the components of knowledge creation are occurring, champion the sharing of lessons learned, and provide the right environment.

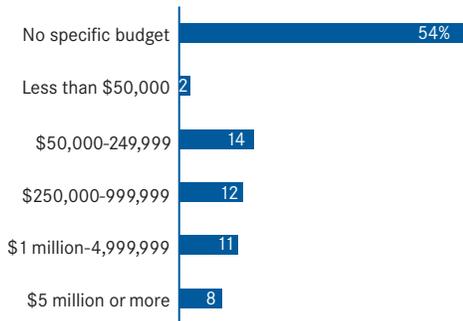
CEOs should be role models of knowledge sharing. For example, Jacques Nasser, CEO of Ford Motor Company, personally writes a weekly e-mail to all employees with comments on his thoughts and experience for the past week. He also reads hundreds of responses each month and has a team member respond to those who need follow-up. Allan Schuman, CEO of Ecolab, does the same with a phone-mail message, and in some cases audiotapes with longer messages, to all employees, generally about his lessons learned at visits with customers. This form of personal communication is usually told as a story, which further ingrains the culture of the firm. These messages are timely and go beyond just making a symbolic gesture. They send practical advice, connect each employee's work to the customer, and help create the climate for others to do the same.

Chief Knowledge Officers as Leaders

Often delegated by the CEO and reporting directly or on a dotted-line relationship to the top, the chief knowledge officer is commonly intended as a catalyst rather than a new organizational unit. The CKO is often an evangelist, educator, and organizer of forums, rather than a manager of KM projects per se. For the 25 percent of surveyed firms that have a chief knowledge officer or a similar position, the power, resources, and responsibility of the job varies widely (charts 4–6).

Chart 4

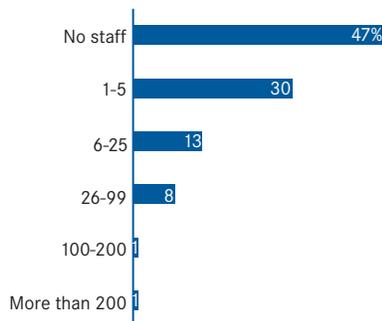
Annual Dedicated KM Budgets Largely Unspecified



A variety of titles—chief learning officer, chief knowledge officer, knowledge managers, knowledge architects, knowledge engineers—are used to describe members of this growing professional community. There are major differences in the scope of their work, why they do it, and how much influence they hold. For purposes of this report, these executives will be referred to as chief knowledge officers (CKOs).

Chart 5

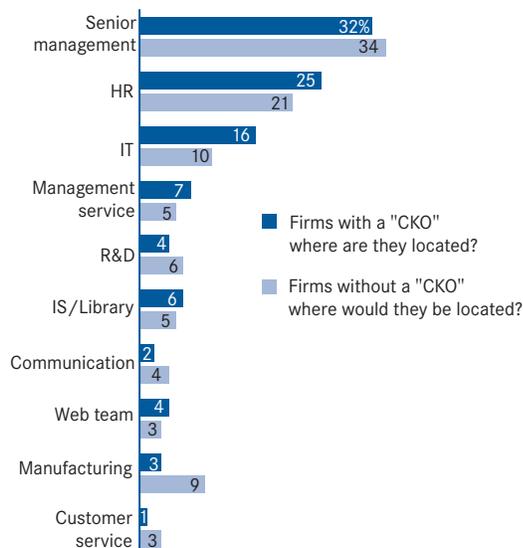
Full-Time KM Staff Remain a Small Group



Most CKOs, whether or not they have ‘knowledge’ in their title, are working to connect their KM or OL efforts with their firm’s most pressing strategic initiatives. Interviewed executives were careful not to present KM as a panacea or as a separate and new change initiative. They understood that the biggest problem for most managers and employees is the lack of time to accomplish their individual goals. These executives see KM largely as a means to alleviate those time pressures and avoid reinventing the wheel.

Chart 6

CKOs as Members of Senior Management



Individuals selected to serve as CKOs are driven by the challenge of changing how organizations think about knowledge and learning. Salary, position, or titles were not their primary motivation. The notion that their company had the latent talent, creative solutions, and capabilities to compete and change was an underlying driving philosophy.

Most CKOs focus less on technology than on the strategic aspects of knowledge that can be enabled through new ways to work in collaboration. Some CKOs have focused on the design of the workplace and social environments—more informal meeting places, retreats, learning events, and innovative development experiences—to encourage and facilitate knowledge creation, sharing and innovation.

The CKO acts as both a visionary and a bridge. There are three ways to build capability and become an integrated company: move money, people, and ideas throughout the firm. The CKO's job is to help break down the walls between business units, functions, geographic locations, and the ceilings between hierarchical layers. CKOs also work at breaking down the walls to the outside—customers, suppliers, regulators, etc. The function of the CKO team is to find and make best practices portable, but also to help motivate people to share and use knowledge.

CKOs increasingly report to the CEO and almost always work directly with line managers. They come from various backgrounds—HR, IT, sales, R&D, and customer service. They have experience and expertise in programming, statistics, employee involvement, organizational development, training, sales, and research. And they have a keen sense of what is happening in the marketplace in terms of e-business, the impact of rapid change, and the shifting nature of employee and customer relations.

Often overlooked as a main champion of KM is the corporate library or information services. Arian Ward points out that “corporate libraries are already in the business of KM. Libraries have been doing KM and have been our primary repository of explicit knowledge throughout history. Doesn't it make sense to tap that existing KM expertise and team it with other disciplines within the organization to provide a comprehensive set of KM competencies? We should be transforming them into a vital component of our organizations' knowledge ecosystem.”

Ultimately, informal descriptions of KM professionals may be more telling than formal job titles. These CKO roles are being filled by people who seek to bridge people's ideas across functional silos and lines of business and to make their firms adapt and react like their newer and more agile competition.

Top management increasingly cannot rely on a one-dimensional voice, whether it is from finance, HR, IT, or any other function. In conjunction with new CKO roles, the CIO and senior HR executives are providing the same strategic focus, consulting skills, and most importantly, the ability to work with line operations. The best results on productivity and motivation of people can only come if these executives work in close partnership as a KM team.

Human Resources and Knowledge Leadership

Since Peter Drucker coined the term “knowledge worker” in 1963, the proportion of jobs that require brainpower has increased steadily. “Knowledge results when the intellect (the capacity to think) does purposeful work using data and information,” says Drucker. “It generates new products, powers new processes, and spawns new materials. It affects all levels and functions in organizations. Every individual is now a knowledge worker.”

Many activities traditionally designed and performed by the HR department are essential to making KM effective (Table 1). Those same tasks are shifting to also become the responsibility of line managers, and increasingly employees themselves. The fusion of HR services and learning opportunities that are being delivered primarily with technology is also changing HR's role. Basic HR services such as recruiting, job postings, pay and benefits, and

work-life options are increasingly being accessed directly via intranets. Meanwhile, on-the-job, on-demand training, electronic performance support systems, and other distance learning programs have transferred typical HR programs closer to the line and directly to employees. KM tools that rely on technology, and even those that do not, are becoming an integral part of this individual, team and organizational learning mix.

Sample CKO Job Description

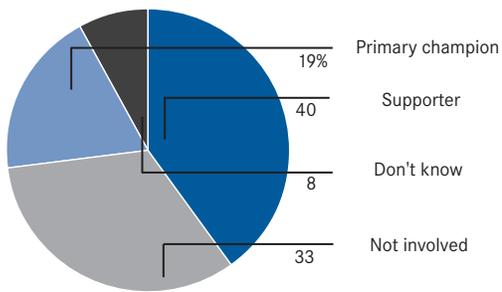
The CKO is the corporate knowledge strategist responsible for developing and championing a plan for transforming the company into a knowledge-creating and -sharing organization. The CKO:

- develops a KM strategy and architecture;
- develops KM methodologies and processes;
- builds awareness and develops training;
- collaborates with business and functional groups to implement, lead, and support KM initiatives;
- identifies opportunities for significant improvements in managing knowledge across the company, particularly in increasing profitable revenue and decreasing costs;
- coordinates KM initiatives to reduce redundancies and increase knowledge sharing;
- collaborates with HR to develop conditions that motivate knowledge contribution and sharing;
- collaborates with IT to identify and deploy the KM tools required to meet business objectives;
- assesses the effectiveness of KM strategies, practices, and initiatives;
- proposes metrics that enable the company to measure how well it leverages its intellectual capital;
- enhances sensitivity to customer needs by improving the acquisition and management of customer knowledge; and
- learns from other organizations that leverage their knowledge resources effectively.

Source: David Owens

Chart 7

What Role Does HR Leadership Play in KM?



What Role Should HR Leadership Play on KM?

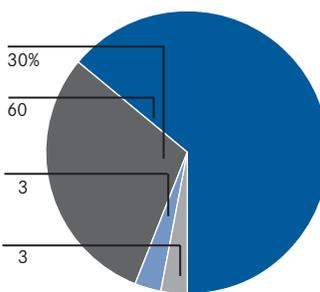


Table 1

Communication Is Common Denominator in Effective HR Initiatives in Sharing Knowledge

	<i>Great</i>	<i>Good</i>	<i>Average</i>	<i>Poor</i>	<i>Very Poor</i>	<i>Not Used</i>
360-degree feedback	10%	34%	27%	15%	3%	11%
Open-door policy	10	26	34	10	2	18
Top HR management support	8	32	23	11	7	19
Corporate university	7	24	20	9	5	35
Building employee skills inventory	6	18	37	20	7	12
External benchmarking	5	20	31	17	6	20
HR staff support for KM	4	23	28	16	8	21
Mentoring/coaching	4	20	41	17	7	11
Use of teams for knowledge sharing	3	26	32	17	4	19
Employee involvement program	3	18	32	17	4	26
Internal benchmarking	3	17	34	20	5	21
Supporting communities of practice	2	17	22	18	3	38
Hiring focused on knowledge-sharing attributes	2	14	20	23	9	32
HR training to support KM	2	12	24	25	9	29
Suggestion program	2	11	26	21	5	35
Leveraging tacit knowledge	2	10	36	21	9	23
Customer involvement in KM	2	4	20	22	12	40
Knowledge creation/innovation	1	20	29	21	7	22
Communicating KM culture/goals	1	8	26	24	8	33
Training all employees on KM	1	3	19	29	11	35
Performance evaluated for knowledge sharing	0	10	23	25	8	34
Compensation for knowledge sharing	0	2	17	23	13	45

Senior executives would like to see HR take more of a leadership role in KM initiatives (Chart 7).

“Knowledge fuels the learning that shapes the capability to take effective action.”

Hubert Saint-Onge

Performance Management

Performance reviews, salary actions, and employee relations are increasingly becoming the responsibility of line managers. Training and career development have become a shared employee and company responsibility. As part of its employee performance management and measurement system, IBM explicitly requires teaming objectives to be part of individual performance objectives. Team objectives include sharing, collaborating, transferring knowledge, and improving cross-organization communication.

As HR becomes a partner with the line, there is an increasing demand for more effective learning and career development support. But continuous skill development is more than putting together a series of training programs. And Chart 8 and Table 2 show that learning and career development still are not strongly linked.

Even though companies are recognizing the value of their knowledge assets, it is surprising that more of them have not integrated employee development and career planning with knowledge-sharing efforts. Although the focus on developing core competencies has led almost all surveyed companies to significantly revise their performance management and compensation programs, and all competency models had an aspect on sharing knowledge and team goals, few have a strong integrated approach. For most firms, the notion of employees taking on the responsibility for their own careers is not supported by current policies and practices.

Chart 8

Learning and Career Development Not Fully Integrated

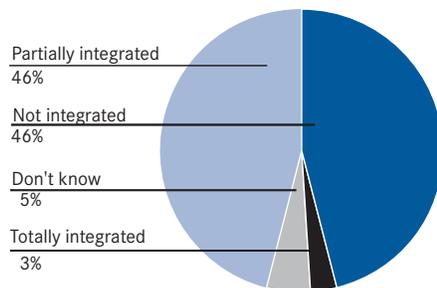


Table 2:

HR Programs Largely Unrelated to KM

	<i>Integral</i>	<i>Moderate</i>	<i>Limited</i>	<i>Not at All</i>
Training	12%	12%	5%	32%
Career development	7	27	9	37
Selection/recruiting	5	21	2	42
Recognition	4	28	0	38
Rewards/compensation	3	18	4	45
Retention	2	20	2	46

Linking HR and KM

IBM provides an example of a more integrated approach to HR and KM. According to Fred Schoeps, “IBM enables the individual, through skill and development roadmaps, to continuously develop and maintain skills valued by the business and the market.” Through the CareerPlanner application, IBM has moved management of skills onto its intranet and empowered the employee to continuously close the gap in critical skills needed to compete in the marketplace.

“Every newly formed team can download an electronic team-room in which to work,” explains Schoeps. “The team-room is becoming the place to work. Forums and discussions can be set up, tasks assigned, action items tracked, and all working papers systematically posted and managed. The team-room transcends e-mail and provides a shared space visible to all team members in which work can be done collaboratively.”

IBM also invests in two types of community levels:

Communities of practice are formed around a competency or discipline. They grow the competency to ensure its members can take full advantage of the community’s full collective knowledge.

Communities of purpose are formed around a business need and are made up of expertise from multiple disciplines to address a market opportunity. They apply knowledge of various competencies to come up with the best solutions.

Information Technology and Knowledge Leadership

Many of the foundation tool sets for KM come from information management. This has led many companies to try to make KM an IT-sponsored initiative. But these projects often fall short of expectations because the human component is of overriding importance. KM software should be designed around the way people work. Understanding how work is done requires an understanding of how knowledge flows, how ideas are generated, how creativity is encouraged, and how customers are served.

Table 3 shows how effective various IT initiatives are as they relate to sharing knowledge. Overall, the level of IT commitment and the degree of CIO involvement varies, but where it exists it is seen as a major advantage. And even though the CIO plays a greater role in KM than HR (Chart 9), only 40 percent of surveyed companies say IT has a high or very high level of commitment to KM (Chart 10).

Chart 9

IT Commitment to KM Has Room to Grow

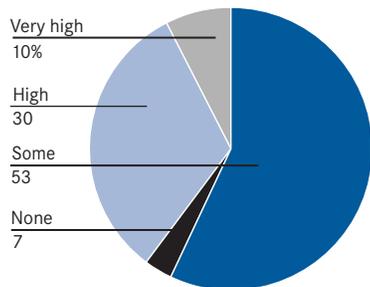


Chart 10

CIO Is Mostly a "Supporter" of KM

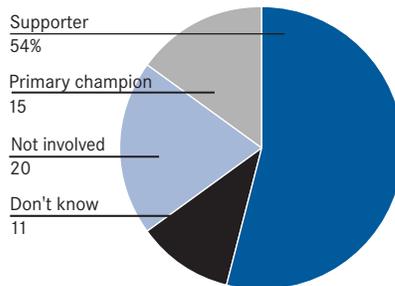


Table 3:

IT Support and Access Most Successful Technology Initiatives in Sharing Knowledge

	<i>Great</i>	<i>Good</i>	<i>Average</i>	<i>Poor</i>	<i>Very Poor</i>	<i>Not Used</i>
Top IT management support for KM	14%	32%	26%	16%	4%	8%
Web development	12	43	30	8	4	3
Available technology	10	31	26	17	5	9
State-of-the-art KM tools	9	35	30	14	4	8
ERP implementation	9	27	33	12	3	16
IT staff support for knowledge sharing	6	28	34	18	6	8
IT management compensation tied to KM initiatives	5	7	20	10	9	49
Data warehousing and data mining	4	25	37	20	7	7
Use of cross-functional teams for knowledge sharing	3	25	35	14	7	16
Electronic performance support systems	3	15	25	21	7	29
Document management	2	25	37	18	9	9
Knowledge creation/innovation	2	20	41	18	9	10
Communication of KM systems/tools	2	12	30	29	9	18
Leveraging tacit knowledge	1	11	36	29	7	16
Management training to support KM tools	1	9	40	24	7	19
IT performance evaluated for KM	1	9	21	22	14	33
Training all employees on KM tools	1	5	31	30	8	25

Capital Seeks Capability

The HR function at Clarica Life Insurance Company was completely transformed when it became part of strategic capabilities and was renamed “membership services.” Its mandate was to build individual capabilities required to provide solutions to customers. This focus helped Clarica build its customer capital. A key role of membership services is to help all managers learn how to hire, develop, and perform other traditional HR practices. It also moved the transactional HR work to self-service via the intranet.

Clarica’s knowledge strategy is broad in scope and integrated with other strategic initiatives to develop organizational capability and customer relationships. It encompasses the technology infrastructure, the knowledge architecture, and the culture required for effective knowledge-value creation.

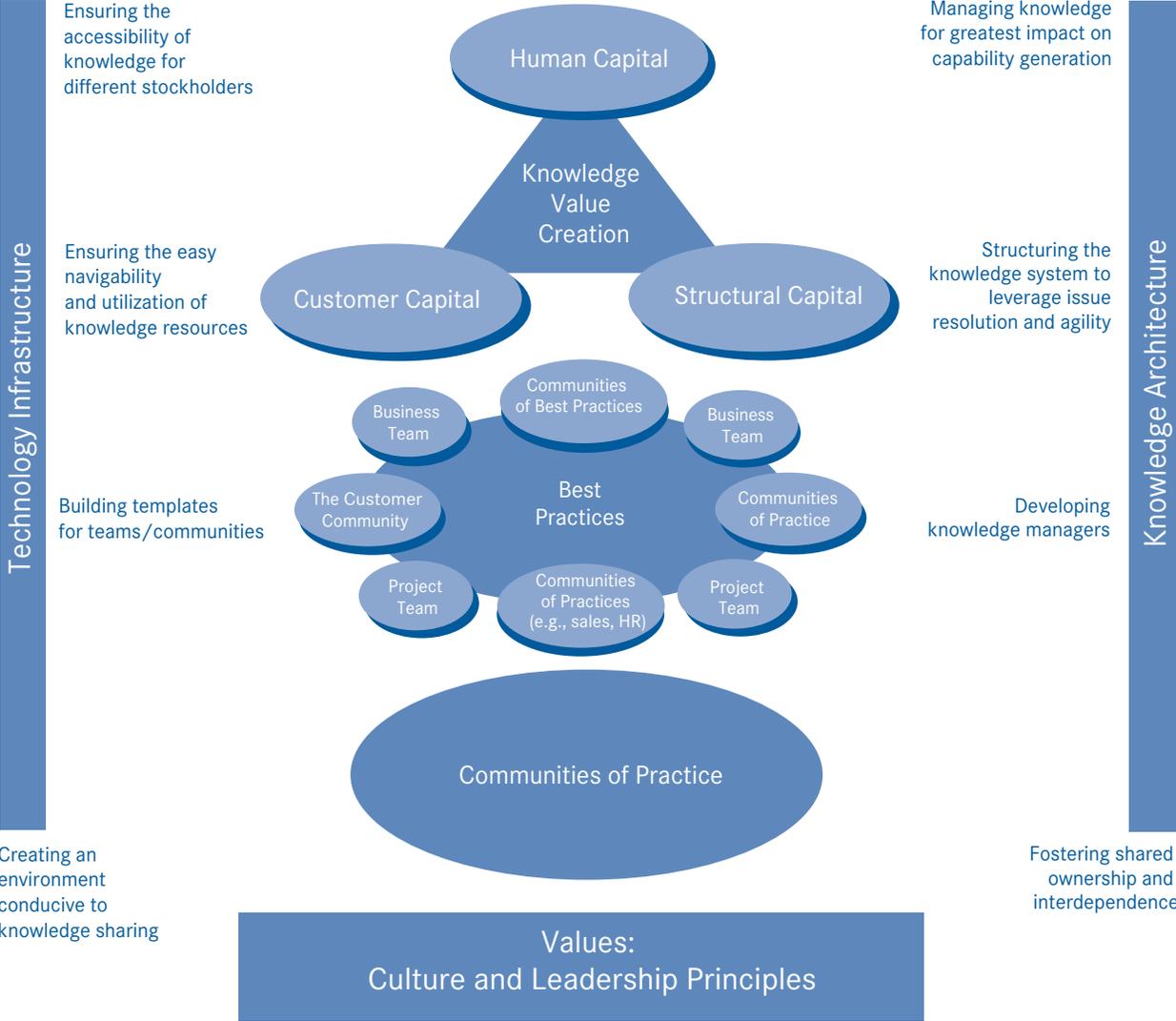
Clarica has a solid “electronic railroad,” using enterprise-wide e-mail for 18 years and groupware for 5 years. This history developed a strong techno-literate culture. A knowledge team was created in 1998, consisting of six knowledge, learning, and technology architects and consultants. It had a mandate to build the knowledge architecture on which business appli-

cations rest, refine the technology infrastructure, and establish roles and processes to support them.

The structure of Clarica’s knowledge system links the two types of knowledge—“knowledge as stock” and “knowledge as practice.” Business teams (consisting of several project teams) and communities of practice share knowledge as practice as they perform everyday work. Within these teams and communities, knowledge managers organize knowledge of stock so it is easy to access and use (knowledge as practice), and feed this into the knowledge depot, a portal giving access to learning opportunities, corporate reference documentation, a knowledge map, and best practices.

The KM system was instrumental in helping with the integration effort during the 1998 merger of Clarica and MetLife’s Canadian operation. An integration knowledge database was created so that each project team was linked and coordinated for issue identification and resolution. The database created a forum where several perspectives could be considered at once, leading to timely and high-quality decision-making. The merger was conducted in record time and many common post-merger issues were avoided.

Schematic View of Clarica's KM effort



Overcoming Barriers: Lessons Still Being Learned

KM and OL are rapidly becoming absorbed into the infrastructure and values of many organizations, but the path is not yet one of spontaneous growth. Leadership and the planned dissemination of sound techniques remain the essentials for more progress. Even while the number of success stories is growing, the gap between what is happening and what remains is huge. While some companies have profited just from the basics of sharing best practices, much greater gains are coming in e-business: faster time to market, new product and service offerings, and better cross-functional coordination.

While the apparent benefits are becoming clearer, KM still needs to be justified in business terms if it is to gain widespread support. Technology costs are plummeting and most KM can be leveraged effectively on infrastructure investments that have been and are being made, but better planning and coordination are needed to get it used the right way. However, addressing the costs and benefits of KM are not the main barriers—corporate culture is.

Knowledge-Sharing Culture

According to every major study on KM or OL, culture is a key barrier to success. Culture is generally defined as the beliefs, values, norms, and behaviors that are unique to an organization. In other words, “the unwritten rules” and “how work gets done around here.”

The development of a knowledge-sharing culture relies on:

- shared vision;
- value-based leadership at all levels;
- open and continuous communication; and
- rewards and recognition.

Mark Koskiniemi of Buckman Labs says:

Ninety percent of moving an organization to success in knowledge sharing or learning is in having the right culture. If your people are not confident that they can or should communicate freely, then all the best technology will be

unable to pry knowledge out of them, or help them absorb knowledge. Buckman has been successful with our culture change efforts over the past several years. If our technology were to suddenly disappear or if we were to change systems, we would still retain the desire on the part of our associates to exchange information and share their knowledge.

A knowledge-sharing culture is based on the beliefs, attitudes, and customs that exist within an organization. Intranets can change the span of communications and provide a platform for beginning a cultural change. According to Fred Schoeps, “IBM’s latest global employee survey showed that—for the first time ever—the intranet was ranked second behind co-worker and just before manager as the ‘best source of information.’ This is a profound result.”

Hubert Saint-Onge of Clarica adds:

Most practitioners in this area will agree that there is a definite requirement for a minimum threshold of trust, collaboration, and collective sense of ownership for knowledge to contribute to the creation of value. Beyond this threshold, that there might very well be a mutually reinforcing relationship between the knowledge strategy and the culture of the organization. A well-conceived and effectively implemented knowledge strategy might be the most powerful transformative vehicle currently available to organizations. So, it starts to look like a two-sided Möbius strip: culture shapes knowledge strategy and knowledge strategy shapes culture.

Building a culture of trust starts with having a values-based organization. For example, at Buckman Labs a strong code of ethics is critical to proactive knowledge sharing. By having strong basic ethical guidelines, the firm needs fewer rules regarding innovation, communication, risk taking, and decision-making. Koskiniemi points out:

The reason why this relationship between culture and knowledge strategy is so confirming is because of its inclusive nature. Anyone in your organization can play a role in shaping and contributing to the success of the organization. Obviously, there are some initiatives a company can undertake that will alter the cultural land-

Shifting Toward a Knowledge-Sharing Organization

What shift in cultural norms and artifacts are some organizations trying to make to support a knowledge-sharing organization? The following list of concepts and phrases was compiled from interviews with senior line and staff executives.

From

Knowledge hoarding is power
 Many management levels
 Sporadic training
 Position power
 Inflated titles
 Uneven responsibility
 Culture of blame
 Rules-based
 Functional silos
 Risk adverse
 Inward-top management focus
 Only managers know financials
 Information on need-to-know basis
 Focus on talent, experts, and key employees
 “What’s in it for me?”
 “It’s not my job.”
 “Not invented here”
 Climate of cynicism
 Task forces selected by management

To

Knowledge sharing is valued
 Few management levels
 Continuous learning
 Network power
 Few or no titles
 Shared responsibility
 Culture of accountability
 Values-based
 Cross-functional teams
 Entrepreneurial
 Outward-customer focus
 Open book
 Open door
 Focus on entire workforce-learn from each other
 “What’s in it for our customer?”
 “How can we help?”
 “Steal ideas shamelessly”
 Community of celebration
 Communities of practice

scape forever, and many times these are intentional undertakings. All that is done in an organization will be viewed by associates as a statement and as a shaper of the culture. Knowledge strategy is not alone in this discussion, but it has made plain the important truth—you need to have a culture that is environmentally consistent with your aims.

It is important to note that top management support *alone* does not sustain a knowledge-sharing culture. According to Koskiniemi, “contributing to the solution of customer challenges through our knowledge-sharing tools is part of everyone’s responsibilities. It is now part of everyone’s reviews and makes up part of the ‘universal’ expectations we have for all our associates.”

Watch Your Language

Language has a special role in transforming organizations. Changing the language used in an organization can change the way work gets done. There is much confusion regarding the concepts, terminology, application, and outcomes of KM and OL efforts. Despite the books, articles, surveys, and Web sites, the terminology and concepts remain poorly defined. Some companies consciously change the words they use and ways of communicating them in order to spread knowledge-sharing ideals. Others have carefully avoided terms such as “community of practice” or even “knowledge” because they feel their culture is not ready to accept those terms.

Executive Input

Executives can strengthen the knowledge-sharing and learning culture by helping to:

- contribute to a working definition of KM and OL;
- work with HR and IT to see that people have the tools to create and share;
- link KM and OL efforts to existing performance or change initiatives;
- gear training, performance management, and other HR tools to KM;
- change hiring and career development to reinforce a knowledge-sharing culture;
- focus on processes that will enable cross-boundary learning and sharing;
- support, fund, and give time to learning networks;
- be a role model for good knowledge-sharing behaviors, including receiving new ideas and bad news; and
- ensure that people are held accountable and receive recognition.

Heather MacPherson, Manager, Workplace Learning, The Royal Bank of Canada, notes:

If you talk about sharing best practices, learning from mistakes, using what others have learned, and business results, nobody questions the value of KM. However, if you talk about KM as something separate and distinct from “business priorities,” many will question it. People are too busy to get excited about one more program or “great idea.” For this reason, Royal Bank does not use the term “KM” internally, except within a community of practice of champions. If you ask a frontline leader at Royal Bank what we are doing in terms of KM, he or she probably will not know what you are talking about. However, if you ask that same person about how we leverage what we know about customers to enhance relationships across the organization and to improve sales, you will see clearly how each employee feels a responsibility to share knowledge in the course of doing his or her job. Clearly articulating objectives in the language of the business priorities helps leaders to integrate and embed KM, rather than isolate it, and helps employees to do it, rather than just talk about it.

Given the context of the transformation occurring in most large companies, the use of new language is not merely cosmetic. Roles, responsibilities, and relationships are changing. The redefinition of KM roles has been accompanied by a change in language. Networked reporting structures, governance models, and infrastructures are developing to make the organization more adaptive, and those changes need to be articulated and understood.

Lessons Learned

- Identify and articulate the business opportunities and then apply a KM perspective.
- Ensure that major initiatives incorporate the appropriate KM tools.
- Do not isolate KM as a corporate initiative or separate function.
- Use language that can help transform your company culture.

Measuring the Impact on Business Results

A key question for many firms is how to measure the impact of KM on business results. Proper measurement requires that knowledge managers have the ability to communicate and demonstrate financial results, and that business managers believe in and understand the importance of what is being accomplished in KM. Customer satisfaction or customer value is the primary measure most often cited by senior executives (Chart 11).

One milestone in integrating KM into the business is that the finance function is beginning to assume thought leadership for knowledge asset valuation and integration of these assets into financial management of the business. Another milestone is that business process managers are thinking in terms of learning loops, expert networks, and KM applications such as business intelligence, collaboration, technology-enabled learning, and process knowledge maps.

In addition, many HR functions are changing how they think about human capital and measures of value, enabling line managers and employees to increase collaboration, and turning the HR function itself into a knowledge-based organization.

Chart 11
**Traditional Measurements
 Still Determine KM
 Effectiveness**

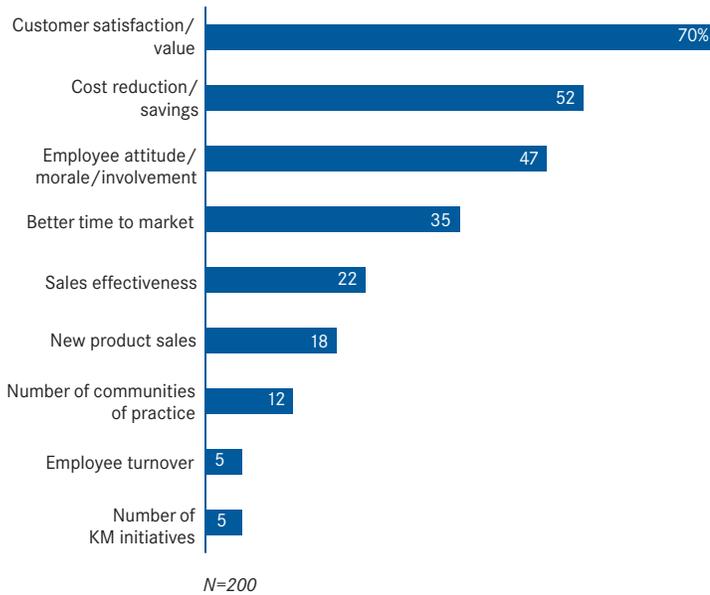
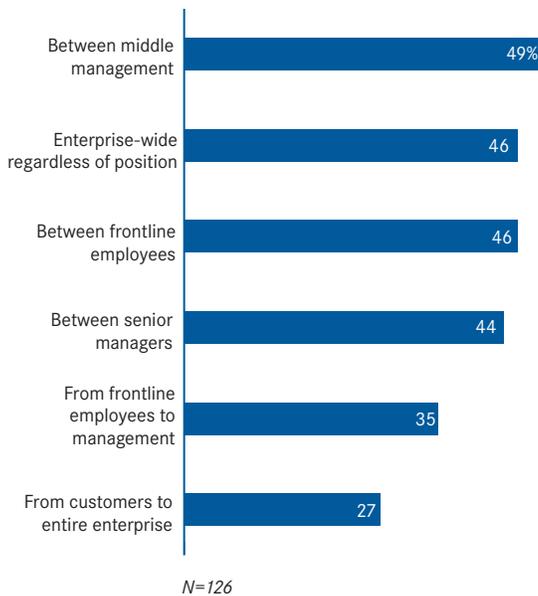


Chart 12
**Sharing Measurement
 Responsibility**



Yet, despite many attempts, measuring KM’s return on investment is still difficult. As with training and other forms of investment in human capital, too many variables can prevent the development of a formula that leads to a proof. Most firms are relying on the evidence such as cost savings, speed to market, and customer satisfaction.⁹

Recording the number of hits on knowledge databases or activity on a corporate intranet can be a useful proxy, but very few firms focus on that type of micro-measure. Although formal KM measurements and metrics appear relatively unimportant to most executives, they do agree on a standard measure of success for KM efforts—improved productivity at the individual and the organizational level. They consider the need for continuous, on-the-job learning to be essential within a knowledge-based business environment. For example, BP’s Pacesetter program links refineries across six continents to generate and share knowledge for performance improvement. Rick Porter, business unit leader, says: “Over the past four years, the refinery has sustained improvements of around \$100 million. Over the next couple of years, we hope to generate another \$70 million. Is it because of Pacesetter, per se? We don’t care. We’re in close enough touch with the organization that precise measurements about the Pacesetter program would be a hindrance.”¹⁰

Lessons Learned

The evangelists should not also be the evaluators. Whether a firm measures the investment in KM or OL or whatever the measures used, the CKO should not be the one to set the measures (Chart 12).

⁹ See Hackett, *The Value of Training in The Era of Intellectual Capital*, The Conference Board, Report 1199-97-RR, 1997.

¹⁰ Humberto Vainieri, Robert Hanig, Rick Porter, Alan Thomas, and Paul Monus, “Diffusing Knowledge and Learning: Lessons from BP’s Pacesetter Network,” *Prism*, Second Quarter, 1999, p. 28.

Why a Working Definition of Knowledge and KM Is Essential...

Based on work with several large companies, Liam Fahey and Larry Prusak offer an analysis of why it is difficult to develop a working definition of knowledge.

Many managers seem determinedly reluctant to distinguish between data and information on the one hand and knowledge on the other; and, more importantly, they seem reluctant to consider the implications of these distinctions. It should not be surprising that people avoid grappling with a definition of knowledge. There is little in the education, training, or organizational experience of managers that prepares them for deep-seated reflection, and this situation is exacerbated by recent popular management literature that directly advocates not making distinctions between these concepts. The argument is that contemplation of such distinctions distracts managers from the necessary task of managing. However, reflection upon concepts and the distinctions among them is the essence of “knowing” or learning. Also, avoiding or not having a working understanding of knowledge leads to a dysfunctional environment for knowledge work.

Many executives said they were extremely reluctant to even use the word knowledge and that they felt the anti-knowledge culture of their organization compelled them to do knowledge work stealthily. They said, “We had to disguise our knowledge project within a data-warehousing architecture.” In fairness, firms have been assaulted, at least since the 1960s, with multitudes of theories that have often proved to be of questionable value, which has made many executives skeptical, if not downright hostile, to new ideas and programs. While trying to show the results of knowledge efforts, far too many organizations have neglected to share what the knowledge initiative is all about. Managers need to take the following steps:

- Develop a shared understanding at local levels. Because knowledge tends to be a local phenomenon, it is impossible to develop quickly at the enterprise level.
- Allow people frequent opportunities to discuss and debate what knowledge is. Help people identify their current and desired knowledge roles.
- Ask people to identify knowledge implications for group behaviors and processes.

Managers also need to be aware of the 11 deadliest sins of KM:

1. Not developing a working definition of knowledge.
2. Emphasizing knowledge stock over knowledge flow.
3. Believing knowledge exists outside individuals.
4. Failure to create a shared context of KM.
5. Not emphasizing tacit knowledge.
6. Separating knowledge from its uses.
7. Downplaying thinking and reasoning.
8. Not focusing on the future.
9. Failing to experiment.
10. Substituting technology for human contact.
11. Seeking to measure knowledge.

Source: Liam Fahey and Larry Prusak, “The Eleven Deadliest Sins of Knowledge Management,” *California Management Review*, Volume 40, Number 3 (Spring 1998), pp. 265–276.

... And Why It Can Be Extremely Limiting

Definitions have a tendency to become permanent representations of the thing being defined and leave no room for interpretation, adaptation, or evolution over time.

Instead, distinctions of “knowledge management” may be more useful. Distinctions allow the inclusion of what something is *not* in addition to what it is—to set boundaries around the thing being described.

The knowledge the organization should care about is the knowledge that people need to do their work, not all the knowledge they possess. Most knowledge remains in people’s heads and never gets formalized, documented, and shared. There is much knowledge they carry that organizations rarely try to find out about or leverage for the purpose of the enterprise. For example:

- languages, cultures, and customs;
- outside interests;
- outside contacts from whom the firm could potentially benefit (e.g., professional affiliations; adult education, workshops, conferences and other non-work-related learning; knowledge acquired in previous jobs); and
- the multitude of ideas and suggestions that everybody thinks about, but rarely get heard or acted upon.

An organization should avoid rehashing and repeating the same old messages about what is wrong with it. Instead, it should focus on what works and what can realistically be done and seek to leverage its existing strengths and intellectual assets.

Source: Arian Ward, Work Frontiers

The Future of Learning and Knowledge Management

Although specific approaches to KM and OL vary from firm to firm, there are many key themes and common concerns. KM and OL:

- require a major shift in organizational culture and a commitment at all levels;
- build off of a series of other disciplines: organizational design and change management, process engineering, library sciences, and information management;
- have an impact on every business discipline.

Sixty percent of surveyed companies expect to make their KM and OL initiatives enterprise-wide in the next five years. Yet, KM is a rapidly changing discipline in itself, and even as the current initiatives are spreading, new opportunities are opening up. Two of the most important are customer knowledge and integration with e-commerce—the intercompany spread of knowledge.

Customer Knowledge

Companies are changing their focus from working for customers to working with customers. Historically, most large companies focused on what is possible—what R&D and manufacturing can come up with. Innovative companies also focus on what is needed—what it is that the customer often cannot express explicitly. Gaining that kind of customer knowledge is a growing KM discipline, but to date, very few KM efforts are being used to access and spread customer knowledge or using KM to learn from customer feedback. However, KM can play a very important role in converting customer knowledge to innovative products and services.

After Knowledge Sharing: Deeper Learning

Knowledge management is not the end of our learning journey, but in some sense is just the beginning. The sharing of existing best practice will raise productivity to a uniform high level, but only measured by today's standards. The real competitive threats often come from breakthrough innovation that is only dimly perceived on the radar screen of today's competitors, or indeed from new entrants who are today not classified as being in your industry at all.

Viewed from this perspective, current efficiency gains are dangerous if they lock you into proven technology and traditional competitive models. Building knowledge repositories, optimizing intellectual assets, and networking human assets are not the chosen instruments to “un-learn” old knowledge, leapfrog old technology, or transform your company into a new competitive posture.

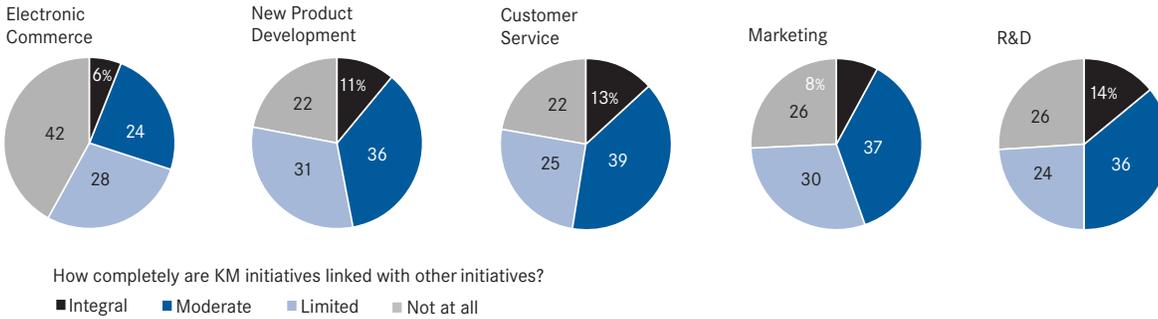
We are all prisoners of our own mental models, habits of mind, and ways of seeing the world. Most KM systems are, in fact, conservative in their impact. They reinforce the status quo as they codify, certify, replicate, and embed your existing way of thinking and working. They help you exchange relatively stable and known solutions, in a world of equilibrium, with people you already know. The future may demand discontinuous solutions, in constant change, built-in cooperation with partners you do not yet know or trust.

As your company anticipates the changes of tomorrow you will need to master KM and continue on to deeper learning. You may need advanced disciplines of organizational learning on top of conventional KM. The tools of systems thinking were developed to deal with modern problems of high complexity that surround us today, will dominate tomorrow, and will propel us to next-generation knowledge and learning.

Source: Dan Moorhead, BT

Chart 13

Customer-Focused Functions Remain Disconnected From KM and OL



E-commerce, new product development, customer service, R&D, and marketing are rarely integrated with KM efforts (Chart 13). In certain Japanese companies and in notable examples such as First Union, IBM, NCR, and Procter & Gamble, large-scale customer knowledge efforts are just gaining ground.

IBM, for instance, uses virtual teaming by client teams. The company systematically moves client teams into an electronic space to share and work in a “customer room”—a shared electronic space for structuring relationships and working together collaboratively. In this virtual place, account teams manage daily customer needs, working on issues, making decisions, and developing proposals and staff project plans. One of the critical success factors is not the tool, however, but the teaming service provided for 90 days to the account team to learn teaming skills and transform behavior.

E-Commerce and Web-Enabled KM

Intranets and the Internet are the most important technological KM tools. It is no coincidence that the rise of KM parallels the rise of the Web—they complement each other perfectly. As Arian Ward summarizes:

The key to the success of KM is to make both the individual and the organization win. Web technology provides the means to democratize the workplace and the marketplace. It has the potential to provide visibility for an individual and the artifacts of their work and their knowledge, as well as the accessibility to the knowledge they need to do their jobs—without having to go through traditional hierarchies.

Fred Shoepps adds that, at IBM, e-business is about moving business onto the Web:

One of the real advantages of our KM architecture is that the Web is becoming our place of business. It is the place for people to connect, communicate, relate, share, work, and learn. The Web’s power is as an interactive medium. Our Notes/Web platform allows us to make knowing what we know visible. It is connecting people in new and exciting ways.

Initiatives at leading companies focus on developing people and methods to enhance learning and improve communication, both locally and globally. The right technological infrastructure provides the tools necessary for ensuring the success of KM efforts, but it is the knowledge moving between employees and customers that counts.

The tools and techniques that fall under the terms “knowledge management” or “organizational learning” are becoming key enablers of e-commerce. KM and OL as separate fields and disciplines may lose visibility and be subsumed into the e-commerce field, where the goals seem clearer and the issues less philosophical. The increase in speed will lead to enormous pressures on the remaining physical steps, especially on the linkage of work processes to technology.

This change will increasingly transcend barriers between companies and look at customers, suppliers, and other business partners as part of the shared

learning and knowledge communities of the enterprise. As such, KM should become an integral part of business relationships.

KM offers a set of tools and the opportunity to support the reworking of processes, yet the greatest benefits promised by KM come as innovation and creativity. Theoretically, KM is a great accelerator of innovation and creativity, but in practice, most KM projects are still conservative and focused on efficiencies. The integration of OL and KM is needed to break the old rules, “un-learn” outdated business models, and achieve breakthroughs.

The tools and the experience base are at hand. Perhaps what is needed now is better management of KM itself and applying the lessons learned to move to the next level, using the resources of the enterprise and KM tools and techniques to create new capabilities and deliver business value that has not yet been defined.

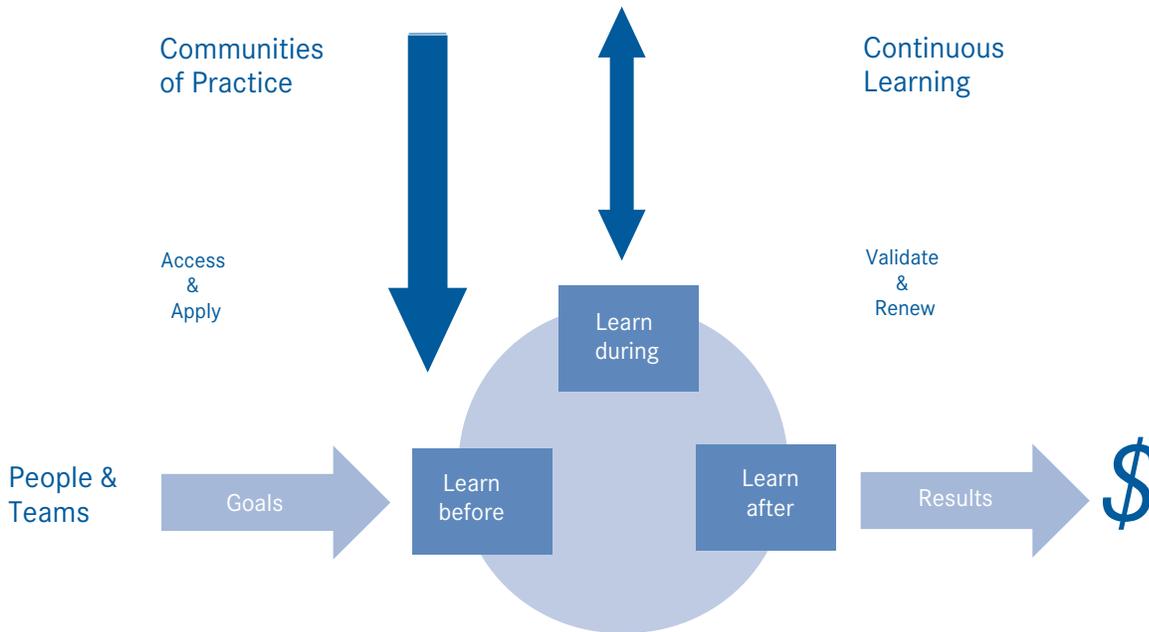
Company Experiences

BP Amoco

As a result of restructuring in 1994, BP became a company of smaller, more autonomous units in place of the previous centralized regional teams. Starting with CEO support, the message was clear that these autonomous units could be more efficient through the sharing of knowledge and lessons learned. Virtual teams were linked together by a tool kit of high-technology enablers, including desktop video-conferencing, e-mail, and knowledge-sharing software. The first phase of BP's KM strategy, from 1995 to 1997, concentrated on learning from pilot projects. Leveraging knowledge in the development of the Schiehallion Oil Field, for example, saved \$50 million in drilling costs.

A critical success factor was the adoption of a coaching, rather than traditional team training approach. In 1997, the goal was to establish a critical mass of users of the virtual team tool kit within BP. Each business unit worldwide was made aware of the importance of knowledge as a strategic asset and where KM was already being successfully applied within the organization. KM principles were also built into the orientation and leader development programs.

BP's Knowledge Framework: People Talking to Other People



This first phase, summarized as BP's "Awareness, Capture and Connectivity," helped BP understand the dynamics of sharing best practice-knowledge using advanced technology. Benefits included:

- reduction in the time and costs to solve problems;
- higher level of communication and knowledge sharing among BP staff; and
- improved level of employee commitment.

BP Amoco has embarked on the second phase of its KM journey. During 1998–99, the goals were:

- ensuring that knowledge sharing is a senior management priority;
- ensuring that there is a strategic focus (each business unit will appoint a knowledge manager to identify current and future knowledge needs); and
- increasing the emphasis on the capture of knowledge and connecting BP staff (e.g., through electronic management conferences and corporate yellow pages).

And in the longer term (2000 and beyond), the company has set a goal stated in terms of BP knowing what it knows, learning what it needs to learn and applying knowledge for overwhelming sustainable advantage.

Shell Oil Company

Royal/Dutch Shell is well known for its use of planning scenarios. The purpose of scenario planning is not to predict the future, but to understand the forces at work. That understanding can then be used in a protective sense to understand and anticipate risk. Alternatively, they can be used in an entrepreneurial sense to discover strategic options of which a company is unaware.

The current set of Shell scenarios describes the driving forces of TINA (There Is No Alternative)— globalization, liberalization (both political and economic), technology acceleration, and rising societal expectations. The range of scenarios projects very different futures, but significantly, in both the protective and the entrepreneurial sense, knowledge sharing and learning are among the most important things a company does.

In 1994, Shell Oil Company created the Shell Learning Center to focus on this area of key leverage. A transformation agenda initially focused on the top 200 Shell leaders, but today, that agenda extends to all employees. The two value propositions of the learning center were to leverage the cutting-edge tools of learning to improve business performance and to provide a platform for the leader development of high-potential employees. The cutting-edge learning distinguishes the Learning Center

from a training activity. Technical and tactical training is conducted throughout Shell but is mostly done in the operating units, not in the Learning Center. The transformation agenda included implementation of the business model, leadership, engagement, and alignment of all those elements. Specific centers of excellence included programs in systems thinking, mental models, productive business conversations, strategy, and dialogue skills. A consolidation of the Learning Center activities globally provide an engine to create the global Royal/Dutch Shell culture began in 1999. The Learning Center also championed several KM processes. It licensed a best-practice sharing methodology from Ford Motor Company and deployed it in two pilot communities of practice. Those pilots realized savings or cost avoidance of more than \$5 million in four months. Based on this success, approximately 10 more communities will launch in 1999–2000. Shell also developed tool kits in important knowledge-sharing activities. First, it adopted the After Action Review, an elegant knowledge-capture tool, from the U.S. Army. Second, it developed tool kits to assist businesses in developing how to work in virtual teams, and third developed a tool kit for communities of practice. These processes are core competencies to move beyond being a multinational company to being a truly global company.

Sonera Corporation

Sonera Corporation is Finland's leading telecommunications company with subsidiaries and associated companies in 14 countries. Internationally, Sonera is a forerunner in the rapidly growing business areas of mobile, data and media communications. In 1998, Sonera's net sales amounted to FIM 9.6 billion, and the operating profit was FIM 1.7 billion. With 9,000 people, about half of the business is generated through mobile communications and about a third comes from the traditional telecommunication business.

Sonera has a long tradition as a national telecommunication monopoly in domestic and international long distance. After the deregulation of the telecommunication industry in Europe, Sonera had to face new competition, but it has been able to cope with this change better than some other telecom monopolies in Europe. One reason has been the strong commitment to the rapidly growing mobile communications market in which it has been forced to learn together with other key players, such as Nokia. This has encouraged Sonera to invest in knowledge and competence. The strong engineering culture has emphasized development of new services. And the relatively small size of the company emphasizes fast reaction to rapid market and technology changes. One of the key strategic capabilities systematically developed is the ability to recognize and benefit from discontinuities in the market and in the industry.

Sonera cannot grow only in Finland. It has built its global strategy based on knowledge and executed it largely through partnerships. Generative growth can be gained through using the existing knowledge more effectively than it has been done in the past. Sonera thinks that it cannot only sell its expertise, but believes that it can learn faster than partners and provide them with a sustainable knowledge advantage.

Knowledge Management Usage

Sonera has always managed knowledge in some way, even though "knowledge management" has not been an issue on its own and the processes now related to KM were called something else. In 1998, Sonera decided to systematize the knowledge-creation processes and to develop tools to manage both articulated and tacit knowledge. Since recruiting a knowledge management director, KM has been on the top management agenda. Sonera has launched a company-wide KM framework, which provides common tools for all divisions to manage knowledge in their specific environment.

Two particularly strong examples of Sonera's systematic usage of knowledge are the continuous forecasting process of the mobile communications market and the team learning process of the Sonera Business School.

Continuous forecasting integrates external and internal providers of information, analysis, and experts' contributions. The process is then given the Sonera perspective by the management team of mobile communications. This continuously running process has become very accurate, with a great impact on decision-making, and has proven to be very profitable. Sonera has thus been able to focus its investments, technical development, marketing activities and customer services.

The Sonera Business School, an in-house management training program, links the learning of students to the key issues in Sonera business strategy. The students prepare a project related to one of the key strategic issues defined by management during the company strategy process. The students work in virtual teams of six and receive tutoring from an academic expert as well as from company experts. Their work is then assessed by the management team.

Knowledge Management Strategy

Sonera's KM strategy is based on the theory of complex and self-renewing systems. However, the approach has been developed through organization-wide dialogue. The topic for the dialogue has been, "What is KM for Sonera?" In a successful company, different operational environments defined by the order/structure of organization and the amount of information exist simultaneously. Knowledge management exists in all these modes and knowledge must be managed differently in these different environments.

In the *mechanistic* world, the focus is on technology. There is relatively little information, which is articulated and easy to manage. Functions such as accounting, controlling, and shipping represent the mechanistic world. The information flow is linear, normally from the top down. The role of KM is to unify and categorize the information. Sonera is using its intranet and information technology to manage knowledge in this world.

In the *organic* world, the focus is on people. Most business functions represent this world. The flow of information is interactive. Everyone is encouraged to contribute to the dialogue, which KM enhances and supports. Tools include small group discussions and common understanding. Sonera's strategy to develop KM in the organic world is through a KM network of people representing different functions and parts of the organization. Sonera's strategy also includes organized dialogue groups of five people on a specific topic. The group spontaneously discusses what the theme/topic means to Sonera and to their own work. The group then uses the intranet to report the key conclusions to the next group of five, which reports their conclusions to the next, and so on. Thus, common understanding is generated through multi-layered and multi-phased dialogue.

In the dynamic world, the focus is on spontaneity and fast reactive and continuously living systems. There is an overflow of information, which causes chaos. This is the world where new innovations are taking place, typically represented by R&D. It is necessary to learn to manage chaos and benefit from the overload of information in order to generate new knowledge. At Sonera, the role of KM is to enhance and support diversity. Sonera is trying to expedite the process from innovation to new products, collaborating with universities to encourage diversity in the research. Sonera is also trying to find tools to benefit from chaos and create innovations in the chaotic world and to transfer them through the organic world into products of the mechanistic world.

KM is being integrated into Sonera's decision-making and management processes. The company is developing a tool to measure KM effectiveness in different functions. The mechanistic, organic, and dynamic effectiveness is compared with the objectives of each function or business unit. For example, in the accounting function, the objectives focus on quality and speed, which highlights the mechanistic effectiveness.

As a result of its KM activities, Sonera will be able to measure the knowledge capital, which includes competencies, intellectual assets, and capacity to innovate. The key is the fast distribution of ideas and interpretation and continuous re-interpretation of those ideas. The core of the KM strategy is company-wide. However, every division can implement it according to their own needs. The tools are centrally developed and the divisions can implement them as they see fit.

PricewaterhouseCoopers

Because its products and services are almost exclusively based on knowledge, PricewaterhouseCoopers (PwC) recognizes that knowledge is fundamental to its business strategy and brand. In essence, PwC's viability and profitability are entirely tied to the competitive quality of its knowledge, and how well the firm identifies, shares, and uses it to deliver value to PwC's clients.

PwC's explicit knowledge-sharing strategy focuses on:

- working with human capital organizations to embed knowledge competencies in the practice;
- working with learning and education units in the firm to continue to foster a learning organization;
- providing the right technology and easy access to knowledge for all employees;
- enabling employees to serve clients more effectively and efficiently;
- focusing on the right content (both explicit and tacit);
- capturing the right information that employees can use;
- providing communications that reinforce the importance of KM to the firm;
- producing the right behaviors to propel the KM effort;
- enhancing activities around knowledge transfer and knowledge sharing; and
- making knowledge sharing part of the firm's day-to-day processes.

Since the merger of Price Waterhouse and Coopers & Lybrand over a year ago, the greatest KM challenge has been to figure out what PwC people know and who knows it. Two disparate groups of people from two corporate cultures have had to quickly learn about each other and how to use or leverage what they each know. As a result, there has been an immediate and continuing need to share knowledge about clients, skills, experience, expertise, methods, and policies. To that end, PwC has effectively doubled its knowledge base, increased its global coverage, and enhanced its knowledge mix.

To build a knowledge-centric business, PwC is creating communications programs, complementary reward systems, competency policies, and training programs. Moreover, a culture of personal responsibility for knowledge use and contribution and an environment for continuous learning and innovation have been cultivated.

Priority KM projects include building a "Global Content Help Desk," improving the desktop/user interface, and providing better access to specialists and analysts. External reach has focused on brand enhancement, external communications, and building extranets and a global Web site.

To improve organizational effectiveness, the PwC KM strategy has targeted innovation, harmonization of the corporate cultures and infrastructure, building KM professionalism, and enhancing internal communications.

Four key internal tools have integrated PwC's KM efforts:

1. The Bridge, which provides up-to-date information on PwC's post-merger integration activities;
2. KnowledgeCurve, which provides information on recent PwC events, a Global Research Center, PwC 200 Clients, professional profiles, PwC's organization, world directory, and markets;
3. KnowledgeDirect, which provides a unified extranet program that promotes and supports the extranet initiatives of individual business units; and
4. KM Community, which offers a gathering place for sharing KM ideas and knowledge for both internal and external KM practitioners structured within five dimensions: KM Inside PwC, KM Client Facing, Knowledge Members, Knowledge University, and Knowledge Forums.

PwC's approach has also demanded a new structure for KM:

- a Global KM Management Team to coordinate the overall PwC approach to KM and implement specific key enterprise-wide initiatives;
- a Knowledge Management Council composed of the Global KM Core Team, lines of service CKOs, and KM representatives from various KM stakeholders throughout the firm, to coordinate global KM efforts with those of lines of business and industry clusters;
- KM Action Committees, which are responsible for such areas as content architecture, best practices, KM technologies and professionalism, extranet infrastructure, global external content, and people information; and

- KM Communities of Interest, comprising approximately 1,000 PwC professionals, knowledge managers, researchers/analysts, information specialists, and extranet owners.

This new KM program is intended, in part, to both share leading thinking in KM and foster new ideas.

The KM structure integrates five components:

- vision and thought leadership
- culture change
- content
- KM infrastructure
- KM support

Moreover, to cultivate KM as a professional career within PwC, a capabilities framework and a set of KM professional principles have been developed. A KM professional's primary mission is to harvest, share, and build PwC's intellectual capital. This involves a background in, and application of, three major areas of capability and focus—content, computing, and community. The KM professional applies these capabilities to foster and embed the spirit of KM in order to know:

- individually what everyone knows collectively and apply it;
- collectively what everyone knows individually and make it (re)usable; and
- what everyone does not know and learn it.

Global KM forums are also being regularly convened at various sites to enable sharing and coordinating of internal and external KM expertise.

To help influence behavior, PwC plans to measure its employees on how much knowledge they use and contribute to the firm. These measures are being established within each line of service. Additionally, a cross-functional team that includes KM, HR, and learning and education is currently working to include knowledge sharing as part of PwC's performance appraisal process.

PwC currently links bonuses, promotions, and partner admissions to knowledge sharing. For example, partners are formally assessed on their ability to engender a spirit of sharing in their areas of responsibility. Also, elements of KM activity (with an emphasis on creation and sharing) are embedded into every stage of consultants' career grid, from new joiners to partners. PwC also openly recognizes staff engaged in superior knowledge-sharing activities. And, as the awareness of knowledge-sharing effects grows, so grows the staff's understanding that they are more marketable from the results of their knowledge sharing, which, in turn, reinforces its value.

PwC increases knowledge-sharing awareness by:

- making sure contributors' names are on documents in knowledge stores, so that people can see who contributes and who can be considered a thought leader;
- encouraging publicity about people making an extra effort around knowledge sharing and sending thank-you notes from partners and peers to that person's personnel file; and
- awarding "Knowledge Bucks" prizes for contributing good ideas and spot bonuses for exemplary knowledge-sharing efforts.

PwC views its investment in KM much like its investment in IT—for business strategies, without necessarily being able to tie it to the bottom line. The only things PwC actually measures and quantifies are in the area of efficiencies. The company believes that knowledge sharing increases customer satisfaction and revenues while providing the firm with a competitive advantage. To this end, PwC has established targets related to customer satisfaction and increased revenues, but there is not a specific financial goal or target related to KM even though the firm knows that KM has an impact on these targets. So far, formal measurements have been localized and ad hoc.

Despite the absence of formal measurements, PwC has been able to recognize both tangible and intangible benefits. Tangible benefits include, but are not limited to:

- improved efficiencies and quality (staff survey responses indicated that because of knowledge-sharing capabilities, they were either quicker to market with products or able to gain time that was spent on increasing product depth and breadth);
- heightened innovation, a greater focus on client issues, winning increasing amounts of work, providing better-quality service, and being able to bring to bear all the intellectual assets of the global organization; and
- visible financial savings stemming from the online research library, available through the intranet, "KnowledgeCurve," which enabled staff to consolidate hardcopy research centers and save in infrastructure and research procurement costs.

Intangible benefits include, but are not limited to:

- increased client satisfaction over the past few years, based on surveys of quality of service and value; and
- greater staff satisfaction rising from being recognized as thought leaders and from greater empowerment.

Other informal measures indicate a linkage between knowledge sharing and business value. In one instance, PwC was providing auditing work to a global client. PwC became aware that the client was dissatisfied with an electronic commerce project that was being conducted by another consulting company. Asked to develop a proposal in one week, this auditing team had to quickly locate PwC's expertise in another area, find expertise pertinent to the client's industry, and develop a responsive proposal. Using PwC's vast network of internal databases, KnowledgeCurve, and other sources, the team located a partner who specialized in e-commerce, another partner with the appropriate industry expertise, database experts, and a change management expert. In less than a week, PwC effectively maximized its internal talent and produced a winning proposal.

Some geographic locations do not have the level of access to the more high-tech and global mechanisms as do others, but they nevertheless engage in knowledge sharing at a local level with local resources. PwC expects its percentage rate of regular participation to increase as its penetration of global knowledge-sharing mechanisms increases. Indeed, it has found that remote staff, who have been starved for quality information and knowledge, are usually their biggest users once they have access to the right resources.

Hard measurements of results for staff are difficult to establish, but a number of indicators have helped PwC monitor the effectiveness of their culture change:

- Internal questionnaires from the chairman's office in one of the pre-merger firms demonstrated a consistent and steady increase in consultants experiencing an improved knowledge-sharing culture. In the 1998 survey, 78 percent of respondents thought colleagues freely share their expertise.

- Usage and voluntary contributions to KM programs have increased steadily over the past four years.
- Business/practice units and service lines have been increasingly prepared to sponsor positions in Knowledge Centers. The percentage of positions in some centers funded by business/practice units and service lines has skyrocketed from less than 5 percent three years ago to almost 50 percent in 1999.

U.S. Postal Service

Postal Service officials who are asked who "owns" knowledge management in their organization might provide a variety of answers and even some questions about the meaning of the term. But if asked what measures the organization has taken to ensure that its workforce is trained, informed, and ready to meet the challenges that a commitment to excellence requires, they would offer plenty of answers that give evidence of the spirit of KM.

In 1998, Postmaster General William Henderson formalized a structure to enable KM. By appointing his vice president for quality to become chief technology officer (CTO) and senior vice president, Henderson combined the resources of quality, information systems, and engineering into one. Henderson said this appointment symbolized a commitment to creating an information platform that will make technology work for postal management and customers.

Since establishing the CTO, evidence of KM principles has started to appear in numerous ways. Prior to this structural change, the Postal Service had built a postal intranet that could be fairly characterized as not much more than an electronic organization chart. Since then, a totally new format has emerged, with two main components:

- **Postal Exchange.** This site is committed exclusively to personal knowledge sharing and information transmission among members who register for the site. Registration enables site tracking and the management and cataloguing of the information shared.
- **The Rapid Information Bulletin Board Site (RIBBS).** RIBBS provides links to numerous information sources, publications, rate charts, zip code directories, etc., all designed to enable employees to find the latest information in the fastest possible time. The latest copies of every standard postal publication and handbook are available at just the click of a mouse.

To support quality processes and the sharing of best practices, the intranet boasts at least two sites devoted to best practices:

- **The QI Story site** is dedicated to sharing best practices coming largely out of operations designed to move the mail. This site currently boasts more than 11,000 visitors since it opened in early 1999 and has best-practice submissions from all 10 postal areas.
- **Human resources** manages a site devoted to information sharing and best-practice submissions in the area of personnel administration. This has proved to be a valuable site for field district HR managers and specialists.

These and other pending technological advances, combined with four existing alignment efforts, define a cross-functional approach. For several years, the Postal Service has aligned corporate objectives and initiatives through a process called Customer Perfect! This requires management to align objectives and outcomes, identify stakeholders, and create clear statements of mission and vision for both employees and customers. Major postal programs and initiatives are required to identify stakeholders and measurable outcomes for improvement. In the training area, the emerging use of competency models around which leadership and management training are structured were put in place to better define expectations and to improve employee KSAs. The premier leadership development program, the Advanced Leadership Program, has learning organization concepts and principles running throughout the four weeks of advanced instruction for high-potential managers.

Other recent efforts initiated specifically to enhance knowledge and understanding between managers and employees include a program by the finance organization that helps align spending with strategic business plans, and a program by labor relations to educate supervisors and managers on the language and meaning of major labor contracts, an area that has long been neglected. These efforts paint an encouraging picture for KM concepts and principles in the U.S. Postal Service. A great deal has been accomplished so far, with not much more than an intuitive notion of the importance of KM. As progress continues on the technology side, and with KM direction and leadership from human resources, the Postal Service is looking forward to even greater accomplishments in the coming years.

Weyerhaeuser

Weyerhaeuser began exploring KM by conducting an external scan study in 1994 to understand and identify the impact of the electronic and IT revolution over the next 10 years. The objectives were to evaluate threats to current businesses and overall company competitiveness.

As a result, Weyerhaeuser identified the Internet as the key infrastructure for communications in the future and knowledge as a key asset for future competitiveness. It concluded that:

- rapid development of computer and communications technologies will impact its markets, changing from a demand stimulus mode for Weyerhaeuser products (printing and writing papers, pulp, newsprint, etc.) to a mixed mode—some product segments may continue to be stimulated for increased demand and others will face substitution threats;
- the increasing emphasis on knowledge—especially knowledge in products—will cause changes in organizations, culture, and work systems; and
- the IT revolution will continue to accelerate due to the impact of Moore’s Law for microprocessors and Metcalf’s Law for networks.

In 1997, Weyerhaeuser convened a cross-functional team to evaluate the opportunities for KM and determine the best approach to getting started. The team:

- took the pulse of the organization on KM—interest, awareness, etc.;
- surveyed internal projects that could be classified as having a KM component; and
- hosted a satellite broadcast session entitled “Knowledge Management” that was sponsored by PBS and other organizations. They invited key managers, including members of the senior man-

agement team, and followed the session with breakout discussions on KM value and fit at Weyerhaeuser.

The team concluded that there were significant opportunities for KM, but there was no consensus on the need for a corporate initiative. Thus, the team made several recommendations:

- Develop a system for KM within Weyerhaeuser that uses a grassroots approach.
- Assemble a team to develop an implementation plan for testing KM in the Weyerhaeuser environment.
- Gain sponsorship from senior management team members.

The team’s objectives were to:

- develop and provide best-practices education on knowledge management;
- provide guidance on tools and methods, including software and consultants;
- collaboratively develop a set of guiding principles for how to manage knowledge in the Weyerhaeuser environment;
- encourage and facilitate practice groups around KM applications; and
- develop a learning community that would share experiences; exchange information on tools, methods, and practices; and contribute information gained from outside sources such as seminars, publications, and benchmarking efforts.

The team expects the learning community to become a spawning ground for promoting and stimulating KM projects at a grassroots level. After developing preliminary processes and tools, the KM task team will select a current company project to demo the application of KM.

Appendix

Recommended Reading and Web Sites

Bukowitz, Wendi R. and Ruth L. Williams,

The Knowledge Management Fieldbook

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The New Wealth of Organizations

(New York: Bantam, 1998).

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The New Organizational Wealth:

Managing and Measuring Knowledge-Based Assets

(San Francisco: Berrett-Koehler, 1997).

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(Cambridge: Cambridge University Press, 1999).

www.brint.com

www.co-i-l.com/coil/knowledge-garden

www.conference-board.org

www.kmfieldbook.com

www.irl.org

www.kmresource.com

www.knowledge-nurture.com

www.sol.com

www.sveiby.com

Related Conference Board Publications

Managing Knowledge in the New Economy,

Report 1222-98-CH, 1998

The Value of Training in the Era of Intellectual Capital,

Report 1199-97-RR, 1997

Transforming the HR Function for Global Business

Success, Report 1209-98-RR, 1998

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845 Third Avenue
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