UNIT – I

LIFE IN ORGANIZATIONS

People have always been central to organizations, but their strategic importance is growing in today's knowledge-based organizations. An organization's success increasingly depends on the knowledge, skills, and abilities of employees, particularly as they help establish a set of core competencies that distinguish an organization from its competitors. When employees' talents are valuable, rare, difficult to imitate and organized, an organization can achieve a sustained competitive advantage through people. Advanced technology has given rise to reduced number of jobs that require little skill and has increased the number of jobs that require considerable skill, thus a shift is taking place from touch labour to knowledge work. This displaces some employees and requires that others be retrained. In addition, information technology has influenced HRM through human resources information systems (HRIS) that streamline the processing of data and make employee information more readily available to managers.

Both proactive and reactive change initiatives require HR managers to work with line managers and executives to create a vision for the future, establish an architecture that enables change, and communicate with employees about the processes of change. In order to contain costs, organizations have been downsizing, outsourcing and leasing employees, and enhancing productivity. HR's role is to maintain the relationship between a company and its employees, while implementing the changes. The workforce is becoming increasingly diverse and organizations are doing more to address employee concerns and to maximize the benefit of different kinds of employees. Demographic changes, social and cultural differences, and changing attitudes towards work can provide a rich source of variety for organizations. But to benefit from diversity,

managers need to recognize the potential concerns of employees and make certain that the exchange between the organization and employees is mutually beneficial. Through strategic planning, organizations set major objectives, and develop comprehensive plans to achieve those objectives. Once the strategy is set, executives must make primary resource allocation decisions, including those pertaining to structure, processes, and human resources.

Companies such as Domino's Pizza, Sony, Southwest Airlines, and Wal-Mart revolutionized their industries by developing skills – core competencies – that others didn't have. These competencies helped them gain advantage over their competitors and leverage this advantage by learning faster than others in their industries. Underlying a firm's core competencies is a portfolio of employee skills and human capital. In any given organization, different skill groups can be classified according to the degree to which they create strategic value and are unique to the organization. *Core knowledge workers*. This group of employees has firm-specific skills that are directly linked to the company's strategy e.g., R&D scientists in a pharmaceutical company, computer scientists in a software development company. These employees are typically engaged in knowledge work that involves considerable autonomy and discretion. Companies tend to make long-term commitments to these employees, investing in their continuous training and development and perhaps giving them an equity stake in the organization.

Traditional job-based employees. This group of employees has skills that are quite valuable to a company, but not unique e.g., sales people in a department store, truck drivers for a courier service. These employees are employed to perform a predefined job. As it is quite possible that they could leave to go to another firm, managers frequently make less investment in training and development and tend to focus more on paying for short-term performance achievements. *Contract Labour.* This group of employees has skills that are of

less strategic value and generally available to all firms e.g., clerical workers, maintenance workers, staff workers in accounting and human resources. Individuals in these jobs are increasingly hired from external agencies on a contract basis, and the scope of their duties tends to be limited. Employment relationships tend to be transactional, focused on rules and procedures, with very little investment in development.

Alliance/partners. This group of individuals has skills that are unique, but not directly related to a company's core strategy e.g., attorneys, consultants, and research lab scientists. Although companies perhaps cannot justify their internal employment, given their tangible link to strategy, these individuals have skills that are specialized and not readily available to all firms. As a consequence, companies tend to establish longer-term alliances and partnerships with them and nurture an ongoing relationship focused on mutual learning. Considerable investment is made in the exchange of information and knowledge.

An increasingly vital element of strategic planning for organizations that compete on competencies is determining if people are available, internally or externally, to execute an organization strategy. Managers have to make tough decisions about whom to employees internally, whom to contract externally, and how to manage different types of employees with different skills who contribute in different ways to the organization. Human resource planning plays an important role in helping managers weigh the costs and benefits of using one approach to employment versus another.

Changes in the external environment have a direct impact on the way organizations are run and people are managed. *Environmental Scanning* is the systematic monitoring of the major external forces influencing the organization. Managers attend to a variety of external issues; however, the following six are monitored most frequently :

- Economic factors, including general and regional conditions.
- Competitive trends, including new processes, services, and innovations.
- Technological changes, including robotics and office automation.
- Political and legislative issues, including laws and administrative rulings.
- Social concerns, including child care and educational priorities.
- Demographic trends, including age, composition, and literacy.

By scanning the environment for changes that are likely to affect an organization, managers can anticipate their impact and make adjustments proactively. In a rapidly changing environment, it is extremely dangerous to be caught off guard. The labour-force trends illustrate the importance of monitoring demographic changes as a part of human resource planning. Such changes can affect the composition and performance of an organization's workforce.

In addition to scanning the external environment, organizations such as Syntex, Lotus Development, and Southwest Airlines are careful to also scan their internal environments. Because these companies view their employee-oriented cultures as critical to success, they conduct cultural audits to examine the attitudes and activities of the workforce. Sears has found that positive employee attitudes on ten essential factors – including workload and treatment by superiors – are directly linked to customer satisfaction and revenue increases. Cultural audits essentially involve discussions among top-level managers of how the organization's culture reveals itself to employees and how it can be influenced or improved. The cultural audit may include such questions as :

- How do employees spend their time?
- How do they interact with each other?
- Are employees empowered?

- What is the predominant leadership style of managers?
- How do employees advance within the organization?

By conducting in-depth interviews and making observations over a period of time, managers are able to learn about the culture of their organization and the attitudes of its employees. Cultural audits can be used to determine whether there are different groups, or subcultures, within the organization that have distinctly different views about the nature of work the quality of managers, and so on. Any knowledge management strategy designed to improve business performance must address three components : the work processes or activities that create and leverage organizational knowledge; a technology infrastructure to support knowledge capture, transfer, and use; and behavioral norms and practices (organizational culture) that are essential to effective knowledge use.

Even though the economic incentives are becoming clearer and technological capabilities now exist to support knowledge-based organizations, pioneers in knowledge management are finding the behaviours supported by their existing organizational cultures to be a major barrier to this transformation. In short, the organizational knowledge and culture are intimately linked, and that improvements in how a firm creates, transfers, and applies knowledge are rarely possible without simultaneously altering the culture to support new behaviours.

CONCEPT AND CHARACTERISTICS OF KBOs

The definition of the knowledge-based organization is centered around three attributes : its principal mission is to acquire, manipulate and deploy information and knowledge; it strives to be a “learning organization” in which its members, both individually and collectively, are continuously enhancing their capacity to produce results and adapt to changing circumstances; and it is guided by a commitment to organizational excellence through such pursuits as bench-marking, best practices and the fostering of collaborative relationships among its

various stakeholders. Knowledge organizations have been characterized as enterprises in which the key asset is knowledge. Their competitive advantage comes from having and effectively using knowledge. Examples include the law office, accounting firm, marketing firm, software company, most of the government agencies, universities, the military, and significant parts of most of the manufacturing companies, whether they make cookies or cars.

A knowledge-based organization has four characteristics which can be summarized in terms of process, place, purpose and perspective. *Process* refers to the activities within an organization, some of which are directly involved with making a product or selling a service and others that are ancillary but no less important. *Place* refers to the boundaries of the organization, which for the purpose of sharing and creating knowledge often go beyond traditional legal boundaries. *Purpose* refers to the mission and strategy of the organization – how it intends to profitably serve its customers. *Perspective* refers to the worldview and culture that influences and constrains the decisions and actions of an organization. Each of these elements forms a basis for evaluating the degree to which knowledge is an integral part of the organization and the way it competes. Executives who understand how the four elements interact will be able to start changing their companies to take advantage of the vast intellectual assets hidden bellow the surface.

Process : Knowledge Sharing and Creation

Most organizations are primarily focused on the concrete and observable activities that make up what they do on a day-to-day basis. A knowledge-based organization attends to two related processes that underlie these direct processes: the effective application of existing knowledge and the creation of new knowledge. The goal is fourfold: to ensure that knowledge from one part of a company is applied to activities in other parts; to ensure that knowledge is

shared over time so that the company benefits from past experience; to make it possible for people from various parts of the organization to find each other and collaborate to create new knowledge; and to provide opportunities and incentives for experimentation and learning.

Consider how a company whose process for making its main product has been essentially unchanged for more than 100 years – Holcim, one of the world's largest suppliers of cement – took on this challenge. The company operates more than 100 cement-manufacturing facilities, 240 quarries and 600 mixed-concrete facilities in over 70 countries. Although it functions in a highly decentralized manner (country managers have the authority to make many decisions on their own), Holcim realized several years ago that the exchange of knowledge and expertise is the glue that holds the company together. It now explicitly regards knowledge as its key resource and learning as its key capability.

In order to make that view operational, an internal group, Holcim Management and Consulting (now Holcim Group Support), was reorganized in 1996 to develop, identify, transfer and apply strategic knowledge among all Holcim's entities worldwide. The group reports directly to the executive committee, a clear indication of its strategic importance. In addition to facilitating interaction among managers worldwide, Holcim Management and Consulting is itself a repository of knowledge, expertise and best practices that it shares and reapplies by consulting to the company's various units. For example, energy costs are the most expensive part of cement production, and Holcim Management and Consulting helped plants improve process efficiency by diffusing knowledge about how to use cheaper and more efficient fuels. A related problem facing Holcim has been the need to reduce carbon dioxide emissions, as part of its strategy to be a responsible corporate citizen promoting worldwide sustainable development.

Holcim Management and Consulting helps Holcim to document and transfer new energy-related technologies and manufacturing methods among the company's plants worldwide. Company engineers and managers have, therefore, invested effort in learning more about alterative fuels. For example, Holcim Switzerland developed the use of waste plastic, used tyres, and dried sewerage sludge as replacement fuels alongwith the technologies to burn them cleanly. In addition, the company has enjoyed product innovation (possible even with cement) as plants experimented with various admixtures to vary and improve the properties of cement for different local market applications. Even though it makes a simple, industrial-age product, Holcim is clearly operating as a knowledge-based organization.

Place : Knowledge Boundaries

Knowledge creation and sharing in today's economy are not bound by the traditional physical and legal limits of the corporation. Companies are increasingly realizing that knowledge is often produced and shared as a by-product of daily interactions with customers, vendors, alliance partners and even competitors. The knowledge-based organization, then, is a collection of people and supporting resources that creates and applies knowledge via continued interaction. Its boundaries are blurred, malleable and dynamic. At some point, the knowledge-based organization stops worrying about who works for whom and focuses instead on who needs to work with whom. For example, the field-service technicians at Buckman Labs, an international specialty chemicals company, spend more time on the premises of their customers than at Buckman offices.

Similarly, when Procter & Gamble was creating a new supply chain management process with Wal-Mart, it sent several of its information management people to work with their counterparts at Wal-Mart's headquarters

so that they could mutually learn how to implement their vision of better sales management via the sharing of information. Holcim built knowledge communities within its global organization that transcended formal boundaries; it also made the necessary investments to learn from customers. The knowledge-based organization recognizes that the dangers of failing to share knowledge across traditional boundaries outweigh any potential benefits that may come from hoarding it.

Purpose: Knowledge Strategy

Even a highly effective set of knowledge management processes does not guarantee that an organization will perform well or better than its competitors. Only a few years ago Polaroid, for example, had generally effective processes in place to capture and share knowledge about products, customers, applications, technologies and the competitive environment. The culture was conducive to sharing and cooperation, and the company had implemented a reasonably good information system for supporting virtual collaboration. All in all, it appeared to be managing knowledge well. The knowledge being created and shared, however, was entirely focused on analog film and cameras. Polaroid knew little about digital imaging and this contributed to its eventual bankruptcy.

Companies that succeed over the long term align their knowledge management processes with their strategy. The knowledge-based organization recognizes that knowledge is a key strategic resource, and asks what do we need to know to formulate and execute our desired strategy? What do we know? And what do our competitors know? The gap between what an organization knows and needs to know focuses attention internally, just as the strengths and weaknesses components of a SWOT analysis does. The gap between what it knows and what its competitors know focuses attention externally on the opportunities and

threats. Companies must seek to close those knowledge gaps, both external and internal, faster and more effectively than their competitors.

Holcim clearly recognized the strategic nature of its knowledge. Given its strategy to provide the best quality and most innovative cement-based products using the most efficient, sustainable and environmentally friendly processes, it engaged the hearts and minds of its entire organization in managing the knowledge and learning to support that strategy.

Perspective: The Knowledge Point of View

The knowledge-based organization, regardless of whether its products are tangible or not, holds a knowledge-oriented image of itself. That is, it takes knowledge into account in every aspect of its operation and treats every activity as a potentially knowledge-enhancing act. It uses knowledge and learning as its primary criteria for evaluating how it organizes, what it makes, where it locates, who it hires, how it relates to customers, the image it projects, and the nature of its competition.

Buckman Labs has the knowledge perspective. The company started in 1945 manufacturing chemical microbicides – products that would kill or control the growth of microbes in pulp and paper manufacturing and leather treatment. Over time, however, it realized that its products were becoming commodities and that to stay competitive it would need to deliver knowledge-based services. To support that strategy, Buckman implemented processes, technologies, training and incentives to promote the development, sharing and delivery of knowledge about how to actually apply microbicidal chemicals to solve customers' treatment problems.

The company has continually refreshed its strategic knowledge and directs all activity toward learning as much as possible about its customers. This approach culminated in the decision to learn more about how to manage the chemistry of

their customers' plants than even its customers knew. In the late 1990s, Buckman undertook to learn about customers' operations in detail, the economics of their businesses, and their strategic direction – a tall order for a bunch of chemists.

To accomplish this learning, the company first implemented a business-oriented training program tailored to the specifics of their customers' industries. It then entered into a learning partnership with a major paper manufacturer. For a fixed fee, Buckman became the exclusive provider of all chemicals and treatment services the manufacturer needed. Though sales technicians were formerly rewarded for selling as much chemical products as possible, now they were rewarded for minimizing chemical use. They were free to use any product, regardless of who made it, that created the most efficient and effective customer operation. In return, Buckman gained exclusive access to the customer and thus the opportunity to learn more about how to service that segment of the market than any of its competitors.

Buckman now considers itself to be in the knowledge business : Chemicals are merely the tangible tip to their knowledge iceberg. Many other companies in recent years have made a similar transition in perspective by redefining their fundamental mission from one based on selling traditional products and services to one based on exploiting knowledge.

If knowledge is a raw resource, who should benefit from it? A close link between knowledge and power has widely been recognized. For example, the World Health Organization states that as a knowledge-based organization in an environment where knowledge has become a raw material, serious consideration should be given to how such knowledge is managed, disseminated and used. Integrity and value-based leadership are recurring themes in the case of knowledge-based organizations. Also relevant in this context is the attention

paid by the organizations to the pursuit of excellence in their work. In the majority of cases, this involves a commitment to engage in research and programming which is of a supervisor quality, and addresses the actual needs and priorities of the target population.

In a May 1997 report prepared for the International Institute for Sustainable Development, Geoffrey Oldham and Rob McLean suggested that knowledge activities encompass five distinct dimensions : knowledge creation, knowledge acquisition, knowledge assimilation, knowledge use, and knowledge dissemination. Turning to issues related to knowledge creation and acquisition, the organizations dedicate considerable resources either to the execution of research, thereby generating new knowledge, or to scoping exercises designed to identify and gather relevant information generated elsewhere. However, the means by which they pursue these activities vary considerably from organization to organization. In a large measure, this variance can be explained by differences in funding base and mandate.

Knowledge creation is not the only challenge facing the organizations. Knowledge assimilation, which might also be termed knowledge management, is arguably of equal importance, since this is what allows one to exploit the information generated, and ensure that it is accessible when and where it is needed. For example, International Development Research Center (IDRC) acts principally as a sponsor of research carried out by outside experts, though it also engages in a range of information gathering activities. The latter includes the maintenance of an extensive library collection along with the development of information systems to document and evaluate center activities, and to preserve a corporate memory. Deployment and use of new information technology is one way in which organizations can effectively manage their knowledge base, and the International Development Research Center in particular has been a world leader in this area.

Not surprisingly, knowledge creation and acquisition is also a priority for the World Health Organization. A particularly noteworthy example in this area is its Evidence and Information for Policy (EIP) Cluster, a programme established in 1998 with a mission to strengthen the scientific and ethical foundations of health policies and programmes so that they respond better to the needs of populations. With an emphasis on building effective partnerships, the EIP cluster compiles, analyses, and disseminates an evidence base on the major dimensions of health and health systems. Organizational learning is an important dimension of knowledge assimilation. In short, if an organization is to continue to generate new knowledge, or put existing knowledge to work, its members must have an understanding of key issues and be able to relate them to the organization's mandate. In the case of United Nations Development Fund for Woman (UNIFEM), for instance, it prides itself on having put into place a feedback process of pioneering, learning, information-sharing and advocacy.

Closely related to the issue of knowledge assimilation is knowledge use and dissemination. While the organizations exploit their knowledge resources in a wide variety of ways, they can nonetheless be categorized in the following manner:

- Dissemination of knowledge resources (e.g., research reports, activity or status reports, policy statements) to a general audience through mass media channels e.g., Internet, wide circulation publications.
- Dissemination of knowledge resources to a limited audience e.g., policy makers, politicians and experts through selective channels e.g., narrow circulation journals, conferences.
- Use of knowledge resources for the purposes related to advocacy or to the development of policies, programs or projects; and

- Use of knowledge resources for the purposes related to the generation of new knowledge.

Dimensions of HRM in KBOs

Conventionally, acquisition, development, motivation and maintenance of human resources are seen as four major dimensions of human resource management with quality of work life, productivity and readiness for change as outputs. In 1983, American Society for Training and Development identified nine human resource areas, which were considered by them as spokes of the Human Resource wheel. Each area affected the outputs which were placed in the center of the wheel. The human resource areas identified by ASTD were : Training and Development, Organization Development, Organization/Job Design, Human Resource Planning, Selection and Staffing, Personnel Research and Information Systems, Compensation/Benefits, Employee Assistance, and Union/Labour Relations. Although line managers and HR managers need to work together, their responsibilities are different, as are their competencies and expertise. The dimensions of human resource management can also be understand in terms of the major activities for which an HR manager is typically responsible, such as Advice and Counsel, Service, Policy Formulation and Implementation, and Employee Advocacy.

1. *Advice and Counsel :* The HR manager often serves as an in-house consultant to supervisors, managers and executives. Given their knowledge of internal employment issues (policies, labour agreements, past practices, and the needs of employees) as well as their awareness of external trends (economic and employment data, legal issues, and the like), HR managers can be an invaluable resource for making decisions. As in-house consultants, HR managers should be concerned with the operating goals of the

managers and supervisors. In turn, these managers must be convinced that the HR staff is there to assist them in increasing their productivity rather than to impose obstacles to their goals. This requires not only the ability on the part of the HR executive to consider problems from the viewpoint of line managers and supervisors but also skill in communicating with the managers and supervisors.

2. *Service :* HR managers also engage in a host of service activities, such as recruiting, selecting, testing, planning and conducting training programs and hearing employee concerns and complaints. Technical expertise in these areas is essential for HR managers and forms the basis of HR program design and implementation.

3. *Policy Formulation and Implementation :* HR managers generally propose and draft new polices or policy revisions to cover recurring problems or to prevent anticipated problems. Ordinarily, these are proposed to the senior executives of the organization, who actually issue the policies. HR managers may monitor performance of line departments and other staff departments to ensure conformity with established HR polices, procedures, and practice. Perhaps more importantly, they are a resource to whom managers can turn for policy interpretation.

4. *Employee Advocacy :* One of the enduring roles of HR managers is to serve as an employee advocate – listening to the employee's concerns and representing their needs to managers. Effective employee relations provides a support structure when disruptive changes interfere with normal daily activities.

In the process of managing human resources, increasing attention is being given to the personal needs of the participants. Increasingly, employees and the public at large are demanding that employers demonstrate greater social responsibility in managing their human resources. Complaints that some jobs are devitalizing the lives and injuring the health of employees are not uncommon. Charges of discrimination against women, minorities, the physically and mentally disabled, and the elderly with respect to hiring, training, advancement, and compensation are being leveled against some employees. Issues such as comparable pay for comparable work, the high cost of health benefits, day care for children of employees, and alternative work schedules are concerns that many employers must address as the workforce grows more diverse. All employers are finding that privacy and confidentiality of information about employees are serious matters and deserve the greatest protection that can be provided.

Top management generally recognizes the contributions that the HR program can make to the organization and thus expects HR managers to assume a broader role in the overall organizational strategy. In view of this, HR managers need to acquire a complementary set of competencies. HR professionals need to know the business of their organization thoroughly. This requires an understanding of its economic and financial capabilities so that they can "join the team" of business managers. It also requires that HR professionals develop skills of external relations focused on their customers. HR professionals are the organization's behavioral science experts. In the areas, such as staffing, development, appraisal, rewards, team building and communication, HR professionals should develop competencies that keep them abreast of changes. HR professionals have to be able to manage change processes so that HR activities are effectively merged with the business needs of the organization. This involves interpersonal and problem-solving skills, as well as creativity and innovativeness.

HR professionals must establish personal credibility in the eyes of their internal and external customers. Credibility and trust are earned by developing personal relationships with customers, by demonstrating the values of the firm, by standing up for one's own beliefs, and by being fair-minded in dealing with others. The ability to integrate business, HR and change competencies is essential. By helping their organizations build a sustained competitive advantage and by learning to manage many activities well, HR professionals are becoming full business partners. Forward-looking CEOs make certain that their top HR executives report directly to them and help them address key issues. At lower levels in the organization, a rapidly growing number of companies assign HR representatives to business teams to make certain that HR issues are addressed on the job and that HR representatives, in turn, are knowledge about business issues rather than simply focusing on the administrative function.

NEW ROLES AND CHALLENGE FOR HRM IN KBOs

Roles of the HR Function

How is the HR function being affected by the growing importance of knowledge capital, and why should HR managers be concerned about it. One reason is that people-related issues are the key to knowledge capital. No organizational function is better suited to spearhead the maximization of knowledge capital than the HR function. Cultivating knowledge capital requires concerted action in all areas of the HR function at once. In the context of this trend, compliance-oriented practitioners resist change, supporting the old command-and-control structures of the past, which only frustrate the development of knowledge capital by creating a work environment that diminishes the value of individual creativity and motivation. Supporters are passive, doing only what they are told. Since line managers are not usually as knowledgeable about the formal processes related to people issues as are HR practitioners, HR practitioners

operating from a supporter role will only continue to do what has been done in the past.

Performance consultants are analytical, applying skills to specific situations in which they troubleshoot problems or discover opportunities. They can create situations that will develop individuals and groups, but their approach is often too tactical to be felt by the organization on a strategic level. They must be cognizant of the business issues facing the organization and the capabilities of people to confront them. This requires more than a tactical approach. HR leaders are proactive, taking initiative to influence others to achieve competitive advantage through the human side of the enterprise. HR leaders are thus best suited to encourage managers and other stakeholders to think about people as creators of wealth rather than as expenses. HR leaders may also involve top managers or other key stakeholders in group activities that can help them think about how the growing importance of knowledge capital affects the HR function, components of the organization or the organization as a whole, the causes of those changes, their likely consequences, and HR action plans or strategies needed to address those changes.

What Business Needs Require Change from the HR Function? To remain competitive in the future, businesses need to find ways to make the most of human talent and creativity. While this goal certainly requires flexible and adaptable HR systems and processes, business trends facing organizations are at the centre of this HR change endeavour. By understanding these trends, HR practitioners can develop processes that enrich the knowledge capital of their organizations.

What Changes are Needed from Each HR Functional Area? It needs to be examined that how each HR functional area can make an impact on business operations while dealing with the growing importance of knowledge capital.

Rewards and Recognition: People must be rewarded for cultivating knowledge that is useful to the organization. That may mean that decision makers will need to explore such strategies as pay-for-knowledge programs in which individuals, and groups, are rewarded for cultivating valuable competencies of use to the organization. In addition, non-pay-related incentives can be used to reward the attainment and use of knowledge capital, such as promotion, title differentiation, access to or membership in special teams or task force efforts, and nomination to attend special development programs.

Employee Relations: Employee communications programs, vital to employee relations, should be launched to show employees and managers alike what is meant by knowledge capital, how it applies to them individually, why it is important to the organization, what happens when knowledge capital is not cultivated or developed, and how knowledge capital can be developed and evaluated. Above all, employees must be informed that developing work-related knowledge is key to the success of the business, and to their career security at a time when jobs are disappearing. Employees have a self-interested and self-directed role to play in their own development, and they should be told what that is ----- and, when necessary, how to take proactive steps to develop themselves for future career growth inside or outside the organization. Job security can best be enhanced by profitability and growth. To work toward this security, employees need information about the business environment, the industry, and the organization's finances for informed decision making.

Organizational Effectiveness: Organizations need to launch programs that encourage learning and knowledge acquisition. By pursuing efforts to create

learning organizations and high-performance workplaces, decision makers can set the right tone to support continued individual and team growth and development. Changes in company culture do not occur overnight, so it is important to establish a track record of experiences in the organization to show that development and creativity do matter and are considered in pay raises, promotions, work assignments, and other issues of importance to employees. Organizational effectiveness is enhanced when people have targets of focus. What a better target than effectively servicing a customer or beating the competition? Knowledge attainment centered around such endeavours can change a corporate culture.

Professional Development: Training and development is a key means by which to groom individuals for the future. Training is, of course, an individualized change effort that is designed to narrow gaps between what people know or do and what they should know or do to be successful. Training has also been associated more recently with efforts to generate creative solutions to difficult problems farcing organizations. Training-related activities are likely to lead organizational efforts to build and maintain competitive knowledge capital. HR will be responsible for maximizing the productivity of the workforce through initiatives that build organization community. Well-educated and well-trained workforce will be deployed, and HR practitioners will be required to function as consultants, not as police officers. Training can be used to build a sense of community by facilitating cohesive performance by work teams. It can also be used to enhance communication by providing information about the reasons to take action and by articulating approaches to individual development.

Training can be used to show people how to become more self-directed in their approaches to learning on their own, and to fostering the development of others in the organization. Training can be used to direct attention to a broad array of human performance improvement strategies that can be used to develop bench

strength, troubleshoot human performance problems, and seize human performance improvement opportunities. Money spent on professional development efforts has increased over the past decades. Yet, expectations by organizations have changed concerning the return on investments of such efforts. Professional development providers are thus having to take both an individual and organizational view of these development efforts.

Resource and Productivity Management: Although defined differently by various experts, HR planning is often characterized as long-term planning for the people needed by an organization. It is perhaps the single most important issue to consider in building knowledge capital. While HR planning has traditionally been focused on identifying and closing current and projected gaps in headcount, shortfalls between labour demand and supply, it can also be focused on identifying and acting to close present or future gaps in talent, shortfalls between present and future talent demand and supply. One way that HR can lead the way towards building human capital is to introduce and use a systematic approach to HR planning in the organization. Too many organizations many needs from vacancy to vacancy. But with HR planning, an organization's decision makers can link corporate core competencies directly to individual competencies and work to build them over time.

An effective HR planning process can also be useful in conducting strategic planning for HR, bringing a systematic approach to succession planning, integrating HR functions horizontally around meeting desired HR needs, and providing information about current or anticipated "overdrafts" in human capital. In order to tap into the knowledge capital of an organization, senior leaders first need to know where and with whom it resides. This is the job of HR function – to track and identify knowledge communities and match them with the needs of the business. This task must be done for both current and future knowledge capital requirements. Once the task is accomplished, only

then can the HR function be deployed appropriately within the organization to address both “now” and “then” business issues.

Recruiting and Staffing : Recruiting and selecting people are also central to building knowledge capital. After all, the individuals chosen by the organization affect its supply of knowledge capital, the competencies on which it can draw to meet business objectives. HR practitioners must find ways to achieve the following:

- Recruit and select the right talent to meet pressing organizational needs.
- Retain the right talent once it is available
- Leverage the talent through appropriate uses of rotations, temporary and permanent team assignments, transfers, and promotions so that the organization’s knowledge capital is brought to bear on the most pressing challenges.

These goals may require focusing on specific universities, competitors, or other talent pools to attract people with the specific competencies needed to help address business trends.

Challenges and Opportunities

In an era of globalization and rapid technological change, the prospects for knowledge-based organizations would appear to be bright. Certainly, Internet based communications and plummeting information processing costs provide ample opportunities in such areas as research, networking and information management. However, by the same taken, the organizations face challenges in a number of areas.

How can funding affect the vision of a knowledge-based organization? Funding availability is a case in point. Stability of funding remains a concern. Funding

that pushes institutions from crisis to financial crisis works against the development of a strategic posture and leads to weaker rather than stronger institutions.

How do information overload and uncertainty affect the viability of a knowledge-based organization? With the rapid growth of Internet and computer processing power, another challenge often facing knowledge-based organizations is the over-abundance of information, or information of an uncertain quality.

How does data quality affect the vitality of knowledge-based organizations? Also relevant in this regard is the issue of data quality. That is to say, for an organization to remain credible, it must be assured of the accuracy, comprehensiveness and relevance of the information it is using to implement projects or formulate policy options. For example, the Australian Indigenous Health Info Net addresses quality assurance in two main ways. First, they have documented procedures for all aspects of their day-to-day operations. These procedures ensure that all materials have been subjected to quality control checks before being added to their site. To complement their internal procedures, they have established a network of Health Info Net Consultants, whose functions include peer review of any substantial academic material to be added to the site.

How does a knowledge-based organization maintain its visibility? While the publication of such material on the Internet may be extremely useful to academics, policy makers and other experts, its relevance is somewhat less obvious to an individual living in a remote community without access to adequate shelter, sewerage or health services. Accordingly, knowledge-based organizations must grapple with the challenge of remaining relevant to their constituencies at the risk of alienating them and losing their support. On one

hand, good leadership is critical in this regard, both in fostering constructive relationships with community members, and in focusing organizational energies in the ways which reflect constituents' concerns. On the other hand, feedback mechanisms also provide a valuable means of ensuring that organizational priorities are in harmony with community needs.

QUESTIONS FOR DISCUSSION

1. Can different skill groups be classified in an organization? Discuss various such groups to highlight the life in organization.
2. What is environmental scanning? What are the external issues that are frequently monitored by the managers? Discuss with appropriate examples?
3. What is cultural audit? Discuss its importance in a knowledge-based organization.
4. Discuss the characteristics of a knowledge-based organization in terms of process, place, purpose and perspective.
5. What are the dimensions of Human Resource Management in KBOs? Discuss in detail.
6. Discuss the roles of HR function in KBOs.
7. Discuss the challenges faced by a knowledge-based organization.

Unit – II

MANAGING KNOWLEDGE FOR ORGANIZATIONAL EFFECTIVENESS

Process and Methods

Organizations face a number of important competitive challenges such as adapting to global business, embracing technology, managing change, responding to customers, developing intellectual capital and containing costs. With these competitive challenges very important employee concerns, such as managing diverse workforce, recognizing employee rights, adjusting to new work attitudes and balancing work and family demands have emerged. Best organizations go beyond simply balancing these sometimes, competing demands; they create work environments that blend these concerns to simultaneously get the most from employees, contribute to their needs, and meet the short-term and long-term goals of the organization. For organization to be effective, they need to identify the primary principle that support high performance work systems. There are four powerful principles :

- Shared information
- Knowledge development
- Performance – reward linkage
- Egalitarianism

These principles have become the building blocks for managers who want to create high-performance work systems for organizational effectiveness.

The Principle of Shared Information : The principle of shared information is critical for the success of empowerment and involvement initiatives in an organization. Traditionally, employees were not given and did not ask for

information about the organization. People were hired to perform narrowly defined jobs with clearly specified duties. Today organizations are relying on the expertise and initiative of employees to react quickly to incipient problems and opportunities without timely and accurate information about the business. Employees can do little more than simply carry out order and perform their roles in a relatively perfunctory way. They are unlikely to understand the overall direction of the business or contribute to organizational success. On the other hand, when employees are given timely information about business performance plans and strategies, they are more likely to make good suggestions for improving the business and to cooperate in major organizational changes. They are also likely to feel more committed to new courses of action, if they have input in the decision making. The principle of shared information typifies a shift in organizations away from the courses of command and control towards employee commitment. If executives do a good job of communicating with employees, and create a culture of information sharing, employees are more likely to work towards the achievement of goals for the organization.

The Principle of Knowledge Development: In today's scenario number of jobs requiring little knowledge and skill is declining while the number of jobs requiring greater knowledge and skill is growing rapidly. As organizations attempt to compete through people, they must invest in employee development. This includes both selecting the best and brightest candidates available in the labour market and providing all employees opportunities to continually hone their talents. In the contemporary work environment employees need a broad range of technical, problem solving and interpersonal skills to work either individually or in teams on cutting-edge projects. Because of the speed of change, knowledge and skills requirements must also change. Employees must learn continuously. Stop gap training programs must not be enough. Employees

need to learn real time, on the job, using innovative new approaches to solve novel problems.

The Principle of Performance – Reward Linkage: In an organization people may intentionally or unintentionally pursue outcomes that are beneficial to them but not necessarily to the organization as a whole. Things tend to go more smoothly when there is some way to align employee and organizational goals. When rewards are connected to performance. Employees will naturally pursue outcomes that are mutually beneficial to themselves and the organization. Supervisor may not have to constantly watch to make employees do the right thing. In fact employees may go out of their way above and beyond the call of duty, to make certain that co-workers are getting the help they need, systems and processes are functioning efficiently and customers are happy. Connecting rewards to organizational performance also ensures fairness and tends to focus on employees in the organization. Equally important, performance based rewards ensure that employees share in the gains that result from any performance improvement.

The Principle of Egalitarianism

Status and power differences tend to separate people and magnify whatever disparities exist between them. The "US versus them" battles that have traditionally been there between managers, employees and labour unions have to be replaced by more cooperative approaches for managing work. More egalitarian work environments eliminate status and power differences and in the process, increase collaboration and teamwork. When this happens, productively can improve if people who once worked in isolation begni to work together. Moving power downward in organizations that is, empowering employees frequently requires structural changes. Managers often use employee surveys, suggestion systems, quality circles, employee involvement groups that work in

parallel with existing organizational structure. In addition work flow can be redesigned to give employees more control and influence over decision making. Job enlargement, enrichment and self managing work teams are typical methods for increasing the power. Employees can influence decisions and make suggestions for change. With decreasing power distances, employees can become more involved in their work, their quality of work life is simultaneously increased and organizational performance is improved. One cannot claim that there is a fool proof list of best practices that can be implemented by every organization for every work situation, yet there are clean trends in work design, HR practices, leadership role and information technologies that can increase organizational effectiveness.

- ***Work-Flow Design and Teamwork:*** Total Quality Management (TQM) and reengineering have driven many organization to redesign their work-flow. Instead of separating jobs into discrete units, most experts now advise managers to focus on the key business process that derive customer value and then create teams that are responsible for those processes. Federal Express, for example, redesigned its delivery process to give truck drivers responsibility for scheduling their own routes and for making necessary changes quickly. Because the drivers had detailed knowledge of customers and routes, Federal Express managers empowered them to inform existing customers of new products and service. In doing so, drivers also filled a type of sales representative role for the company. In addition, FedEx drivers also worked together as a team to identify bottlenecks and solve problems of slow delivery. To facilitate this, advanced communications equipment was installed in the delivery trucks to help teams of drivers balance routes among those with larger or lighter loads.

- ***Complementary Human Resource Policies and Practices:*** work redesign, in itself, does not constitute a high-performance work system. Other

supportive elements of HRM are necessary to achieve high performance. Several studies suggest that both performance and satisfaction are much higher when organizations combine their changes in work-flow design with HR practices that encourage skill development and employee involvement. By selecting skilled individuals with the ability to learn continuously and work cooperatively, organizations are likely to make up for the time and expense they invest in selection. Talented employees come up to speed more quickly and take less time to develop. Organizations that do not adhere to this are often seen at the risk of taking wrong people and spending more on training and/or out placement, severance and recruitment and replacement.

- ***Emphasis on Teamwork :*** involvement and continuous improvement requires that employees develop a broader understanding of work processes performed by others around them rather than rely on first knowing their own jobs. To accomplish this, organizations increasingly use cross-training, that is the training of employees in jobs in areas closely related to their own.
- ***Another Important factor is the Compensation Package :*** Many organizations experiment with alternative compensation plans. In order to link pay and performance, high-performance work systems often include some type of employee incentives. Organizational incentives such as gain sharing, profit sharing, and employee stock ownership plans focus employee efforts on outcomes that are beneficial to both themselves and the organization as a whole. Some organizations also incorporate skill, based pay plans. By paying employees on the basis of the number of different job skills they hope to create both a broader skill base among employees and a more flexible pool of people to rotate among interrelated jobs. Both of these qualities are beneficial for organizational effectiveness and may justify the added expense in compensation.

- ***Management Processes and Leadership :*** With fever layers of management and a focus on team based organization, the role of managers and supervisors is substantially different in a environment of knowledge based organizations. Managers and supervisors are seen more as coaches, facilitators and integrators of team efforts. Rather than imposing their demands on employees and closely watching to make certain that the workers comply, managers share responsibility for decision making with employees. Typically the team manager is replaced by the term 'team leader'. And in growing number of cases leadership is shared among team members.

In the literature of knowledge management, four components of knowledge management architecture have been described. The analysis, plans and actions are usually formulated in terms of the four basic operations of knowledge that can be found in organizations' development, distribution, consolidation and combination. The four basic knowledge processes are :

- *Developing Knowledge :* Companies survive by the continuous deployment of new knowledge based on creative ideas, the analysis of failures, daily experiences and work in R&D departments. Corporate memories can support these processes by recording failures and successes.
- *Consolidating Knowledge :* Knowledge must be safeguarded against loss due to different cause (e.g., people retiring, documents that cannot be accessed any more, etc). Consolidation could be supported by, for instance, corporate memories, knowledge transfer programmes etc. The knowledge, thus stored, must be available at the right time and place.
- *Distributing Knowledge :* Knowledge must be actively distributed to those who can make use of it. The turnaround speed of knowledge is

becoming crucial for the competitiveness of companies. To support this process, corporate memories need a facility for deciding who should be informed about a particular new piece of knowledge. Actions to improve knowledge distribution include the installation of help desks and use of intranets.

- *Combining Available Knowledge :* An organization can only perform at its best if all available knowledge areas are combined in its new products. If an organization is unable to combine the knowledge available, it will miss opportunities and eventually lose market share. Products and services are increasingly being developed by multi-disciplinary teams. Corporate memories may facilitate this by making it easier to access knowledge management system in knowledge based organization should involve the continuous streamlining of the above four basic knowledge processes to improve the organization learning capability.

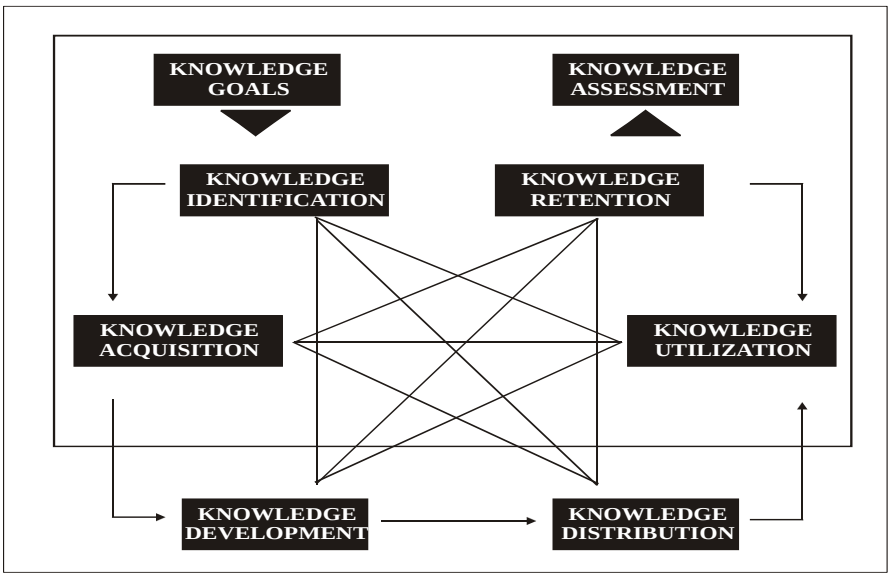

Figure 1. Knowledge Management Framework

Source : Mohan Tanniru and Tom Lauer; "Knowledge Audit and Knowledge Management System"; Infovision; New Dehli, Tata Infotech Limited; January 2002; pp 2-3.

Supportive Information Technology : Technologies of various kinds create an infrastructure for communicating and sharing information vital to business performance. There are the information needs for business plans and goals, unit and corporate operating results, incipient problems and opportunities and competitor's performance.

Careful planning helps to make certain that the processes fit together and are linked with the overall strategic goals of the organization. Horizontal fit occurs when all the internal elements of the work system complement and reinforce one another. For example, a first rate selection system may be of no use if it is not working in conjunction with training and development activities. If a new compensation program reinforces behaviours that are directly opposed to the goals laid out in performance planning, the two components would be working at cross-roads. Horizontal fit means testing to make certain that all the HR practices, work designs, management processes and technologies complement one another. The synergy achieved through overlapping work and human resource practices is at the heart of what makes organization system effective.

To achieve vertical fit the work system must support the organization's goals and strategies. This has to begin with an analysis and discussion of competitive challenges, organizational values and the concern of employees and results in a statement of the strategies being pursued by the organization. Efforts to achieve vertical fit help focus the design of performance work systems on strategic priorities. Objectives such as cost containment, quality enhancement, customer services and speed to market has a direct impact what is expected of employees and the skills they need to be successful. Words such as involvement, flexibility,

efficiency, problem solving and teamwork are not just buzzwords. They get translated directly from the strategic requirements of today's organizations. However, for all their potential, implementing is not an easy task. The systems are complex and they require a good deal of close partnering among executives, like managers, HR professionals, union representatives and employees. Ironically, it is the very complexity that leads to competitive advantage.

INTELLECTUAL CAPITAL AND LEARNING ORGANIZATION

Intellectual Capital

Driven by changing technology, the increasing globalization of business, increasing speed in market change, continuing cost containment and increasing rate and magnitude of change itself, the need for intellectual capital is a key trend facing businesses. The competitive environment requires that companies levrage the knowledge and expertise of their employees to create and sustain competitive advantage. The business world is moving too fast to rely on the traditional command and control management style. Human creativity and talent has to be realized to have quantum break through in innovation, productivity, product and service quality and customer satisfaction.

Intellectual capital means the collective experience of an organization workforce. It is the sum of information and linking generated by the human resources in the organization. It includes the collective experience of an organization workforce called institutional memory (what people remember about what the organization has done in the past); the current mix of know-how available to the organization, known as the talent pool (who is available to meet the organization's current challenges); and the future prospects of the organization's workforce to come up with innovative solutions to problems, known as creativity (how well people in the organization are positioned to come up with break through ideas to address past, present or future problems faced by

the organization. According to Peter Drucker (1997) knowledge capital is important since it is different from all other kinds of resources. It constantly makes itself obsolete, with the result that today's advanced knowledge is tomorrow's ignorance and knowledge that matters is subject to rapid and abrupt shifts from pharmacology to genetics in the health care industry for example, and from PCs to the Internet in the computer industry. There can be little doubt that knowledge capital, more than financial capital is growing in importance (Bondreau and Ramstad, 1989). There are three major consequences that stem from the growing importance of intellectual capital

- The need to distinguish between technical and management compliancy
- The increasing business and worker mobility
- Increasing need for training

Need to Distinguish Between Technical and Management Competency

Successful manager must now possess several capabilities : technical expertise, understanding of the dynamics shaping the market environment, ability to build relationships inside and outside the company and ability to identify new opportunities to enhance the company's offerings (Vicene and Fulmen, 1996). If companies hope to rely on knowledge workers to create competitive advantage, then the decisions those workers make must be consistent with the company's values and purpose. Otherwise, these empowered employees will not make decisions leading to company success. The challenges confronting executives then, is to communicate the company's values and purpose underlined. In addition executives must hire and retain employees who demonstrate the ability and willingness to act within the company's values system. Only technical proficiency is not sufficient to generate a good employee.

Increasing Business and Worker Mobility

Business goes where skills and knowledge are available, the new capitalism. The decisive factor for industries in the developed world will be the productivity of knowledge and knowledge workers because organization will be competing based on knowledge and not on capital or technology. Because knowledge workers are extremely mobile and the knowledge needs of an organization will change rapidly, an increasing number of the most valuable people will identify more with their own knowledge rather than with the organization. Many of these people will not be employees of the organization but will serve as contractors, consultants, experts and joint venture partners and the organizations are to be defined for a specific task, time, place and culture and therefore, management of knowledge resources will become the most important area of focus and consequently management will have to extend beyond enterprises.

Increasing Need for Training

Another consequence of the trend toward the growing importance of knowledge capital is an increasing, incessant need to educate workers. But education in a business environment that prizes knowledge capital takes on new dimensions that go beyond what training has meant in the past. Employees at all levels must be educated to understand the market environment, the company's strategy, and their role in influencing the organization's financial performance. Employee education and training will become a forum to create broader perspectives and to give employees a broader perspective in which to operate. The importance of training in developing knowledge employees is underscored by the dramatic increases in expenditures linked to all forms of training. In the midst of ever increasing dynamics, people are required to do more, do it faster and do it with less-resources. It is imperative for employees at all levels to possess a broad, general management perspective and the ability to think strategically. Therefore,

companies are using education to derive strategic initiatives. Custom–designed programming affords tailoring to the needs of the organization. Companies are increasingly demanding immediate applicability resulting in the growth of action learning and on the job techniques, any where, anytime asynchronous distance education and less time away from the job for training and education while organization understands the need to educate the workforce to enhance knowledge capital. Many organizations want to ensure that they are getting a quick nature on training investments.

KNOWLEDGE AND ROLE RELATED ISSUE

The greatest opportunity resulting from the growing importance of knowledge capital is the possibility that organization can seize competitive advantage by finding ways to leverage and exploit worker's knowledge. Those organization which are best able to collect market intelligence, harness and unleash worker creativity, translate startingly innovative ideas into valuable product and service offerings and get these products and services quickly to dynamic market do definitely succeed. Organizations that cannot meet these challenges and cling to the bureaucratic, controlling, un-imaginative and (for employees) frustrating approach of the past will fail and go bankrupt or will be merged with other, more successful firms.

Today, business Organizations face a number of issues relating to the effective sourcing, storage and dissemination of knowledge. According to Shermon (2002), these issues include.

- Loss of knowledge as job requirements change rapidly and personnel move across department. Knowledge moves with such personnel and is not captured at a control place for future use.
- Lack of organizational culture for sharing of knowledge employees are often reluctant to share information with in the organization "Why

should I part with my knowledge? Knowledge gives me power". Clearly, the mindset of employees need to undergo a significant change towards knowledge management.

- Absence of adequate knowledge systems that capture and store tacit knowledge residing in the minds of personnel (having technical/scientific or other expert knowledge. For example, when technical service personnel do not file reports after field visits, the next team that goes out for the same work has to start afresh and reinvent the wheel.
- Absence of an effective learning organizational culture is another issue. Many organizations have inadequate filing and database management system. There is a need to setup common knowledge domains (e.g., power point presentations, preliminary questions, training materials, suggestion scheme inputs, computer programmers, library research results, patents and relative publications, internal publications etc. This also includes establishing effective content management and knowledge delivery systems.
- Inadequate to and fro dissemination of knowledge between the knowledge center and other key stakeholders including manufacturing, logistics and marketing divisions, institutional customers, academic institutions, quality standard institutions and equipment builders.
- Developing and sharing best practices across various centers an well as access to external best practices and continuously evaluating and upgrading best practices.
- Searching for knowledge resources, organization need to establish mechanisms for tapping internal and external resources (including

personal search) and developing communities of practice setting up technology bulletin boards and identification of experts.

Ragnekar (2001) has identified the following challenge for the implementation of knowledge management systems in organizations

- Motivating employees to search, accept and adopt best industry practices
- Developing metrics towards appraising the effectiveness of a knowledge management programme and measuring its results
- Motivating employees to share knowledge
- Identifying and representing the organization's existing knowledge.
- Lack of common understanding of the company's business model and strategic drivers.
- Changing the bureaucratic culture and organization structure.

Learning Orgnaizations

Peter Senge (1990) introduced the notion of the learning organization, which has become the ideal for companies desiring to compete in the age of knowledge capital. Senge has defined learning organizations as those whose people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free and where people are continually learning how to learn together. The organizations that truly excel in the future will be the organizations that discover how to tap people's commitment and capacity to learn at all levels in an organization (Senge, 1990). Learning organizations are typified in several ways. First, personal mastery forms the spritual foundation of the learning organization. Individuals become committed to life-long learning, continually clarifying personal vision and focusing energy. Personal mastery is important to

organizations because of the reciprocal commitment between the organization and the individual. Second, building shared vision is essential. It is the common sense to identify and view future that motivates the individuals in the organization. Third, team learning occurs when the collective results and learning of the team far exceed what could have been achieved individually. Fourth, mental models are explicitly articulated and constantly analyzed. Mental models are deeply ingrained assumptions, generalizations, or ever pictures or images that influence how we understand the world and how to take action. By recognizing, scrutinizing and challenge the organization's view of what can and cannot be done, management teams can collectively change their view of the world and engage in institutional learning. Finally, systems thinking integrates the other four disciplines. By taking a systems view, organizations can focus on the interrelationships of all functions, activities and individuals in an organization. Systems thinking is essential for building a whole that exceeds that sum of its parts to build a system which can capture, utilize and leverage external information in a way that constantly directs the experiences toward improving organizational performance. Towards that end, it is essential to establish the following :

- *A Sense of Purpose :* a clearly articulated, shared view of the future direction of the organization.
- *Information Flows :* a systematic method to capture and disseminate knowledge and experience throughout the company to provide real time information to those who need it.
- *Decision Processes :* Processes for making decisions that question previous assumptions about the business and encourage those involved to move beyond the status quo.

- *Communication :* An organizational communication style that encourages the sharing of knowledge, innovation and calculated risk taking and catalyzes employees around the common purpose.
- *Culture :* Once barriers to learning have been removed, a culture is encouraged were each individual continually learns and facilitates the growth of the organization.

Knowledge capital may not have precisely the same definition in every organization, every division, every department, every function or every work unit. The key to understanding knowledge capital is understanding what makes an organization competitive that is its core competence and the collective knowledge, talent and marketability of the people working in the organization. So the definition of knowledge capital varies by the nature of the business and the collective knowledge, experience and creativity of the individuals who make the business operate.

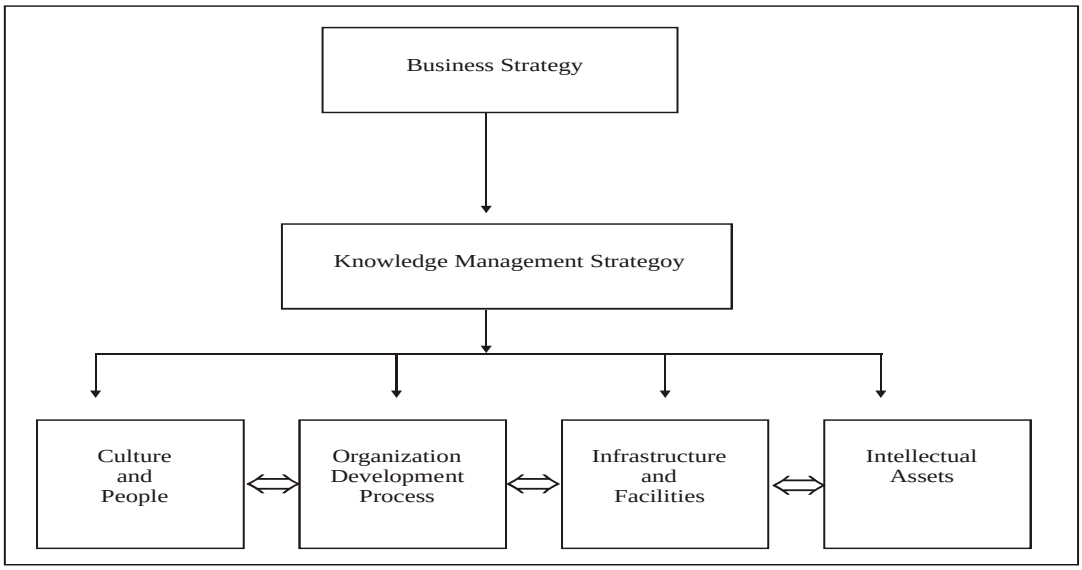

Figure 2. Knowledge Management Strategy

Source : Angela Abell and Nigel Oxbrow, 1999, People Who Make Knowledge Management Work.

Action Plans or Strategies for Growing Importance of Knowledge Capital

- *Prepare for the Realities and Need to Educate the Workforce :* Employees should be shown how each individual's efforts impacts corporate success. Employees should also be given tools to support appropriate decision making and they should be rewarded in ways that are matched to desired organizational results. According to Peter Drucker (1992) because of the vastly expanding corpus of knowledge it is imperative that member learn how to learn.
- *See People as a Competitive Advantage and Invest :* Asset Leadership should be encouraged at all levels. Leaders must fulfill a role of creating a learning organization that stimulates and challenges people by providing strategic directives, encouraging learning and facilitating the transfer of experience. Leaders can determine that learning takes place by the questions they ask and by the approaches they use. Leaders must actively participate in capturing and transferring learning inside the organization.
- *Look at Long-term Plans for the Workforce :* There has to be a long term planning for the workforce skills and talents needed by the organization. Planning for talent is different from planning for production. It requires careful consideration of the competencies required at each level and in each function of the organization. It also requires state-of-the art approaches to succession planning that go beyond the simple replacement plans of the past or even the talent pools of the present to

build competitive bench strength throughout the organization over the long term (Rothwell, 1994). That is, in fact, a powerful way for the HR function to contribute to developing knowledge capital for an organization (Kelley, 1997).

- *Support Ways to Deploy Knowledge Assets :* Organization's strategic planning process should be revamped so that it encourages creativity and information sharing within and across functions. The strategic planning process should be used to reexamine the organization acting in a dynamic environment and create a dialogue with the company's leaders and employees so that people are constantly thinking about what they should do and how it would affect the organization in a changing environment.

- *Determine Skills and Competencies of the Workforce (Skills Inventory) :* The focus on identifying and developing leadership as well as technical competencies should be given. These leadership competency models clarify how the organizations expects decisions to be made and how individuals should demonstrate leadership. These models can also be used during selection and promotional processes to determine what characteristics and behaviours indicate that an individual is likely to be successful in any leadership position.

- *Revisit Matrix Management :* By using matrix management, organizations can avoid the turf battles that can stem from more traditional command-and-control structures. Moreover, matrix management is well suited to application in setting where many temporary project teams come together and work quickly to address problems tapping the talent of many specialists. Another benefit of matrix management is that it gives employees exposure to differing

management styles, which can help to develop them for dealing with the future challenge they face by seeing the effects of those styles in action.

- *Develop Teams :* Another action to build on the growing importance on knowledge capital is to develop teams, defined as cohesive groups assembled to address a problem, manager a process compare steps in a process, or work to improve productivity. Teams may be temporary or permanent; they may be formed form individuals doing the same work (functional teams) or different work (cross-functional teams); they may be led by one or more people (directed teams) or by team members (self-directed teams). A key advantage of most teams, however, is that they help organizations and individuals depart from traditional and bureaucratic, motions how work is organized, who is responsible for doing it and how people work together to achieve common goals and carry out similar activities.

- *Develop Reward Systems for Sharing Information :* Ways should be developed for rewarding people for sharing information. The balanced scorecard is one way that organizations have been attempting to do that. This approach is based on the philosophy that effective measurement is an integral part of the management process, the balanced score card provides a framework to translate a company's strategic objectives into performance measures. Four critical areas of employee and organizational performance are measured : financial results, performance for customers, internal processes and innovation and growth. By using internal and external measures, these four areas discourage managers and employees alike from making unfavourable trade-offs among critical success factors (Kaplan and Norton, 1993). The balanced score card facilitates rewards for information sharing because it measures success in

each area. Within each area, relevant knowledge that must be shared can be identified, measured and appropriately rewarded.

- *Developing Strategies for Building Knowledge Capital Experiences and Assignments in Succession Planning :* Development experiences are planned to build individual competencies and can be linked to the competencies required for success of the organization with a strategy. Peter Drucka (1992) emphasized that are way of educating people is to view the whole, of course, is through work is cross-functional task forces. The real challenge lies in the building on experience and leverage knowledge quickly and widely throughout the organization.

The role of HR function goes well beyond value recognition. For knowledge capital to add value to organizations, key people should be identified, and made to transfer the information to others, use it in HR strategic planning processes and to spark innovation and creativity among the workforce.

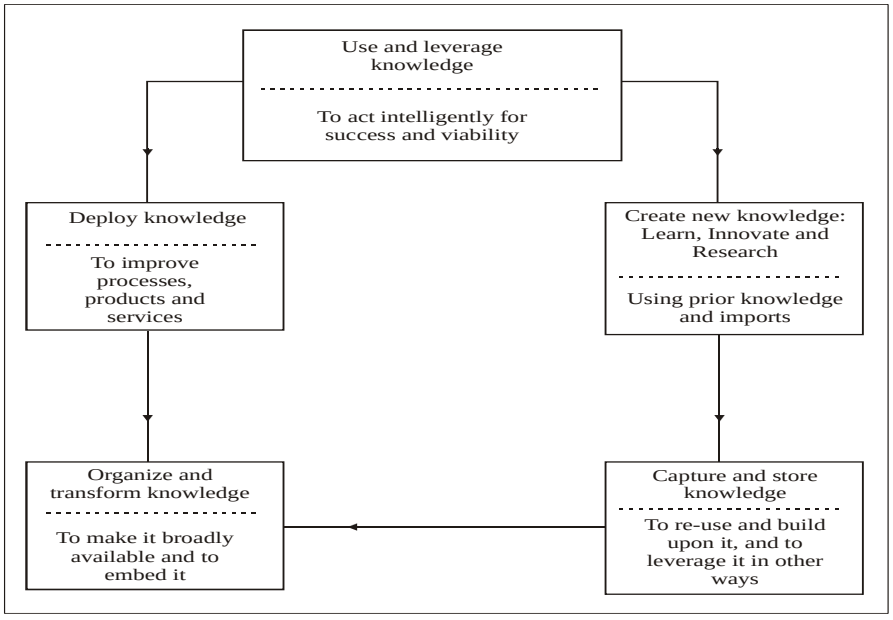

Figure 3. The Knowledge Life Cycle

Source : Knowledge Research Institute, Quoted in Business Today, May 7-21, 1999, p. 86.

PERFORMANCE APPRAISAL

Knowledge based organizations have to be adept at engaging their workforce to achieve goals that benefit the organization as well as the individuals. In a continuing effort to monitor the pulse of the market place, more organizations are trying operational yard sticks to the traditional financial gauges. It is a common view among managers that staff will perform better if they understand the contribution that their work makes to meeting the written objectives and goals of the organization. It follows, therefore, that anything that makes this connection cleaner to employees should enhance performance. This insight encourages organizations to publish documents that show through the medium of a programme structure, how all the myriad jobs undertaken contributed to meeting the organization's objectives. Feedback is as important as understanding the significance and contribution of one's work. Many managers believe that feedback should be based on measurement (Watson, 1994(a)) and consequently much of the effort under the heading of performance management is used to develop system for measuring performance. Most measurement methods are based on a systems model that attempts to measure the input to an organization, the uses to which those resources are put and the services and benefits that arise from that activity. Performance measures only have value, as information rather than data, if they are constructed as ratio that put one piece of statistical data into the context of another. There are a number of issues that arise out of the use of performance measure. For instance, there are four basic types of processes that may require differing emphasis in the measures

- Operational
- Developmental

- Managerial
- Support

Each measure has to have a reasonable standard of performance. The individual measure must directly support and align with the next higher level of measures well aligned with the objectives and the ultimate strategic goals. Measures provide focus, quantify objectives and set standards. Objectives have to be quantified by developing measures to adequately express each dimension. Detailed measures are combined and can be summarized on dimensions of higher level objectives.

Management in partnership with the workforce, must find opportunities for development, empowerment and performance that meet both organizational and personal interests and objectives. Management must provide opportunities for all employees to develop skills, experience and knowledge that can improve their performance and increase their capabilities. Without developmental knowledge and experiences, performance will be disappointing. In addition to developmental opportunities, management must provide opportunities for employees to demonstrate, practice, perform, learn and improve their performance and capabilities. Monitor and assess measures provide for both internal and independent monitoring and assessment. Measure of performance should be monitored by external groups with interests in the outcomes, or groups that are at least impartial. For example customers, peer groups, senior management are likely candidates for monitoring. This is what is called 360° appraisal.

The intention of 360° appraisal is to give a broader and more objective assessment of people's competence, although from another angle these systems must multiply the biases and distortions of judgement to which all appraisal is proof. Stewart (1998) pointed out that much assessment procedure in

organizations accepts a logical fallacy that the sum of many subjective judgements is an objective one. Managers are often willing to accept multi-rate appraisal within certain constraints. They accept its use for developmental purposes, but are less willing to see it to be used as a basis for judgement concerning pay, performance or promotion. Multirater feedback is often only used when a manager has, in different cases, four, five or eight people reporting to them. With small numbers it may be difficult to maintain the raters' anonymity and the judgements made be sweetened to avoid any danger of reprisals. In a fully 360° system, there is also a problem of the weightage to be given to the various perspectives; should the views of subordinates have the same value as those of senior colleagues and how seriously should the assessment of customers or clients be taken. It can be argued that upward appraisal (if not the full 360°) is an appropriate balancing of the power relations between management and non-management staff.

It is essential to measure what you reward and reward what you measure. Otherwise, no strong motivational effect will be created. If new measures are needed, or if existing measures need modification, create fix them as soon as possible. Rewards should take many forms, including money, recognition time off, empowerment, work selection, advancement and development. And rewards should celebrate successes, as well as desired behaviours such as collaborating, experimenting, risk-taking and learning. One interesting aspect is that results and outcomes are the objectives being managed, not processes. First by emphasizing outcomes that is product, services and financials, the organization focuses on meeting customer needs and business needs, not internal functional or political needs. Second it gives managers of each organizational unit the flexibility to organize the processes and enabling business system components to best fit their local needs and personal management style, but holds them accountable for meeting the outcomes. Third, the work force is primarily

rewarded for results, not for internals. What is most important thing you can and must do to change the existing culture and mindsets so that they are receptive supportive and committed to the precepts of the knowledge organization? Motivate everyone by providing equal opportunities and development, as well as just appraisal and rewards.

Management must measure and reward the performance, behavours and attitudes that are needed and desired. It is essential to measure what you reward and reward what you measure. Kaplan and Norton's Balanced Scorecard approach both measures and rewards. This approach is then combined with core values of providing good values to the customer, servicing the customer, high performance, leading with expertise, innovation and sharing and cooperating. Therefore following should be rewarded :

- Customer satisfaction
- High performance
- Personal knowledge and expertise
- Team work and sharing of expertise and knowledge
- Creating new and extending existing knowledge and expertise
- Using and applying the knowledge and expertise in the knowledge repository
- Proactive problem solving and problem prevention

The balance score and approach has following basic measurement dimensions:

1. Customer
   Value (Product, Service, Price)
   Satisfaction
2. Financial

Expenses

Income

Net Earnings

Net Worth

3. Process

   Quality

   Time

   Cost

   Capacity

   Flexibility/Adaptability

4. Workforce (added by many organizations)

   Development

   Empowerment

   Motivation

   Collaboration, Sharing, Team Work

5. Learning

   Core Capability

   Expertise

   Knowledge

   Innovation

CONCLUSION

The knowledge based organizations will have to use integrated approach in doing business. Through the use of employee knowledge profits, they will assemble to best internal, multidisciplinary teams to handle their business transactions and client engagements. They will tap into their knowledge repositions and global case bases to learn how similar assignments were handled and solved. They will use their company intranets and knowledge management exchange tools to access, store and retrieve important information, knowledge

and heuristics relating to their situation or business activity. Expert systems also will play a major role in providing an active advisory component to the organization's knowledge repositories and corporate memory. Integrated performance support systems supported by knowledge repositories can turn out to be the break through concepts needed to implement this integrated approach. Organizations need to cure their corporate amnesia in order to maintain their competitive edge. Organizations will continue to merge, reengineer, downsize, and flatten. As a result, a turnover of employees will be created which could result in a brain drai effect. To overcome this potential problem, knowledge repositories must be created, and maintained to capture the expertise before people leave. To cope up with these trends, future organizations may well need to be more focused and specialized in their business strategies, relying on alliances and partnerships to produce products and deliver services that would have been previously performed internally. According to Robert Dunham of Enterprise Design, the power of incorporating action into our interpretation of knowledge is that it puts the focus on the actions to be produced, not just on understanding or information that requires another step to get to action. Understanding and information are still aspects of knowledge, but they are no longer the end product.

Organizations need to be proactive, and put knowledge into action. Their actions should produce value for customers. The only thing that gives an organization a competitive edge, the only thing that is sustainable is what it knows, how it uses what it knows and how fast it can know something new. This knowledge advantage will be a major competitive advantage for the organization in years to come.

According to Brook Manville, Director of Knowledge Management at McKinsey and Company, and Nathaniel Foote, McKinsey's Director of Knowledge and Practice Development.

- Knowledge – based strategies begin with strategy, not knowledge. A company has to know the kind of value if intends to provide and to whom. Only then it can think of its knowledge resources in ways that make a difference.
- Knowledge-based strategies aren't strategies unless you can link them to traditional measures of performance. If knowledge can't be connected to measurable improvement in performance, including improvements on the bottom line then the knowledge revolution will be short lived.
- Executing a knowledge-based strategy is not about managing knowledge, it is about nurturing people with knowledge. Also, people will not willingly share it with coworkers if their workplace culture does not support learning, cooperation and openness.
- Organizations leverage knowledge through net works of people who collaborate.
- People networks leverage knowledge, through organization pull rather than centralized information push.

Above all organizations need to continue developing their organizational intelligence. Organizational intelligence is an organization's capability to process, interpret, encode, manipulate and access information in a purposeful goal directed manner so that it can increase its adaptive potential in the environment in which it operates (Glynn, 1996).

QUESTIONS FOR DISCUSSION

1. What is organizational effectiveness? How can high performance work systems improve organizational effectiveness?

2. Discuss the various principles underlying high performance work systems.

3. Discuss the various components of knowledge management architecture. How can they contribute to the organizational effectiveness?

4. What is intellectual capital? Discuss its growing importance in changing business scenario.

5. What is performance appraisal. How can it be made effective in a KBO.

6. Discuss various strategies used for the growing importance of knowledge management.

7. Discuss various issues relating to the knowledge management in organizations.

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Unit III

KNOWING WHAT THERE IS TO KNOW

The world is changing fast and the world of business is changing faster. In the new millennium, business corporations will have to deal with entirely new challenges to meet customer demands, move from competition to collaborative reconfiguration, dovetail supplier and subcontractor processes to the corporate goals and empower employees to be able to meet and surpass customer expectations.

The challenge of meeting higher customer expectations is not something that has emerged suddenly. This evolution has been happening over the last 30 years, accelerated in this last decade because of rapid expectation pulls, like the impact of the information explosion and entry of global brands into all international markets. This revolution has been further fortified by the push of new technologies like pervasive Computing and the Internet, which have allowed the promise of Net-Centric Computing to extend into the work and life styles of the next generation of prospective buyers in the world's new economics.

In the relentless competitive search for new business, the customer today is seen by breathless marketers as a fickle and mercenary shopper, who respects no brand, has no loyalty and demands higher value for money with every transaction. They also expect new products and services to be available every day. This has brought in the concept of the market facing enterprise, where every process and activity within the organization is pointed towards increasing customer value. Business process re-engineering, which was once seen as a euphemism for downsizing, has taken its rightful place as a tool for simplifying customer interaction with the organization. Information Technology has begun to pervade all activities within and beyond the physical boundaries of the firm and the focus of Total Quality Management initiatives and benchmarking initiatives have all become oriented to the stated and implied needs of customers.

This has resulted in changes in the expectations and profile of employees too, who have to become customer rather than task focused, exhibit high capabilities in the use of technology to maximize their own productivity and significantly cut down learning times for any new task or role.

New paradigms are also emerging in the organization's relationship with its suppliers and subcontractors. They are now seen as key partners in the new virtual corporation, providing the ability for the entire supply chain to be fine tuned towards changing market needs.

Take the case of the transnational European Insurance Corporation. In early 1998, it realized that its profit margins were being eroded by two factors. First, the inability to command the right price for its services, because of inadequate knowledge of customer expectations and competitive scenarios; and second, repeated failure of attempts to train new employees well enough and fast

enough to respond to customer needs for information and new services. This corporation, like many others in the service delivery business today is faced with three key challenges.

1. How to change its method of attracting customers and servicing their needs in the new world of Internet and Electronic Commerce.
2. How to transform its processes and implement Information Technology Enablement to build the market facing enterprise.
3. How to re-engineer the mindsets of its employees and enable individual and corporate learning to happen in an institutionalized manner.

The challenges themselves are not new and in an organization with a long and successful history of delivering customer services all over the world, there is no doubt that enough capability exists to address each challenge with the collective wisdom of generations of managers and leaders, and emerge successful. But in this statement of the solution lie the problems that face, schools, universities many organizations and even governments. These are the problems of identifying the sources of knowledge that exist within the organization. These are issues of finding the correct method of sharing and disseminating knowledge across the enterprise and to transform the customer satisfaction capabilities of each and every member of the organization through timely availability and use of the collective knowledge base.

This is the dilemma that has moved the concept of knowledge from the conceptual third stage in a continuum of data-information-knowledge-wisdom into an addressable and important component of an organization's customer satisfaction arsenal. The realization that knowledge can be sourced, stored, disseminated and used has today spawned multiple research projects, led to the development of a number of tools, become part of the agenda of over ninety

percent of the global corporations and has even taken knowledge management to the very peak of the present day Information Technology Hype Cycle. The nascent state-of-the-art and science of KM can be gauged from the fact that less than half a dozen enlightening books exist on the subject today – we hope this book will add to that body of knowledge. But the interest in the subject is evident from the scramble of consultants building knowledge management practices, the gaggle of information technology tools and products that are being rechristened as knowledge management, and of course the numbers of information management strategists and researchers of the 1980's and early 1990's who now claim to have over a decade of expertise in knowledge management as their claim to fame.

UNDERSTANDING THE IMPORTANCE OF KNOWLEDGE

Before delving into the esoteric and still fuzzy art and science of knowledge management, let us understand the term "knowledge" itself in an organizational context. The difference between the ordinary and the extraordinary handling of any task, process or interaction – between employees, with customers or with any other stakeholder of the firm – has always been the explicit and tacit usage of knowledge by the person guiding the transaction. This knowledge has often been confused with information and sometimes with wisdom because of the somewhat blurred boundaries that exist between the three. While we shall analyse these differences in detail in a later chapter, it is important to understand that information is nothing but the result of the processing of large amounts of data that are created during the regular operations of any organization. This information in the form of Management Information Systems, Decision Support Systems or just through the picking up of a telephone, is available to all who are authorized to access it. When the component of experience in handling similar situations is added, including the ability to use images, text and transactional intelligence for taking more enriched

decisions, true knowledge is brought to bear on every transaction. The continuous practice of the art of using knowledge can add to the collective capability of the individual, a workgroup and a function and can eventually become the collective wisdom of the organization.

The application of knowledge and the practice of knowledge management as a precise science can create wonderful results in any organizational context. The work of every employee can become richer through access to Best Practices at any stage of a business process or customer project, the suppliers and subcontractors to the organization can become part of a close working group where early involvement is possible in all the business thinking, particularly in the highly competitive business situations. Customers can be delighted with every transaction, becoming richer and more productive. Thus, the transition form being an aorganizatin that is invwardly focused to becoming a true market facing enterprise can be achieved. Most important, in the current environment of value addition measurement at all a levels, and shareholder value creation, the conscious capture, storage and archiving of knowledge can lead to the creation of invaluable intellectual property that has both practical and long term strategic value for the organization.

Managing knowledge is becoming a business imperative for those corporations who want to protect their present market share, build future opportunity share and stay ahead of competition. Knowledge will also be the key driver for those firms who are keen to innovate and change the rules of the game. It is no secret that many consumer electronics firms already have two or three future models ready even as they are introducing today's model into the marketplace. This ability to create the future rather than try to predict it accurately has often been the result of knowledge about the present and future customer needs that preempt the customer's own ability to visualize the future. And in large organizations, this is best done not by seeking external help, but by

using the explicit and tacit knowledge of the entire employee and partner community. To quote the CEO of Hewlett Packard, one of the world's most successful corporations, "Successful companies of the 21st century will be those who do the best job of capturing, storing, and leveraging what their employees know."

In business corporations, effective and timely usage of knowledge can also result in the reduction of cycle time and assist in the business process re-engineering and organizational delayering process.

The ability to enable academics, students, bureaucrats or citizens to quickly identify and resolve problems will be the key to successfully managed institutions and E-Governance in the new millennium. The benefits of applying knowledge are truly universal and are imperative for success in the new millennium.

THE TECHNOLOGY PUSH FOR KNOWLEDGE MANAGEMENT

The concept of knowledge itself is not new, because theneed and importance of knowledge has been the basis for the development of various cultures, philosophies and religions. What has really made it possible for people and even organizatins today to even contemplate harnessing knowledge energies for better management has been the rapid evolution in technology that we have seen over the last decades.

The role of technology, particularly information technology in defining and reviatalizing corporate strategy has evolved over the last forty years or so. In the 1960s and '70s, computers were confined to glass cabins and sometimes as departmental number crunches. Information strategy was always seen as something that would come in after the corporate strategy had been defined. It was only with the introduction of the personal computer in the early 1980s and the subsequent spread of the networking phenomenon that changed the role of

information technology from being a passive consequence of corporate strategy to a pre-requisite to the development of strategy.

The pull factors exerted on the corporation by its external environment are compounded by the push given by rapid advances in information technology, particularly in the area of intro-organization and inter-organization communications.

This push, largely driven by the rapid proliferation of the Internet and the usage of associated Internet technologies within corporations in the form of intranets and extranets has resulted in the emergence new paradigms of business. A case in point is amazon.com, the virtual bookstore that has caught the fancy of shoppers and stock market analysts alike and zoomed to a revenue run rate of a billion dollars and a market capitalization many times that, this company has proved that the traditional model of business is slowly but surely giving way to new methods of planning and developing business opportunities that will change the face of marketing strategy in the new millennium.

Other significant players are also beginning to generate significant revenues in the other three segments. FedEx, Cisco and Intel are reporting multi-billion dollar business-to-business transactions. Another popular internet startup, eBay, has brought the concept of the Virtual Auction to the consumer-to-consumer space. Pioneers like priceline.com are turning the entire marketing paradigm on its head. It has made consumer-to-business transactions the new way of booking airline tickets, hotel rooms and soon, every form of service where the customer is keen to name his price rather than ask for discounts. All these phenomena are changing the every organizations deal with customers and even customer expectations from organizations.

While E-Commerce is one visible usage of the Internet phenomenon, another internal innovation that is happening in many business corporations

worldwide is that of knowledge management. The ability that the Internet provides to seamlessly integrate the business processes of organizations with activities spread all over the globe is encouraging organizations to look at knowledge capture, archival, dissemination and usage as the logical method of improving customer response through institutionalized and technology-enabled processes. Through the deployment of data and knowledge capture, storage and mining tools on knowledge networks, the objective seems to be to capture every form of explicit and tacit information and knowledge and build ongoing corporate learning.

The Corporate Portal is the logical culmination of technological advances in the areas of knowledge archival and dissemination, the internet, intranets and extranets and managerial innovations in the areas of shared learning and corporate experience building. In its early deployment in many organizations, the corporate portal is nothing more than a customized computing front-end for each and every employee in an organization which permits a customized user interface with the large storehouse of data, information and knowledge that exists in departmental, corporate and industry databases and data warehouses. It combines many evolutions like the electronic mail, GroupWare computing capabilities, personalized information retrieval and collaborative working with the new science of knowledge networks which enables the conversion, storage and on-tap availability of erstwhile tacit knowledge in explicit and accessible formats.

The early beginnings of the corporate portal actually happened in the business to consumer space. This caught the fascination of consumers and the global investor community alike, sending many Internet stocks into stratospheric levels. Front runners like Yahoo were the early pioneers in moving from generic portals, which provided a launching apad for surfers and information seekers alike, to customized individual access points like My Yahoo, one of

today's most popular personalized internet services. The reason why more and more consumers find this concept fascinating is that it avoids the clutter of searching through multiple web sites for information, education and entertainment, that is most commonly accessed by creating a template for capturing only those information elements from the internet that one is actually interested in. This is enabling the concept of the customized newspaper, selecting scanning of high interest web sites and pull-based access of information on new products and services. In the consumer segment, the personal portal is already sounding alarm bells for traditional marketers who have been used to traditional push forms of advertising and product promotion. The formation of virtual communities consisting of groups of internet users with similar interests across countries and continents is being accelerated by this new portal concept.

The corporate portal will go one step further in integrating the work style of every individual into the information strategy of the organization. With the current trend in the US and Europe towards telecommuting and hot desking, an employee can start working anywhere in the world by sitting at a computer in any airport or hotel or business center or even at home and getting his individual working environment conjured up in seconds to enable him to commerce work. With many of the world's leading technology firms including Microsoft, Oracle and IBM as well as some of the most innovative Silicon Valley startups putting billions of dollars of investment monies into new tools and technologies for Net-centric hardware, software and communications capabilities, the next few years may change the entire paradigm of the business corporation.

FROM ART TO SCIENCE : KNOWLEDGE MANAGEMENT

A knowledge management initiative is best taken up if an organization finds value in building an institutional memory or a comprehensive knowledge

base for the firm to enable better application, sharing and managing of knowledge across the various entities within and outside the organization.

Let us revisit the case of the European Insurance Corporation that was mentioned earlier in this chapter. The size of the knowledge challenge can be estimated by the parameters of its operation – a network of nearly two million customers with over tow thousand new enrolments every week. Call center operators are inundated with nearly 10,000 calls every day ranging from simple policy queries to membership changes and a host of unexpected demands for information from pleasant as well as irate customers. With an annual volume of over 30,000 insurance claims and payouts in excess of a million-and –a-half pounds, any improvement in the efficiency of the operation could have a significant impact on the customer satisfaction levels as well as the overall profitability of the enterprise.

Compounding the problem for the organization was the fact that one of the toughest categories of people to hire, train and retain in the call center employee. With call centers becoming one of the most popular customer servicing mechanisms across Europe and the USA, attrition level of employees is very high with the result that the company was spending enormous time and effort on training and retraining its employees on an ongoing basis.

The European Corporation set for itself one major objectives as its knowledge management initiative-to achieve a five percent improvement in claims processing accuracy with a resultant ten percent improvement in overall profitability, which would be possible since both underpayment and overpayment of claims was resulting in major cash losses through waste on one hand and expensive law suits on the other. Three strategies became the focus for achieving these goals.

- Get new employees trained on all aspects of Call Center operation in the shortest possible time with new technologies applied for pre-requisite, skills and reinforcement/remedial learning. This would eliminate the need for expensive and time-consuming classroom based training of new recruits and refresher training for existing employees.
- Have knowledge available on tap about company policies, frequently asked questions and explicit and tacit customer knowledge.
- Improve quality of customer response as well as capability to process customer claims efficiently and accurately on an ongoing basis.

The eventual outcome for the knowledge management initiative had been defined in clear business terms and the strategies clearly defined before the technologists were put on the job. Very often, knowledge management initiatives fail simply because the reasons for embarking on the project are not clear and the critical strategic issues are not identified. Today, this company is on the verge of achieving its objectives of just-in-time training, claims processing accuracy and customer satisfaction and will soon see a knowledge workstation with a customized enterprise knowledge portal on the worktable of every knowledge worker.

But it takes a lot to get there and the organization will have to grapple with a range of technological and behavioural challenges before it sees full success. Many of these are presented and analyzed in detail in subsequent parts of this book.

Knowledge management has enabled many organizations of worldwide repute to comprehensively change their approach and service delivery capability, both towards their internal employee community and towards external stakeholders. Many large European and American banks are focusing

on the task of building and institutionalizing organizational memory. Knowledge is being built about vital processes and practices. Models are being developed to describe tasks, processes and customer relationship functions that employees are engaged in with detailed objectives and best practices that are oriented towards achieving them.

Chase Manhattan Bank has developed a comprehensive relationship management system by using the visual basic programming environment wherein bank employees have complete customer knowledge available on tap, including information on loan histories, deposits, investments and other explicit and tacit knowledge that facilitates better customer relationships.

In the oil industry, Chevron has been successful in deploying a comprehensive knowledge management framework. It uses Lotus Notes in a comprehensive Group Ware solution that is deployed on a corporate intranet. This establishes communities of best practice and enables sharing of best practices across the company. The company holds regular internal conferences for best practices exchange and provides access to corporate and industry news, human resources information, financial and library services on the same knowledge network. A variety of on-line training courses enrich the information and knowledge available on this network.

Dow Chemicals has a comprehensive intellectual asset management system. It includes the management of know how, copyrights, patents, trademarks and trade secrets. Pharmaceutical giants like Glaxo and Welcome are setting up intranet-based executive information systems which enable knowledge sharing on people, key business activities and best practices. It enables internal and external benchmarking on an ongoing basis. Various financial institutions like bankers trust are deploying collaborative computing technologies to enable sharing of knowledge of financial markets between

employees to create in-house knowledge bases that catalogue and share the knowledge acquired in various parts of the firm. They also plan to extend the in-house knowledge base to key customers, which will not only increase customer satisfaction but also minimize the time that would need to be spent on actual one-to-one interaction with the customer in any transaction.

The real difficulty in implementing knowledge networks is the ongoing intellectual effort that will be required to ensure that real benefits accrue to the organization. The cost itself may be only of an incremental nature, since corporate intranets are now a common feature in many companies. It is only the software that will need to be procured and implemented to get the knowledge network functional. One major challenge to implementing knowledge management successfully is the tendency for many corporate chieftains and even functional heads to disbelieve the notion that it is really possible to capture, store, analyse and disseminate knowledge for shared usage. Until this realization sinks in and CEOs take the first few steps to establishing a knowledge performance index for the critical and repetitive activities of the organization, knowledge management will remain a topic for magazine articles and intellectual seminars.

However, the business environment demands it, technologies are enabling it and effective knowledge management will be the difference between the winners and the also-rans in the corporate world of the new millennium.

Implementing KM in your Organization

At the end of a talk by a leading international speaker at a recent seminar on knowledge management, there was some unexpected feedback from a rather agitated gentleman in the audience. Surprising because, the session by any yardstick had been an interesting one and gave some useful insights on the subject. The cause of his concern, however, was the fact that the world already

knew that knowledge management is a clear business imperative. However, most thinkers on the subject resort to talking about rather abstruse theories and broad generalizations and tend to take umbrage under the assertion that specific answers have to be figured out by each organization. How does one ensure that knowledge management is seen as anal pervasive way of life rather than a pilot project that lost its luster after an overdose of hype and unrealistic expectations? What is required is an unambiguous action plan, clear guidelines on what is to be doen, how, when and by whom. Mere pontifications are no longer enough. Hard-nosed businessmen would rather depend on a scientific approach to success than leave it to the probable brilliance of a few believers who practice knowledge management as an art form.

Aspiring practitioners of knowledge management primarily have two major questions:

- How can knowledge management be interwoven into the organizations's mainstream activities and functions rather than be looked upon as a discrete experiment.
- For an organization to embark on a sustainable and successful knowledge management program, is there a clear implementation methodology that can be followed.

Both these are very real concerns. For KM to get institutionalized it requires not only organizational conviction but clear processes and methodologies for achieving the same. However strong the intuitive conviction about an initiative may be, its longevity can be ensured only by :

(a) a clear correlation to business objectives and strategies.

(b) Identification of quantifiable milestones and outcomes towards the achievement of these objectives.

There are any number of examples where knowledge solutions have been implemented without any questions asked because the CEOs saw it as an absolute necessity. The ability to derive an organization's knowledge strategy out of its business strategy lends clarity to this intuitive conviction, enables a sounder approach for prioritizing various activities of knowledge acquisition and provides for setting up of processes and metrics to enable an ROI justification.

Knowledge management and more specifically knowledge sharing is extremely depenent on the organizational ethos. However, implementation cannot be an open ended exercise whose fate is determined by the employees. For any initiative to get institutionalized it need to be supported by clearly defined processes, individual responsibilities and technological enablers.

While it is not our instent to over-simplify the issue by purporting to provide a solution to the last teail, our experience in various KM engagements leads us to believe that it is indeed possible to arrive at a well-defined approach to go about such initiatives. It is both feasible and beneficial to clearly link knowledge management with business strategy and planning. That way one can associate some quantifiable outcomes from KM towards achieving business objectives rather than merely seeing it as a desirable initiative. Moreover, while KM as a subject has reahed nowhere near the maturity of, say defining a software engineering process (for perhaps the simple reason that it is to do more with people than with software) it is possible to chalk out a clear implementation methodology. Hopefully, what has been shared here will give on (of many) possible approaches that could translate into a clear plan of action of the organization.

LINKING KNOWLEDGE STARTEGY TO BUSINESS STRATEGY.

In chapter 5 we examined the process of identifying KM solutions from the business strategy perspective as one of the possible approaches. This can be

viewed as the top down approach to knowledge initiative. There are organizations that have started knowledge initiatives in areas that seemed to be the obvious choices are possibly represented only the low hanging fruit. This has the obvious advantage of being able to embark on a KM project without much of a premble and time lag and also ensure an initial success. However, the not so obvious disadvantage of this approach is the difficulty in identifying similar projects, prioritizing them and ensuring that they can be retrofitted into some kind of a cohesive knowledge strategy in future. The initial project has the distinct possibility of being a lone initiative, albeit being a much-acclaimed and talked about one. It does not necessarily snowball into an organization-wide phenomenon that can yield business benefits, on reaching a certain critical mass. The top down approach on the other hand ensures that there is a clearly defined knowledge strategy in place. Pilots can then be chosen and projects can be chosen and projects can be prioritized based on various techno-cultural issues. It ensures that there are some clearly defined goals in the knowledge domain that are not lost sight of irrespective of initial successes or failures. In fact, the feedback from such initiatives can become valuable inputs for refining business strategies.

THE K-GAP ANALYZER AS A TOOL

An organization needs to be able to identify what are the knowledge assets required to meet its business strategy. Obviously, the business strategy would be dictated by an organization's core competence. ,[s has been elucidated by Hamel and Prahalad[1] in their path-breaking work, core competence has to be looked at in the context of building competitive advantage. This means that business strategy has to be based not merely on current activities and existing knowledge assets, but on the way the organization can build on its current core competence towards achieving competitive advantage. This in turn would decide what would be the knowledge assets that need to be acquired.

Business strategy has got to be broken down into a comprehensive list of key business drivers, with milestones and time linmes for each business activity. For each KBD, the complete set of knowledge assets (K-sets) required to achieve that KBD need to be identified. This forms the starting pint for evolving an organization-wide knowledge strategy.

It is in this context that the use of a tool christened the K-Gap Analyzer is likely to be of immense help. This is a deceptively simple tool which when used iteratively has multiple utilities. Some of the processes it aids are:

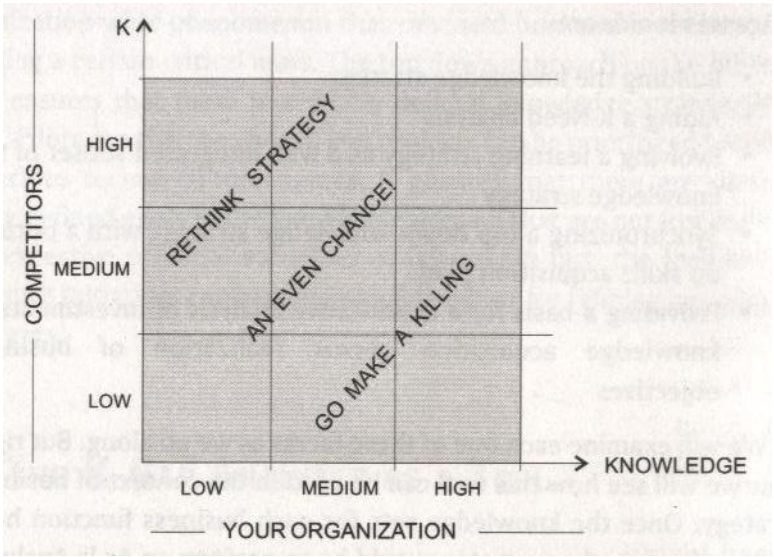
- Building the knowledge strategy
- Aiding a K-Need analysis
- Evolving a learning strategy as a well integrated subset of the knowledge strategy
- Synchronizing a top down knowledge strategy with a bottom up skills acquisition plan
- Providing a basis for a quantitative analysis of investments in knowledge acquisition versus realization of business objectives

We will examine each one of these facets as we go along. But right now we will see how this tool can be used in the context of business strategy. Once the knowledge sets for each business function have been arrived at, the next step would be to perform an As-Is Analysis. This entails pegging the current knowledge levels of the organization as high, medium or low. While some organizations might like to do this exercise based on the collective judgement of their key personnel, the K-Gap Analyser, when used in the K-Need analysis phase, helps to yield some quantifiable results by breaking down each activity into sub-activities and cumulating the knowledge scores.

Simultaneously, one needs to arrive at a similar rating for key competitors that is based on market intelligence reports and expert judgement. By plotting the organization's skill levels against those of the competitors, it gives a quick pictorial summary of:

- Where the organization currently stands
- What kind of skill acquisition plans need to be contemplated
- What are the requisite timeframes, based on the knowledge gap between the organization and its key competitors.

It also serves as a 'reality check' to figure out whether the business strategy is indeed feasible, given the current knowledge base of the organization and how far and how quickly it has to go.



An analysis of the nature and extent of the knowledge gap can enable top management to take certain strategic decisions, depending on whether the gap can be bridged through incremental knowledge acquisition or requires quicker, more comprehensive strategies through tie-ups, mergers or acquisitions. A

classic case in point was the example discussed in Chapter 2, where a knowledge gap analysis clearly revealed the existing holes in the overall product offering from Lotus Learning Space, prompting a tie-up with Macromedia.

THE FOUR PHASE KM METHODOLOGY

We have described here a four-phase methodology for KM projects, Obviously this methodology does assume a certain chronology of processes in implementing KM solutions. A number of KM initiatives have succeeded without adhering to well defined methodologies or processes. It is equally true, though, that these organizations have been unable to answer the "What next?" question that crops up immediately after implementing the first project. While quick initiatives are certainly worth encouraging simultaneously, following a more systematic and rigorous methodology for evolving a knowledge strategy ensures that there is a sense of direction in the overall approach, this also aoolws the retrofitting of the gains and learning from the first few projects into the future course of action.

The four phases are as follows:

1. K-Need Identification
2. K-Acquisition Framework
3. K-Net Design
4. K-Net Implementation

K-Need Identification

At the business strategy level one can look at broad groups of knowledge categories or K-Sets for being able to take some strategy decisions. However, in the K-Need Identification and Analysis phase, a more rigorous analysis is called for. The K-Gap analyzer comes in handy during this phase too.

The underlying principle behind a knowledge strategy is that an organization needs to know how the presence or absence of specific knowledge entities is affecting its overall business. Towards this end the following correlations have to be established:

1. Translate Business Strategy to KBDs.
2. Identify those KBDs that pertain to new areas of operation. For these, a fresh analysis of knowledge requirements needs to be done. For current areas, an as-is analysis as described below, needs to be done.
3. Translate each KBD into Key Business Processes (KBP). This assumes that the organization has already gone through an exercise of optimizing its business processes. It is best to do it at this stage if it has not been done. This will prevent the organization from investing its time and resources to supplement knowledge levels for activities that might be redundant.
4. For each KBP, identify all the activities involved.
5. Depending on the size and complexity of the organization, each activity might have to be broken down into several levels.
6. Each activity (or sub-activity) would be executed by one or more individuals. In the 'need identification' phase, each employee will need to establish this reference in terms of linking his activity to the corresponding KBP and KBD, besides the regular process of identifying the department or project that they are working in. This exercise by itself will help to identify redundancies within the system. It aso, in a subtle way, gives each employee a sense of participation and responsibility towards the overall business endeavor.

7. The employee then identifies their knowledge needs to perform their specific activity. These are listed as a comprehensive list of knowledge entities and are highly specific to the nature of the task being performed. Examples of such entities could be the previous marketing proposals for a marketing executive, manpower resource availability for a project manager, patient referrals for a sales person in a pharmaceutical company or Java application development skills for a programmer.

8. Once the 'knowledge entities' are identified, the employee would have to rate each of them on a scale of low, medium or high along two dimensions. These two dimensions are the knowledge level required for executing that particular job and the knowledge level currently available. The knowledge entity would get a score of 1,2 or 3 (for low, high and medium respectively) and of course a score of 0 if it is non-existent. Hence the 'required knowledge score' as well as the 'current knowledge score' can be arrived at. It needs to be understood that the current knowledge score should connote the knowledge immediately available so that is also reflects the time lag, if any, to obtain it and the ease or difficulty in being able to access it on time. For instance, access to previous proposals of a similar type would constitute a knowledge element of a high rating for a marketing executive in their ability to put together high quality proposals quickly. If they find that a similar proposal was made elsewhere in the organization, but it takes a considerable amount of effort to contact the right people and access the content, then obviously the current knowledge availability (or rather accessibility) to the marketing executive is low. It is important to understand that a good knowledge strategy has to take cognizance of both availability and dissemination of knowledge assets. Depending on the nature of the organization, a facility can be provided for employees'

assessments of their knowledge scores, to be refined by their superior who is likely to have a more holistic understanding of organizational activities.

This seems like an involved and complex procedure that would take up a lot of time and effort. Actually, this is not so. If the K-Gap Analyzer is available as an automated tool on the company's intranet, it would take each employee barely 15 minutes to file the required details on-line, once the organization level details of business strategy, objectives and processes are worked out as an initial, one-time effort. The gap analyzer is then capable of analyzing these inputs and scores at multiple levels of consolidation to yield some extremely useful insights. Let us look at some of them.

The total knowledge score can be computed as :

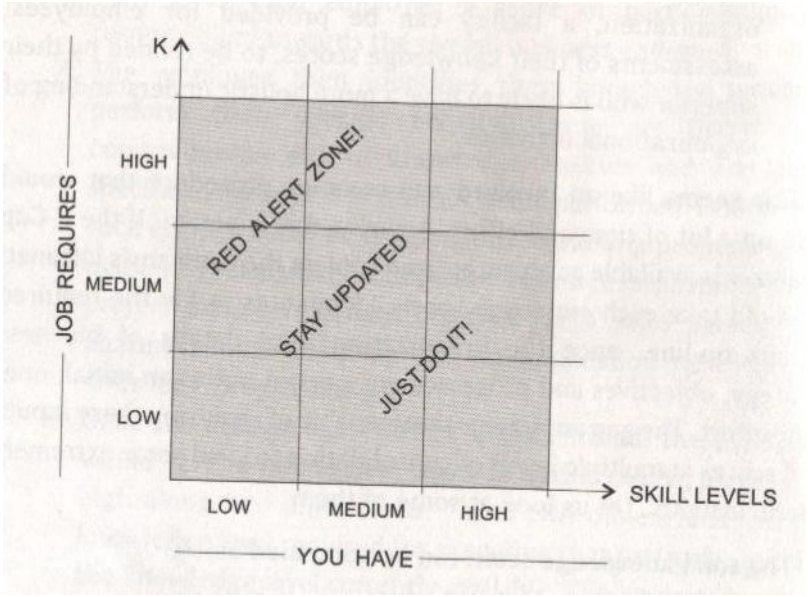
$$\text{Total Knowledge Score} = \Sigma_i \Sigma_j \left(K_{ij} \right)$$

Which gives the total knowledge scores of all knowledge entities K_i (i = 1 to m) across all organizational activities (j = 1 to n).

The differences between the knowledge score required and the current knowledge score gives the extent of the knowledge gap. The number of knowledge entities, when clubbed into homogenous knowledge sets, is indicative of the range or diversity of skill sets required.

On another dimension when scores of a single K-set are cumulated across activities, processes or projects, it gives the relative score (compared to other K-sets) of both the criticality and extent of the K-gap. Since the scores are consolidated from individual assessment, if more people experience a knowledge gap, it correspondingly increases the overall knowledge gap in the organization, thereby automatically prioritizing itself. This acts as a facilitator for prioritizing various knowledge initiatives on the basis of the actual need. Of

course there would be other issues like cultural and technological factors and overall business priorities that might influence the final decision.



The knowledge gap analyzer can be used to consolidate scores at either a project or departmental level to be able to find patterns of knowledge distribution and adequacy.

Depending on the criticality of the knowledge gap, decisions can be taken regarding what kind of investments would be justified for knowledge initiatives. If figures of opportunity costs because of delayed availability or non-availability of knowledge or skills are also captured when employees fill the K-Gap analysis forms, it greatly helps in an ROI analysis at a later date.

The K-Gap Analyzer therefore prepares the ground for identifying areas in which KM initiatives need to be undertaken. These probable KM projects can then be prioritized depending on overall business needs, technical feasibility, costs, expected benefits, required timelines, visibility and current work group culture. Even if all other parameters strongly drive the need for a knowledge

initiative, the current organizational culture could very often tilt the balance in a feasibility exercise of this kind. If the knowledge is more tacit than explicit in nature, and the current organizational climate is just not conducive to knowledge sharing, it might be well worth postponing the KM project until such time that a comprehensive Change Management initiative can be undertaken to create an environment that can sustain a knowledge sharing culture.

However, it needs to be kept in mind that most of the early KM projects in any organization are bound to entail change management issues. This phase would be the right time to create the 'Change Vision'. Behavioral changes especially in an organizational context cannot be expected to happen overnight. The process has to start right at the beginning of the project so that by the time the technical solution is ready for a rollout, significant progress has also been made to create the right culture for implementation. Towards this end, at this stage the 'change management agents' either by way of external consultants or internal leadership or both have to be identified.

K-Acquisition Framework

Once the knowledge gaps have been established and the KM project(s) identified, the next step is to figure out how and from where these knowledge components have to be acquired and disseminated. The following need to be achieved at this stage:

- Knowledge codification
- Identification of sources for acquiring these knowledge inputs
- Creation of knowledge maps by linking source and destination for knowledge elements

The starting point for this is 'knowledge codification' as discussed in Chapter2. Our experience has been that knowledge codification in virtually

every context has been simplified if we keep the Dual Knowledge Solution Model in mind. Broadly speaking, the Transformation model deals with explicit knowledge while the Independent model attempts to find solutions to sharing of tacit knowledge. Detailed classification of knowledge is something that can be determined by each organization depending on what typology it is most comfortable with and suits the needs of the organization best. For each K-Set or K-Entity, the source for acquisition can broadly be classified as under:

I to K Transformation Category

- from structured databases
- from information repositories – both text and multimedia (existing)
- from information repositories – existing but non-digitized

Independent Knowledge Category

- skill enhancement programs (training)
- external resources (people/organizations/sites)
- internal expertise (people / products)

For creation of knowledge maps, a knowledge need as represented by a K-Set or a K-Entity has to be associated with corresponding knowledge objects (K-object) which are going to be the knowledge source for acquiring that piece of knowledge. A K-Object could be an individual (expert), book, document, e-mail, manual, web content, website address, project reports or any multimedia content. So, in our example of the marketing executive, the K-entity would be 'previous proposals' and the K-Object to provide him with those inputs could be say a list of Word or PowerPoint files available at a certain remote server or even the names of his counterparts working elsewhere in the same organization with details of their clients.

Having identified the sources for K-Objects, the probable destinations would also need to be identified to complete the K-Map at a conceptual level. (Creating K-Maps ar the time of implementation has other aspects to it as well, like providing an on-line guide, a complete catalogue of K-Objects customized for every knowledge worker, a navigation aid and so on). The K-Acquisition Framework phase thus provides the blueprint for identifying, capturing and tagging all the required sources of knowledge. Simultaneously, the blueprint for managing the soft or behavioral issues should also be in place. A clear action plan has to be drawn up by the change agents.

K-Net Design

The stage is know set for the technical design of the KM solution. The following activities are done in this phase:

- Identification of the KM application portfolio
- Selection of appropriate technology for implementing the solutions
- Specifying the infrastructure requirements in terms of hardware, network and software
- Choice of the appropriate KM tool or framework, should any be required
- Detaining the technical specifications for the KM solution

One of the advantages of viewing KM projects through the Dual Model approach is that it lends itself to an easy delineation of the software application portfolio that needs to be developed for the KM project. Once the knowledge sources for the required knowledge sets are classified under the two models, as we saw in the acquisition phase, it becomes simple to identify the application layer. A representative sample is illustrated here:

K-Solution Model	K-Sets	K-Sources	Application Layer
Transformation Model Independent Model	(As identified in the Need Analysis phase)	• Structured databases	• Datamining/knowledge extraction applications • Interface and gateways to bedrock systems
		• Existing information repositiories	• Text mining and retrieval applications • Workflow and messaging applications
		• Non-digitized sources	• Document capture and management, search and retrieval applications
		• Skill enhancement programs	• Web-based training solutions with Learning Management Systems
		• External resources -People/ organizations -Web sites	• Yellow paging applications • Web crawler and broadcast applications
		• Internal expertise - People - products/ processes	• Communities of Practice (using expert locators, collaboration, virtual work space applications) • Best Practice Sharing (using knowledge repositories and Discussion Group based applications)

The application portfolio would determine what technologies are to be used as discussed in detail in Chapter 4. This analysis also makes it relatively simpler to determine the associated technology costs of developing these applications. Depending on the relative criticality of these knowledge components or sets, it could even be decided to start with certain 'simple' applications within a KM project. For instance, technologically speaking, setting up some collaborative frameworks would be relatively easier and less expensive compared to an extensive data warehousing/mining application. A quick cost benefit analysis usually helps to take certain operational decisions. Simultaneously, one would have to determine the infrastructure requirement in terms of the network connectivity, bandwidth requirements, servers, etc. based on data and content volumes, the number of employees and their geographic spread. Of course, more often than not, companies might already have an intranet infrastructure which means there would be no incremental investments excepting perhaps for additional servers and some upgrades, besides purchase of commodity software.

If the application portfolio consists of solutions to be developed in the Independent model category, then it might warrant a choice of either a KM tool or a WBT tool or both. We have already discussed, the approach that can be followed for making an informed decision on these issues, with the help of consulting aids like a Tool Retrieval Engine.

At this stage the detailed functionality and technical specifications of the proposed solution would need to be worked out. Processes and procedures for knowledge capture, storage, dissemination, retrieval, updation and archiving have to be clearly spelt out. In KM projects, it definitely helps to use the Prototyping and Rapid Application Development methodologies adhering to

standards like UML that ensure a constant interaction between the developers and knowledge workers. This is important to ensure buy-in by knowledge workers at an early stage by providing GUIs that are intuitive and users are most comfortable with. Where knowledge or skill enhancement through on-line training is concerned, this too needs to be elaborated out in terms of both features and content. It is important to customize content as closely as possible to the knowledge worker's requirement. Interestingly, the K-Gap Analyzer, because of its innate ability to be used at any level of detail, can actually be used to even structure the contents of a learning session. Fig. shows how learning objectives can be prioritized and structured based on an actual analysis of specific skill gaps.

This diagram depicting the use of the gap analyzer shoes that merely because a project team is working on an E-Commerce project, it is not right to come to the conclusion that putting the entire team through a standard training program will suffice. Although a standard training program on E-Commerce may have all the components enumerated above, a particular project team might require specific content to be sourced and provided as dictated by the K-Gap. In this example for instance the project does not require much skills based on TCP/IP concepts. So it does not have to be a part of the learning objectives. While the project does require javascript and HTML skills, the current skill levels are more than adequate. Hence the course can be structured in such a way that it lays additional emphasis on issues like firewall and security, OOAD and EJB and perhaps gives the latest updates on topics like VRML and Active X. This analysis can be done either at a group level, based on the cumulative scores of the entire project team versus the overall skill requirements, in case a regular instructor-led training program is being contemplated; or it could be done at the individual project member level in case the personalized web-based learning

systems are available. This is a very strong mechanism of ensuring that the inputs being given are exactly tailored to project requirements.

Training therefore could be an important dimension in the overall K-acquisition process. However, it still has to be viewed as a subset of a larger knowledge initiative for an organization. This issue needs to be clearly understood. For, in our interactions with people about to launch KM projects, we have very frequently encountered concerns about whether a K-Need identification process does not turn out to be a mere Training Need Analysis which their human resource department is already carrying out anyway. The K-Gap analyzer clearly establishes the linkages between learning programs and the overall knowledge strategy in both conceptual and quantitative terms.

By the end of this phase, therefore, all components of the knowledge solutin would be worked out to the last detail. The technical solution for the knowledge initiative would have been completely developed and tested, and the necessary infrastructure (hardware, software, network, etc.) for the eventual implementation would have to be in place. Equally important is the change management initiative, which needs to be well underway. Top management along with the change agents need to ensure that employee buy-in is ensured at an early stage (at around the time that the technical solution is being rolled out). Creating a positive environment of preparedness and eagerness among the prospective knowledge workers to be a part of the knowledge sharing activity is an extremely vital ingredient to a successful KM implementation.

K-Net Implementation

This is perhaps the most critical phase of any KM project. It is perhaps a misnomer to call it a phase, thereby suggesting that it has a start and end point. Unlike in most other projects, where KM is concerned, implementation has to

lead to internalization and assimilation of the knowledge processes as part of the mainstream activities.

The activities and processes thus far are fairly simple to execute, but it is during implementation that the best skills of all people concerned have to come to the fore. The infrastructure is in place, the technical solution has been developed and validated, what is left to achieve is the buy-in from people. It is precisely this heavy dependence on people that gives a larger-than-life implication to a KM project. If it has the power and backing of all the people behind it, a KM implementation can lead to benefits that are most often much larger than what was contemplated at the outset. There are tangible and intangible spin-offs that are seldom foreseen at the beginning of the exercise. On the other hand non-acceptance by the people can make such projects an unmitigated disaster as well. Unlike software projects, success does not depend merely on clearly quantifiable and measurable parameters like how technically robust the solution is, whether it has been adequately tested and meets the performance requirements. It depends on that highly subjective and unpredictable parameter called 'people involvement'. As Davenport[2] has said while talking about Information Ecology, the right balance of IT and cultural factors is necessary: "From where I sit, successful knowledge management always occurs through a combination of technological and behavioural change."

It is the subjectivity on account of the people and culture component that makes it difficult to come up with standard solutions for KM implementations. People and culture specific issues make it difficult to make generalizations even within a single organization, leave alone evolving solutions that could be applied uniformly across organizations. It is here that an organization has to rely heavily on the ingenuity of its own people rather than leave it to external consultants who at best might have a partial knowledge of the practical realities within an organizational set-up. External change agents or consultants can be

used to give an initial impetus to the change management initiative. However, these need to be sustained. The only mechanism for doing this is for the organization to internalize the process and provide tangible recognition for knowledge sharing efforts. Formal mechanisms like story telling are also being increasingly used to spread awareness and share successes for institutionalizing KM. Story telling asn an enabler has some very strong protagonists to the extent where there are several story telling communities over the Net.

There are certain activities that are necessary precursors to most knowledge solution implementations. Some of these are:

1. **Content Population and Organization:** The repositories will need to be populated with the requisite content. In the Transformation Model, the underlying databases or data warehouses would already be available. These would have to be appropriately interfaced with the overall solution and possibly other sources of more unstructured date. If content is either dispersed or non-digitized, these need to be classified, organized and supplemented with necessary metadata structures for easy retrieval. Check-in, checkout procedures need to be followed for constant updates on the repositories.

2. **Cataloguing of knowledge Objects:** In the knowledge acquisition phase, the sources of knowledge and the related knowledge objects would have been identified. Now is the time to actually catalog these objects, arrive at a codification scheme that is often dictated by the nature of knowledge objects in each organization and store the details. The automated knowledge map then uses these indexes to create an on-line route map for knowledge workers to locate these knowledge objects easily.

3. **Identifying the Knowledge Workers:** The content access would be determined by several layers of security as required in the context of each organizational activity. Generally there would be access rights at organizational, work group and knowledge worker levels. Therefore, each knowledge worker would have to identify herself into the system and specify the work group or special interest groups that she might belong to. In a knowledge organization, it would be important to remember that the system should enable as much free flow of knowledge and content as possible, unless they deal with sensitive information. The underlying philosophy of the knowledge network should always be kept in mind while configuring roles and this is to enable greater interaction and knowledge sharing. Therefore, classifying knowledge workers should be looked at in terms of being able to provide personalized and relevant information, rather than a mechanism that puts artificial boundaries to knowledge dissemination and assimilation.

4. **Setting up the Expertise Database:** This is an important activity for being able to locate the right people at the right time. In most cases the use of an automated tool for K-Gap analysis, automatically provides the skills inventory of the employees and helps to populate the expertise database. However, this basic layer needs to be supplemented with additional information on the availability of expertise that might be external to the organization, yet accessible to it through its network of consultants or business partners. In addition it is important to substantiate a perceived level of expertise in people (either through self-assessment or by the assessment of the superior) by more quantifiable mechanisms. Intel (which was rated second worldwide in MAKE'99-Most Admired Knowledge Enterprise) for instance, has been exploring ways of identifying experts through an analysis of e-mails. In Aptech,

on the other hand, we have had a fair measure of success in identifying capabilities even among the more reticent employees by their contribution in solving problems addressed to the Helpdesk.

5. **Processes, Roles and Responsibilities:** In our consulting engagements, we have often perceived a strange dichotomy when it has come to defining mechanisms and roles in a knowledge solution. On the one hand is the though that any kind of rigidity in a system could discourage spontaneity and creativity, two very fundamental pre-requisites for sustaining a knowledge culture. On the other hand is the harsh though undeniable reality that 'everybody's responsibility' is 'nobody's responsibility'. We believe that defining at least some fundamental processes, roles and responsibilities area virtual pre-requisite for being able to effectively institutionalize a system. However, while doing so, it is extremely important for all those who are involved in the exercise to remember the guiding principle that these are meant to be used as enablers rather than a set of rules. For instance, there should be guidelines that are clearly spelt out for checking documents in and out of the knowledge repository, for removing dated content, for monitoring discussions, specifying who should be the knowledge integrators for different groups, fr administration services including enabling and disabling access and so on.

A lot of the activities mentioned above are generic in nature and would be valid for a number of situations. It is in this context that it is useful to have automated knowledge frameworks as a quick start to an overall solution. The correlation between the requirements as described above and the functionality provided by such frameworks (such as the Aptech KMF) described on KM Tools are quite obvious. These provide a quick mechanism to understand both the processes and activities involved, besides

being able to quickly start some basic initiatives and providing a quick ramp up of the overall solution.

CREATING THE KNOWLEDGE

ORGANIZATION – DOES IT REQUIRE A CKO?

However, the job of making the solution work just about starts here. As pointed out earlier a KM implementation is not really about the success of a single KM project. It is about setting up a knowledge organization. This means addressing a whole array of issues from organization structure, values, managerial systems, employee satisfaction levels and formal and informal communication systems. For KM to become a way of life it has to be presaged by creating a conducive environment for the same. This is something that is much easier said than done. Where sharing of information or explicit knowledge is concerned, people are amenable to the idea much more easily. However when it comes to the transfer of tacit knowledge, the barriers for acceptance are much higher. In a competitive world where the indispensability and therefore the worth of people is determined buy the amount of knowledge they possess, the natural tendency to part with knowledge is rather low. This compounded with the fact that experts very often are not the best of communicators, makes it virtually impossible to even attempt a knowledge capture exercise. In such cases the best that a K-Net solution can do is to enable the expert to be tracked quickly, so that his services can be used through technology like audio/video conferencing. It is indeed a reality, although even in the Internet era, it is often only the traditional methods of knowledge transfer through on-the-job training or working as an understudy, which are most effective.

However, it is impossible to belittle the significant gains that are feasible through setting up Communities of Practice or sharing of Best Practices. For organizations to be able to truly elevate themselves to a position where its

people can have knowledge enhancing interactions rather than mere information transfer practices, it is important to set up meaningful Communities of Practice and enable sharing of tacit knowledge, however arduous the task may be. This is where an organization needs a knowledge evangelist. There has been a lot of debate about whether the role of skill should she possess and what should be her responsibilities.

It is our firm belief that an organization cannot make a knowledge culture a reality and knowledge sharing to be an all pervasive endeavor unless it is carried forward with single-minded devotion and zeal. Whether this is achieved by the CEO or a CKO or a group of CKOs is a matter of detail. At least in the initial years it is important for a group of individuals to make enablement of knowledge sharing their sole priority. The magnitude of the task would require a CKO (or the knowledge evangelist) to be supported by a committed group of 'knowledge officers' and 'knowledge integrators'. Often these two terms are used interchangeably. However, they clearly have different roles to play, knowledge integrators (KIs) are responsible for ensuring that the content that goes into the repositories is validated, collated, stays updated, is relevant and worthy of being there.

Some companies prefer to entrust the responsibility of administration to their KI's while others might want it to be centrally administered by a knowledge administration. Knowledge officers can be seen as the catalysts within each division or work group who ensure that the benefits and importance fo a knowledge sharing exercise are understood and internalized by every member of the group. These knowledge officers have to belong to and be an integral part of each of these divisions or groups and not be seen as an outside element. These are the people on whom the success of the entire project depends. Hence, they have to be the people with a great degree of conviction about its need. It helps tremendously if these knowledge officers happen to be

highly placed in the division's hierarchy. This way the activity is seen as being relevant not merely because the top management sees it as an imperative, but because the people at the operational level see it as something beneficial to their activities. Positive signals sent in this manner tend to have a snowballing effect, with people actually being anxious to contribute as much as they can.

In the case of the Aptech Education Division, there was a significant amount of skepticism towards the first knowledge initiative from some quarters. Though the stated objective of the CRS (Customer Response System) was to provide an enhanced level of customer satisfaction through a knowledge solution, there were those who actually though that it would entail parting with information that was 'theirs'. The head of one of the regional offices during a prototype validation session actually wanted to ensure that the system had adequate controls so that complaints pertaining to his region could not be viewed by others. His concern was that this could be used either a s policing mechanism by the head office or for other regions to try to make some unfair comparisons depending on the number of complaints. No implementation rulebook can ever give guidelines on how to deal with individual idiosyncrasies. In this case, however, the management made a very concerted effort towards ensuring that the solution was understood in its right spirit. No attempt was made to link this to any performance appraisal systems. What was more, it was decided that knowledge sharing would be subtly encouraged by measures such as a T-Shirt that carried the logo "I am a Knowledge Enricher" for those knowledge workers who contributed actively to discussion forums and helped resolve a good number of complaints. The proof was when the regional head in question was among the first to significantly enhance his connectivity infrastructure for better access to knowledge repositories. There is a very thin line between unhealthy comparisons and healthy competition. The transition can

be made through the effort of an enterprising CKO and a supportive and a supportive management.

THE DUAL SOLUTION MODEL AND THE IMPLEMENTATION STRATEGY

While tools like the K-gap Analyzer could help in carrying out an objective of knowledge requirements and therefore prioritize the KM projects, the eventual implementation strategy to be followed might once again be determined by the nature of the knowledge solution. A transformation model solution relying more on explicit knowledge has fewer ramifications in terms of organization culture and change management issues. A pilot implementation, followed by solution fine-tuning and subsequently spreading the solution to encompass all work groups could be a pattern that could easily be used for solutions where the imponderables on account of acceptance by the people are far lesser. This is certainly not so in the case of most independent model solutions (with the possible excepting of web-based learning solutions), which rely heavily on tacit knowledge. An organization might have a preponderance of solutions based on either one of the models or in some cases it could have an equal mix of both. In arriving at an overall implementation strategy and determining which projects should be undertaken first, each organization would have to use a good measure of its own judgement.

In organizations where employee morale is low and there is a perceptible degree of insecurity among employees, solutions based on the transformation model are more likely to succeed. One needs to understand though that even for the transformation model solutions to be really effective, there has to be a good measure of value addition to the information layers from the people concerned. Initial successes on these kinds of projects may well pave the way for a more ambitious tacit knowledge sharing exercise. Besides just the technolofy isues

and culture issues, there could be other parameters as well, which might influence the overall strategy.

The same organization could even start with both strategies simultaneously. A case in point is Aptech itself. The training division started with the transformation model initiatives primarily on account of the following reasons:

1. Its customer base is extremely large.
2. The division is one of the oldest in the company where business processes have been clearly identified and streamlined.
3. The information flow is fairly structured.
4. These have already been automated through bedrock systems.
5. While existing information systems have only looked at capturing and analyzing data, there is a clear case (at least in the case of student complaints), where it was felt that these systems house an enormous amount of knowledge. Knowledge in terms of how problems have been resolved sometimes through the exceptional trouble – shooting skills of certain individuals – knowledge that is rarely recognized and probably never re-used.
6. The division follows a well-delineated organizational hierarchy and communication channels are formally defined since it entails interaction with a very large number of business partners (franchisees).

On the other hand, take the software division of the same company that is characterized by the following features:

1. It is a relatively new division.

2. processes are still evolving and have not really reached a great level of maturity.
3. The division has a very loose and non-hierarchical structure.
4. Information flow is not really streamlined and uses more informal rather than formal channels.
5. The key strength of the division is the sheer brilliance of some of its people and not so much the maturity of its processes.
6. there is not much that has been done currently by way of automated systems.

Did this division wait for basic systems to fall in place to follow the transformation approach from information to knowledge? No. It went right ahead with several knowledge initiatives that had nothing to do with IT initiatives that were being evolved. One of them was the Help Desk and Expert Panel facility. Every knowledge worker is assigned to one or more knowledge groups depending on her area of work/previous experience/interest. Each knowledge worker publishes her skill areas. In case of a problem where any one would wish to request for help, it is logged in through the intranet based help desk facility. It can either be logged as a general request or it can be directed to a specific person. In the latter, the person concerned is automatically notified. The person either sends in a response or could redirect it to a discussion forum. Resolved problems get achieved for future reference. In a very short time this solution has resulted in significant time saving on projects. With multiple projects working with similar skill-sets, this has facilitated a very vibrant culture of knowledge sharing . Of course, it has to be gently but surely encouraged by the management, too. In this case anyone who attends to a number of help desk requests in a particular area becomes a defacto'guru'. There is nothing like peer recognition to nurture and encourage knowledge sharing.

KNOWLEDGE MANAGEMENT IN THE ORGANIZATIONAL CONTEXT

Let us first profile the corporation of the new millennium to understand the role that various initiatives and information technology tools play in building it up. Then we would conduct an analysis to see how these initiatives could be approached in an evolutionary manner or as a co-existing set of projects.

The profile of the millennium corporation can be built by looking at its ability and its arsenal to address each of the five imperatives mentioned earlier.

IMPERATIVE	SOLUTION
• Customer focused business processes	- Aligning processes to E-Business
• Highest quality at lowest prices	- Enterprise-wide integration
• IT playing a transformational role	- A whole array of tools
• Best in class performance measures	- Knowledge capture
• Right people for the right roles	- Learning / Knowledge integration

Organizations all over the world have already embarked on a number of initiatives to achieve these objectives which will enable them to become leaders in the global marketplace. We will briefly examine some of the major ones and see what tools are being deployed in each area. We will then see how an overall knowledge management initiative links up many of these initiatives

- **Improved Customer Service**

  The current trend in this area, pioneered by early Internet and E-Commerce adopters, is Customer Self Service. Giving customers the ability to access information themselves has resulted in quantum jumps

in customer satisfaction and also significantly reduced the cost of employing large numbers of customer service representatives. Web Technologies, the integration of internet systems with corporate intranets and the use of Group Ware and collaborative computing systems to enable the customer to dig deep into the knowledge bases of the organization within a designed security network have been the key technology enablers in this area.

- **Customer care and managing relationships**

  Customer Relationship Management is emerging as the new Gold Standard application of the new millennium with new consulting firms like 12 Technologies leading the way with products that extend the virtual organization into the office of the business customer and the hoem of the retail customer. On the organization side, CRM tools help in linking the customer orders and queries into the legacy systems for order processing and enquiry or link directly to the Enterprise Resource Planning implementation of the organization.

  E-Business is also becoming a popular way of managing relationships both at the business-to-business level and at the business-to-customer level. While legendary successes like the virtual bookstore amazon.com and the auction site ebay.com have created waves in the business-to-consumer market space, it is widely believed that the biggest potential of the Internet and electronic commerce will lie in enabling business-to-business transactions. International technology majors like CISCO and Intel are already transacting a major percentage of their business with partners and corporate customers through these electronic transactions and even professional communities like doctors and lawyers and

governments all over the world are now embracing this new medium of interaction.

- **Enterprise-wide integration**

  What is expected to be complementary in an organization that enables its customers to interact and delve deep into its internal business processes is the ability to provide quick response through a set of business processes that are re-engineered for quick response and the ability to be truly 'market facing'. The process of Internal Integration has been addressed in the past two decades by waves of solutions ranging from Material Requirement Planning to Manufacturing Resources Planning to the now ubiquitous Enterprise Resource Planning with tools like SAP and Baan now becoming market leaders in their chosen segments. In addition, collaborative computing enables information and decision-making to be shared across corporate networks. Tools like Lotus Notes, Microsoft Exchange and GroupWare systems support and enhance the capability of both ERP and legacy systems in organizatrions. Business intelligence, data warehousing and data mining capabilities are also being brought into organizations to further tighten the capture, sharing and usage of data and information to benefit internal as well as external business transactions.

- **Tighter integration across the Supply Chain**

  With more and more focus on core competencies, the need for outsourcing non-essential services and even large portions of the manufacturing or service delivery process has become the order of the day. This has consequently led to the imperative of managing the entire supply chain tightly to ensure that the customer does not suffer on account of the handoffs from the organization to its partners. Supply

Chain Management tools are now becoming as popular as CRM products and are inevitably finding linkages to the ERP systems that most organizations have implemented. These also link to the internal collaborative systems, making seamless interfaces within and across the organization, one of the key features of the millennium enterprise.

- **Inducting and Retaining Talent**

  In most industries today, attracting and retaining human resources is one of the most crucial activities. It is the focus of considerable attention at all levels.

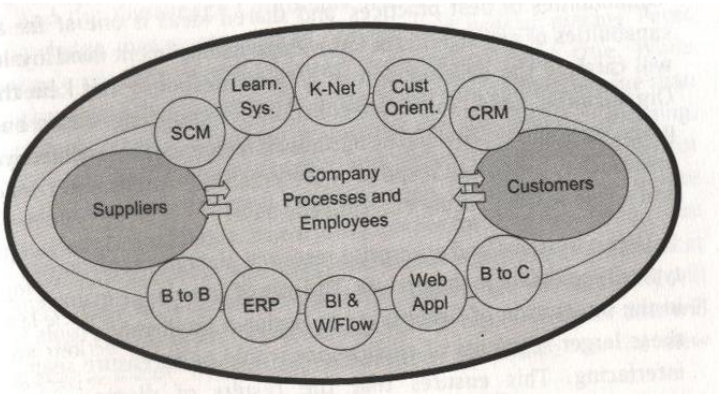
This is one area where information technology has probably contributed the least. Evolutions in technology-based training, performance support and knowledge networks have enabled organizations to speed up the training processes and reduce costs. Even relatively mediocre employees are empowered to perform at peak levels through finely crafted performance support systems. These initiatives help primarily in induction and training. Retention mechanisms are being built through information technology in the form of career planning and tracking systems. They also provide for Internet and intranet enabled environments which allow free sharing of ideas across organizational hierarchies and geographies. With every mentor andboss being just a mouse click away, behavioral scientists are being continuously forced to reassess organization development initiatives, and design newer and newer means of keeping high performers motivated and intellectually challenged.

INTEGRATING KNOWLEDGE MANAGEMENT INTO THE MILLENNIUM ENTERPRISE

Some Imperatives and Challenges

Knowledge management presents an opportunity to integrate all the people and processes that exist within an organization towards stated corporate objectives. These objectives have already been defined and range from employees to suppliers to subcontractors and to the customers. And today's tools range from the array of information technology solutions – Business Intelligence, GroupWare, ERP, SCM, intranets, the Internet – to every possible form of E-Commerce. The question is whether each of these is disparate and independent optional initiatives or whether knowledge management can provide a thread of continuity to integrate and align all these initiatives towards the common goals of the millennium enterprise.

All corporations today are faced with enormous challenges that threaten their supremacy even in relatively unchallenged domains. This fiercely competitive environment has been created by a combination of competitive pull factors like globalization and privatization, and technology pushes, primarily caused by the rapid proliferation of the Internet. The ease of the crumbling of the Berlin wall has brought down many erstwhile entry barriers. In an environment where product superiority is transient and brand loyalty is becoming an anachronism, the only differentiator will be the quality of the organization's processes and its ability to attain and sustain 'customer intimacy'. Once the customer intimacy objective has been translated into specific consumer to business electronic interfaces and customer service and response mechanisms, the next stage is to ensure that the enterprise's business processes are all oriented to the needs of the customer. A true market facing enterprise ensures that customer needs flow quickly down to the last level of response in the organization and the needs and actions are captured in the legacy systems or ERP bedrock of the organization. The quick capture, storage, dissemination and



use of data, information and knowledge is essential to ensure that quick actions and responses are facilitated by information technology at all levels. This 'process energy' needs to be supplemented by the third imperative – that of People Empowerment.

This is where a knowledge-centric approach can really enable a corporation to succeed beyond the expectations of its customers and the capabilities of its competitors. A true knowledge Corporation will be one where the principles of knowledge management are applied as an underlying philosophy for all strategic initiatives, ranging from customer interfaces to internal integration of systems to business-to-business Interfaces. Included of course is the full continuum of the learning organization from learning systems to performance support to knowledge management.

An analysis of the potential of knowledge management tools and techniques to transform the implementation of each of the initiatives will put the real potential of knowledge management in perspective. These are discussed at great length . Consumer-to-business and businee-to-consumer transactions can range all the way from simple customer queries and feedback through a Web Storefront to comprehensive Customer Relationship Management (CRM) tools.

The trends in Business-to-Consumer (B2C) E-Commerce point towards more and more self-help for the customer to enable customers to access deep down into the innards of the organization and conduct secure transactions with very little interaction with the employees of the firm. Thinking through the knowledge interventions required to facilitate these self-help environments will call for a deeper understanding of customer buying patterns and psychology so that all the intelligence derived form significant customer interactions can become part of the institutional memory of the enterprise. This will ensure that every future interaction of the customer with the firm becomes richer and will enable the concept of customer intimacy to really come alive.

Consumer to business transactions would be meaningless if the organization did not build processes to quickly enable the flow of expressed and implied customer needs through the enterprise. Collaborative computing involves the implementation of Group Ware and messaging solutions and tolls like Lotus Notes have become synonymous with knowledge management. The ability to build 'communities of best practices' and shared ideas is one of the key capabilities of any significant knowledge management initiative and will catalyze the development of a Quick Response and Reflective Organization. Added to this are collaborative knowledge capture and usage capabilities provided by business intelligence tools which again ensure that processes respond more creatively to customer issues and a true market Facing Enterprise is built.

Legacy systems and enterprise resource planning applications are typically complete in themselves. The role of knowledge management in the integration of GroupWare or business intelligence tools with these larger

segments of applications would be to ensure seamless interfacing. This ensures that the results of discussions and intelligence built over a period of time are able to enrich the data or context-specific information stored and also enable customers to get better Reponses. In the Insurance Company, the real cutting edge to customer response comes when the Call Center employee's interface is able to give in real time not just the data about policies or information about the customer's queries, but also tacit guidance on the best behavioural stance to adopt with the customer based on previous interactions.

Knowledge management also needs to be integrated with the data integration strategy of the enterprise. When this is achieved, it will also enable the business to business transactions from the firm to its virtual enterprise parterners – suppliers, sub-contractors, distributors and agents – to be energized through knowledge-based interactions. Picture an extended ERP situation where a comprehensive customer contract has to be executed, involving significant outsourcing and subcontracting and delivery to be made in installments. Synchronization of all business processes across the supply chain and intelligence and knowledge sharing across the virtual organization will ensure minimum hiccups and maximum customer and partner satisfaction.

And the knowledge Continuum itself? There is no doubt that knowledge management tools are the best way of making Peter SEnge's concept of the Learning Organization come true. While purists argue that there is a lot more to learning and knowledge than just technology, there is no doubt that the availability of learning, electronic performance support and knowledge bases on tap for ready access are the great potential areas for improving corporate knowledge capabilities. As we move deeper into the new millennium and knowledge processes, tools and technologies get internalized at every stage of

business interactions. Knowledge management will provide the visionary organizations with a capability level that will prove a major source of competitive advantage in the new Information Society.

DISSEMINATION TECHNOLOGIES

Dissemination can either be through pull-based or push-based technologies. Pull-based technologies would include the regular IR technologies that we have looked at earlier including query and search. Push technologies include broadcasting, alerts and triggers, channels, software agents, etc. Most solutions would use a combination of push and pull technologies.

KBMS

One would be loath to call knowledge Base Management Systems (KBMSs) a separate technology. There are some that believe DBMSs are to Information Systems what KBMSs are to KM. it is not so. A 'knowledge base' is more of a conceptual entity than a technology by itself. What we need to understand is what a knowledge base really connotes. To recap from the last chapter:

A knowledge base is information along with inter-relationships and contexts.

Technologically, this translates into a database or an information repository with advanced search capabilities.

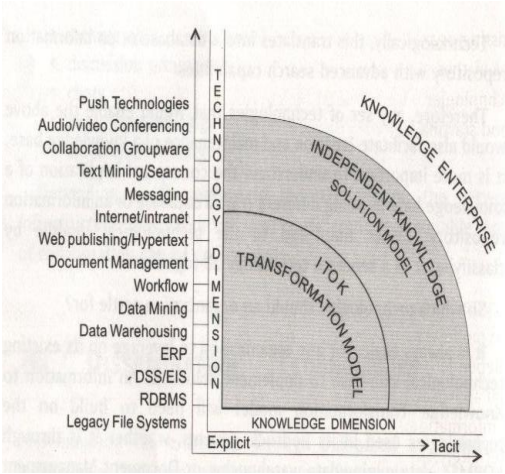
Therefore, any set of technologies that would enable the above would also facilitate creation and maintenance of a knowledge base. It is more important to understand the conceptual implication of a knowledge base as being different from a database or an information repository, rather than add to the technological muddle by classifying it as a separate technology all together.

So which technologies should an organization settle for?

It is always easier for any organization to leverage onits existing technological skill-base to implement solutions. An information to knowledge Transformation model will need to build on the technologies used in its bedrock systems, whether it is through RDBMSs, data mining/data warehousing or Document management applications and enable knowledge sharing and generation by supplementing it through technologies like collaboration search. An independent knowledge solution model does not have to be built bottom upwards. Several quick solutions can be built by merely ensuring the necessary connectivity between people and the use of powerful collaboration and conferencing mechanisms. This is not to say that the latter should not use what are commonly designated as IS technologies. Conversely, most transformation model solutions may also use some of the independent model technologies. The functionality provided by a number of these technologies is complementary in nature and can be judiciously used to evolve a suitable solution.

The key technological elements that are driving knowledge management forward according to a Delphi research note[2] are:

- The broad acceptance of intranets and extranets as the network backbone for automated business processes



- The growing sophistication of object technologies and their deployment in new software applications
- The arrival of practical standards for data integration and metadata management in the I-net environment, specifically the XML standard; and
- The merging of knowledge management priorities into the competition among the major software platform developers, specifically IBM/Lotus and Microsoft

Further, according to a Delphi User Survey in 1999, respondents have identified Intranets, Text Search and navigation. Tools, GroupWare/Collaboration Software, document management and the Internet/World Wide Web as the most significant technologies in their KM initiatives. The respondents current efforts are focused on organizing, leverging and sharSearch and navigation. Tools, GroupWare/Collaboration Software, document management and the Internet/World Wide Web as the most significant technologies in their KM initiatives. The respondents current efforts are focused on organizing, leveraging and sharing exiting efforts are focused organizing, leaveraging and sharing existing corporate knowledge. They feel that the next round of technologies will help them generate new knowledge and uncover hidden knowledge. This runs congruent to our earlier hypothesis that the Transformation model calls for a higher degree of effort and technological maturity. Hence, both an analysis of the relevant technologies, as well as hard data from existing organizations who have undertaken KM initiatives, seem to reveal that starting with the relatively simple Independent model technologies with an initial focus on explicit knowledge might be a good starting point for organizations embarking on a KM journey.

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1. Managing Knowledge Workers, "Frances Horibe" John Wiley & Sons,
2. Knowledge Management – Enabling Business Growth "Ganesh Natarajan and Sandhya Shekhar", Tata McGRAW – Hill Publishing Company Limited.
3. Management by Consciousness, Edited by Dr. G.P. Gupta. Sri, Aurobindo Society, Pondicherry.

Unit IV

Content Outline

1. HRIS for KBOs
2. Performance Management in KBOs with special reference to balance score card
3. Software requirements for the performance management

Teams in IT projects have traditionally involved two parties: end users and IT staff. However, for a knowledge management system, teams need to be more comprehensive to be effective. A knowledge management system is built on expertise, knowledge understanding, skills and insights brought into the project by a variety of stakeholders who might have little in common from a functional standpoint. The quality of the collaborative relationship between these stakeholder and mines the ultimate success of the system. Having the world's best knowledge management system still does not guarantee successful management of knowledge: That success comes come from KM's implementation and cultural embodiment by both the knowledge workers and the employees who will ultimately use it. This relationship is complex and often

highly problematic. Therefore, selecting the right blend of team members to lead the knowledge management project is a critical step.

The fifth step on the KM roadmap involves design of the knowledge management that will build, implement, focus, and deploy the KM system. In this chapter we identify sources of internal and external expertise needed, prioritize stakeholder needs, evaluate member selection criteria, and examine team life span and sizing issues. We identify characteristics of the KM project leader to determine mechanisms to streamline internal dynamics and maximize users' participation. Next, we identify tasks for the KM team and fit them to the risk evaluation matrix to circumvent common points of failure.

SOURCES OF EXPERTISE

Companies implementing knowledge management must draw their expertise from several different sources:

• Internal, centralized IT departments

• Team local experts

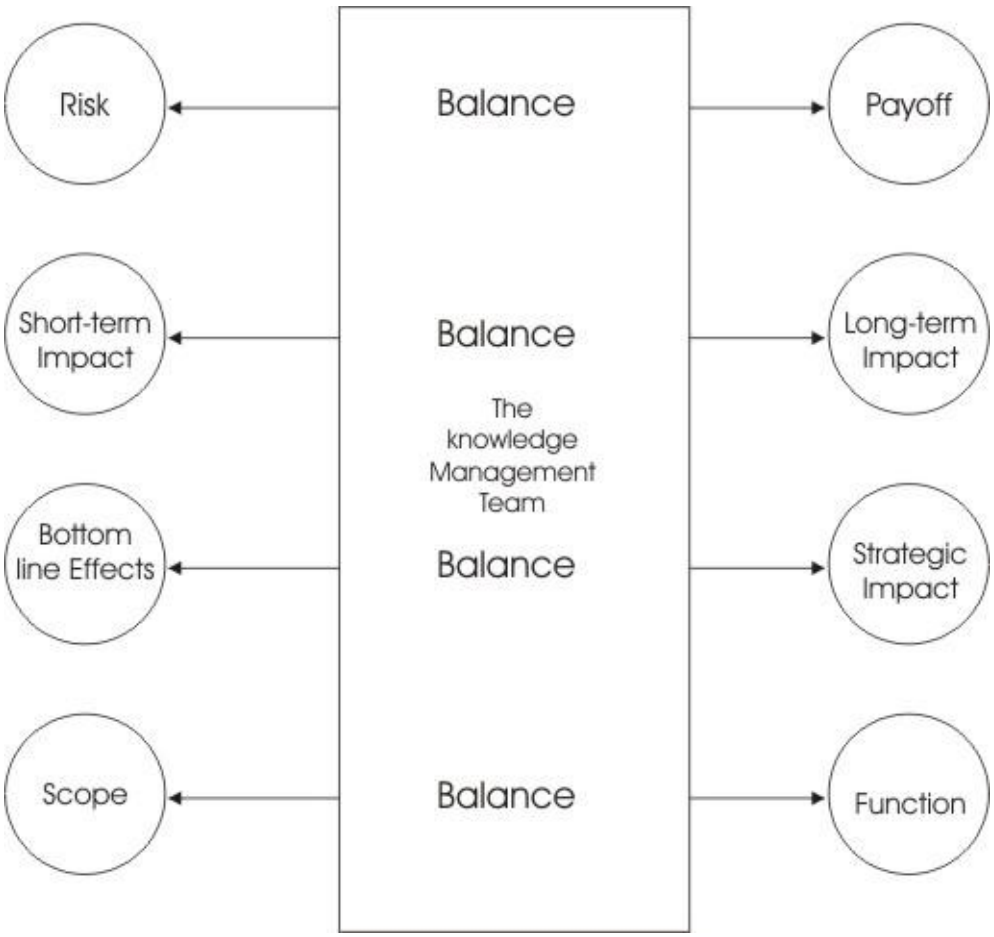
• External vendors, contractors, partners, and consultants

• End users and front-line staff

Although we cannot undermine the importance of IT staff who will actually build a system, the most important part of this team member set is the set of local team – based expert(s). The burden of balancing counteracting requirements falls on the shoulders of the knowledge management ream. Drawing from a variety of functional groups within and outside your company is essential. If done properly, this approach will become the strength of your knowledge management team and a major contributor to the success of such an endeavor.

LOCAL EXPERTS AND INTRA-DEPARTMENTAL GURUS

Active end-user involvement throughout the knowledge management project is critical to its success. In most companies, there are the early adopters of technology—the so-called gurus within your company. These are the people who come in early or stay late to play with new tools that become available. Even though many of these folks tend to be non-technologists,



They are the best people to gauge the possible usefulness of each feature that your system has. These local experts are often the first to notice the limitations of existing systems, and to think of possible upgrades and changes to meet the

evolving needs of their group. Examples of such workers include marketing people who realize that existing technology could possibly be used to deliver the latest sales figures and data needed by traveling salespeople in remote locations.

INTERNAL IT DEPARTMENTS

Relying solely on local experts, of course, has its limitations. Even though local experts might possess a fairly high degree of technical knowledge besides knowledge of their own job, they might lack an understanding of the interdependencies between complex systems, networks, and technology that pure technologists like the IT staff might be able to bring in. While the local experts will bring in the business case and ideas, it is IT staff who will bring in knowledge of:

- Infrastructural capabilities and limitations
- Connective and compatibility among the team-based systems and the overall organizational technology infrastructure
- Standardization issues across different platforms, applications and tools
- Technicalities underlying the adaptation of these tools by various knowledge worker groups within the company

When you are selecting team members from the internal IT department within your company, it is critical that you select personnel with credibility in the eventual user group. This helps ensure that the relevant set of stakeholder needs are adequately represented. With increased emphasis on customer service, it is easy for internal customers to outsource their development services to external consultants. Therefore, delegates selected from the IT department must have a more expansive view of who the customer is. This must include the internal customer at the same level of significance, as they would view an external

customer or buyer. Technical skills, of course, are a priority in making these decisions.

NON-LOCAL EXPERTS AND EXTRADEPARTMENTAL GURUS

Non local experts and extra departmental proponents promote team laterality. Laterality refers to the ability to cut across functional boundaries and relate to people from different areas. People who exhibit this characteristic are best suited to be on a knowledge management team. Such members can:

- Act as a bridge and as interpreters between people from different backgrounds, skill areas, and specializations
- Learn faster than the average person in your company and are not defensive about
- Their lack of understanding or knowledge in areas other than their own
- Bring value to the overall team synergy as they tend to be confident but not egoistically constrained
- Learn the basic lingo and understand the frameworks that their collaborators refer to
- Have the ability to deal creatively and rationally with the problems that the aforementioned differences can, and often do, lead to

Groups of such people have also been referred to as communities of practice; they ate charac- terized by

- Multifunctional groups that incorporate diverse viewpoints, training, ages, and roles

- Enacting a common purpose by engaging in real work, building things, solving problems, delivering service, and using real tools
- Developing intellectual property, knowledge, firm culture, internal language, and new skills
- Making lasting changes in the people and the competency that they embody

CONSULTANTS

Even though most of the technical, design, and soft skills needed for the knowledge management project might be available in there might be some areas that are no one's strength within the company. These shortcomings can often be overcome by bringing in external consultants. Internal participants might have slight cultural differences owing to their differing departmental and functional affiliations, but they are still tied together by a common frame of reference built around the overall company culture, dominant values, and image. However, extern consultants do not always fir into this frame of reference. Because external participants often lack this common frame of reference, it is essential that other binding mechanisms, such as their personal characteristics be strongly matched with those of internal team members.

Nevertheless, this lack of shared culture can often be turned from a liability into an asset. These external participants can bring balanced, unbiased our perspective into the entire design process.

In such cases, rust becomes another significant issue. Give the nature of the consulting business; it should come as no surprise if the consultant is developing exactly the same type

Of system for your competitor a few months down the road. Selecting a consultant should therefore be partially based on the extent to which die person

(or consulting company) is willing to transfer existing skills to your company's employees. Some of the other issues that must be considered while selecting a consultant include:

- The consultant's reputation for integrity
- The consultant's history that demonstrates the ability to maintain confidentiality about past projects
- Whether the consultant has worked successfully for your own company on earlier projects
- Whether the consultant (or consulting company) is working on a similar project for a competitor.
- Whether your internal team trust and has confidence in the consulting company.

In any case, highly specialized and capable consultants are often hard to find. Since knowledge management projects are strategically oriented, the level of confidentiality must be based up with specific, legal nondisclosure agreements. Where highly confidential material is involved, it might be a better idea to have an employee trained in the deficient area rather consultant from the consulting position to a permanent job within your company. However, corporate budgets can often restrict this option.

KM stakeholders should typify the group that they represent. For example, the person representing your company's human resources department should be one who is typical (where the meaning of typical is highly subjective) of the HR department, and has had a sufficient level of experience within your own company.

The human resources and project sponsors or senior management provide overall stability to the knowledge management project team.

The human resources and project sponsors or senior management provide overall stability to the knowledge management project team.

MANAGERS

The status and influence of senior managers would make one assume that they are the least likely group to be left out of the development process. However, several studies have shows that this exclusion is not only possible but one that also frequently does happen. As teams become too deeply engrossed in the user/developer relationship, senior managers tend to be left out of the loop. As we understand that the managers should be kept active in the knowledge management project; and without their active involvement the entire project may end up on shaky ground.

STRUCTURING THE KNOWLEDGE MANAGEMENT TEAM

Focus	Shareholder Characteristics	Role in the knowledge	
	Group	Management Project	Strongly Desired
Teams	User teams	Provide functional Expertise.	Must understand work Processes in their area.
	Finance	Provide business	Must have good inter-

team skills.		expertise in their Specific area.	personal and
certain credibility participating	Other functional areas with which knowledge management	Participate in the process design stage	Must have a degree of within other groups.
	willing to see functional	Help in the implementation stages of the system	Must be from other viewpoints.
Technology understand in depth.	IT experts/ Information systems	Provide technology expertise.	Must technology
good inter-skills.	Internal IT staff	Participate in the actual implementation and design.	Must have personal
willing to	External Consultants	Represent the internal	Must be

		and internally proficient technologists.	understand the per- Specialities brought in by other team members and actually incorporate them into the design.
		Bring in a perspective on functional capabilities and limitations of existing.	Must be willing to learn Must be credible.
			Must have an expansive customer orientation.

STRUCTURING THE KNOWLEDGE MANGEMENT TEAM (Cont.)

Focus	Shareholder	Role in the knowledge	Characteristics
Organizational Understand the Management and strategic processes Bring in vision that correlates	Senior Management/ sponsors/ knowledge	Support the legitimacy of the project.	

champion(s) with the overall company wide Must be credible

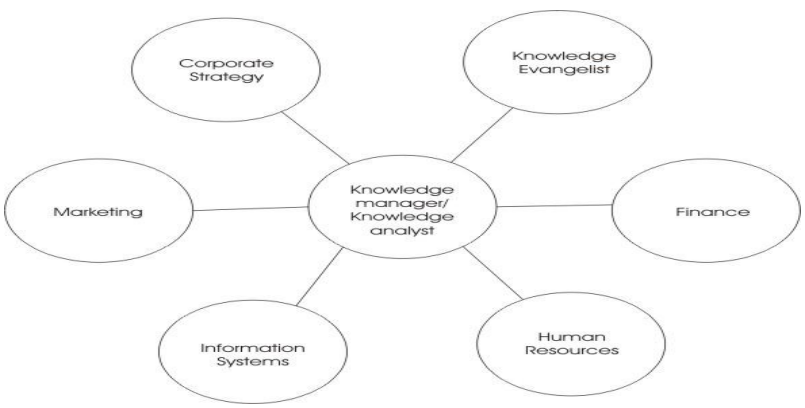
/CKO vision.

Serve on steering committees Must have a clear (if needed) idea of the bigger Picture of where Commit the resources Knowledge needed leveraging should take the company.

Must "eat their Own dog food," that is, they must themselves believe what they say.Need to be thoroughly convinced of the worth of the project.

TEAM COMPOSITION AND SELECTION CRITERIA

As with most other technologically driven enterprise-wide teams, functional diversity in knowledge management teams should be taken as a given characteristic. Teams need to be designed for effectiveness. While there is not straightforward formula for designing a good knowledge management team, the team's design has much to do with the nature of the project itself. Functional diversity can lead to only two possible outcomes, depending on how its handled. The first, and very common, outcome is destructive conflict and tension. The second, more desirable, outcome is characterized by synergy, creativity, and innovation. This happens only when laterality among team members is high and there is sufficient room to accommodate different backgrounds, values, skills, perspectives, and assumptions that the members bring into the team. Summarize the major team design considerations.



TEMPORARY VERSUS PERMANENT TEAM MEMBERS

Knowledge management is not like a typical business restructuring or technology introduction project. Those projects are temporary and depend on temporary teams, whereas a knowledge management project needs at least a small portion of the group to be permanent. A knowledge management project is not over once a knowledge management system is implemented; it must go on and continually improve and change with changing external and internal environments. While some members might be needed on the team only during the initial stages, others are not as temporary. Core team refer to this permanent, essential group. Team members can be dedicated to the project either full time or part time. The size of the core team must be kept to the smallest size possible-the smallest member count that can actually do the to work. Temporary team members often belong to specific user groups. The core team should consist of only the following participants:

- Knowledge champion or a senior manager.
- IT staff.
- User delegates representing the core business area that is going to depend on the knowledge management system. This could be engineering staff in case the knowledge management system is built to support research and development; it could be marketing if the KM system is for sales force enablement, etc.

The remaining participants, in most cases, should be involved in the startup phases of the project and can be called in later for further input as and when needed.

TEAM LIFE SPAN AND SIZING ISSUES

There are two schools of thought on the future of knowledge management: One school believes that knowledge management will continue to depend on people to manage knowledge throughout the lifetime of the organization; the second and more convincing school believes that knowledge management is a self-eliminating field. This means that as a company begins to accept knowledge management practices, they should, over several years, become so second nature to employees as the company evolves that eventually there should be no need for a knowledge manager or CKO to manage knowledge. Knowledge workers themselves should be able to handle all KM tasks once KM becomes embedded in the company culture and in work practices.

One would argue why the knowledge management team would, in the first place, do their job so well that it would eliminate their very need! That is a hard question to answer. Though there is a lot of ongoing research to find an answer to this question, there is little other than very strong financial and promotional incentives that can help here. For that matter, team members on the knowledge management team should be promised strong rewards and promotions should the knowledge management initiative truly succeed. A team that sets out to work with the fear of losing their job by performing too well is bound to be under motivated, if not unmotivated.

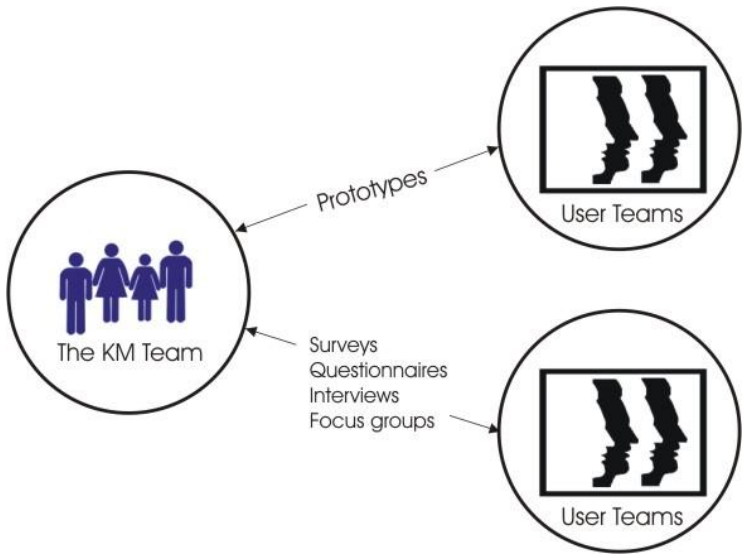
PROTOTYPES:

Systems developers have long realized the value of prototypes. A prototype provides both the developers, in this case the knowledge management team, and the users with an idea of how the system in its final form will function.

By using such a prototype, even if it is incomplete, users can see the possibilities of the knowledge management system under construction, and this improved understanding of the final product can lead to, or trigger, highly desirable refinement of its features, interface, functionality, and design. Tweaking the system's design based on user feedback in the prototype stages can save your company much headache and unnecessary rework-related expenses at a later date. Other ways the project manager can link to the final user.

THE KM TEAM'S PROJECT SPACE

One of the first tasks that the knowledge management team needs to undertake is that of understanding the project's strategic intent, organizational context, technological constraints, monetary limitations, and short-term as well as long-term goals. Members of your knowledge management team should be able to provide adequate answers to these questions collectively;



1. What is the company's strategic goal ?
2. What is the company's performance goal? Knowing where the company stands before the project provides a healthy basis for answering this question in specific terms.
3. Where does the knowledge management team fit in the organizational hierarchy?
4. Does the knowledge management project fit vertically or horizontally in the value chain?
5. What are the financial constraints?
6. What are the technical limitations in terms of existing platforms, company-wide network standards, etc. ?
7. What are the critical missing elements in terms of skills, people, and knowledge that are still missing in the team? Can consultants help? If so, which ones and how"
8. What is the time frame within which the project must be delivered?
9. What are the immediate payoffs? If there are none, when will the payoffs begin to show up? If that is not viable either, how will the value of the project be demonstrated and tested?
10. What level of commitment does the team have from the senior management and from the users? If it's poor, what can be done about it? Are there representatives from both these camps on the knowledge management team?
11. What are the cultural bloakades that should be expected? Does the company culture actually fit with the knowledge-sharing attitude that is needed to make a knowledge management system work? If not, what

changes in reward structure are necessary? Who has the authority to make such changes? Are they willing to make them?

12. Has any competitor or non competing firm implemented a project like this? What do we know about it? If it was successful, is there some way to get a key participant to switch jobs? Should we call that transfer of experiential knowledge?

Judging the true value of the project is a critical issue. If the project costs more than the long term value that it adds to the firm, it's probably not worth the investment. Therefore, exploring these initial questions is critical before the next step can be taken. If there are no direct answers, surrogate measures might be adopted. If your knowledge management team cannot collectively answer these questions, revisit its structure and constituents. For example, if the primary objective of the knowledge management project is to improve product quality by managing past and current knowledge about product quality problems, it might be valuable to question quality quantitatively. How much quality and at what costs? Can the customers tell the difference. Will they be willing to pay say, 7 percent more for the same product if higher quality is guaranteed?

MANAGING STAKEHOLDER EXPECTATIONS

The second task, after the knowledge management team has decided on an initial set of objectives for the knowledge management initiative, is to formally present this work to various stakeholders groups. The biggest advantage of such an interaction is that it can help the team compare the projects objective with stakeholder expectations and perceptions. Resolving differences at this point is a more efficient approach than trying to fix basic design assumptions and errors after the fact – when the project is ready for implementation.

TEAM CONSTITUTION VALIDITY. SUMMARIZING THE PROCESS

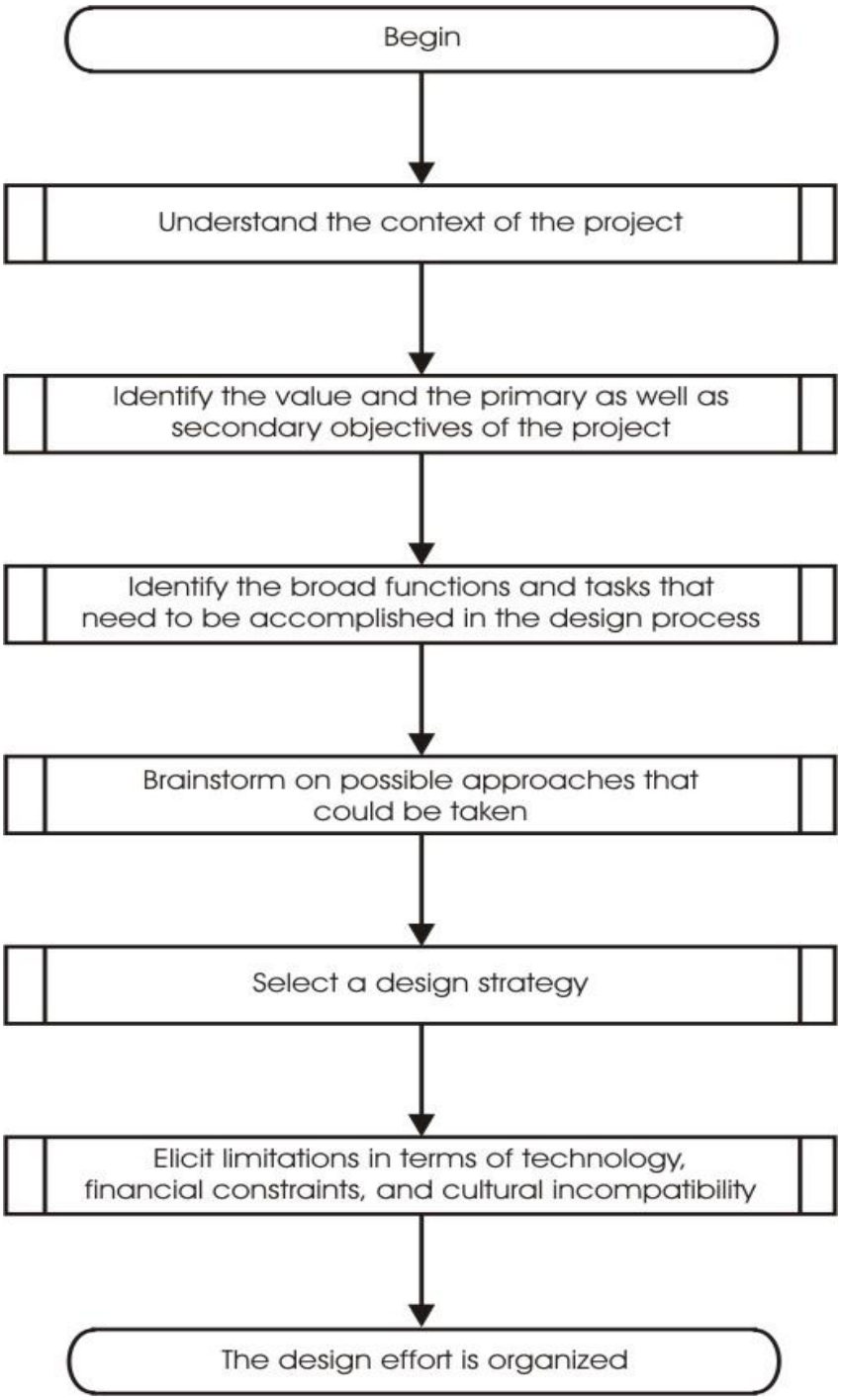
The initial process that the knowledge management team must go through before the initial design effort is organized well enough to proceed to the next stage. Examine this process flowchart and determine if your team, as constituted, is collectively able to elicit these requirement and design goals for the knowledge management system.

POINTS OF FAILURE

Lets take a quick look at the key points of failure in systems-oriented KM projects. Perhaps the most important study of project risks is by some colleagues, who examined software project risks in several international companies. In the United States alone, almost $60 billion was spent in cost overruns and another $80 billion in canceled projects in 1995 alone. Although other, more recent figures abound, this is perhaps one of the most rigorous studies done in this area, and the figures proposed here are depressing! An informal study of a group of 2,600 CEOs, CIO, and technology managers by the Cambridge Information Network in 1999 revealed that approximately 90 percent of IT projects exceed their budgets and over 20 percent exceed their budgets by more than 100 percent.

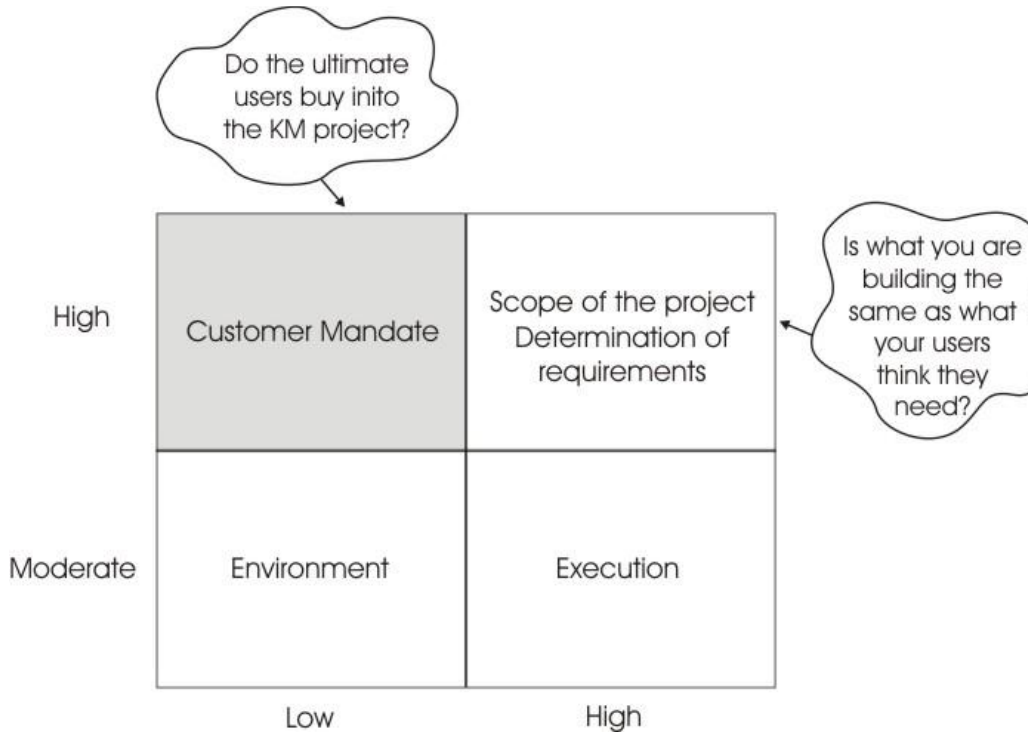
THE BREAKPOINT. BUY-IN-FAILURE

Lack of an active role of the top management has been identified as the primary reason why many projects fail; and the second reason is failure of the users to buy in to the project. If you decide to invest in a knowledge management project, and either your top management remains unconvinced of the value of the idea or the users you are building it for fail to see why they need the system, you are venturing in murky waters.


Begin
Understand the context of the project
Identify the value and the primary as well as secondary objectives of the project
Identify the broad functions and tasks that need to be accomplished in the design process
Brainstorm on possible approaches that could be taken
Select a design strategy
Elicit limitations in terms of technology, financial constraints, and cultural incompatibility
The design effort is organized

CATEGORIZING RISKS

The below figure, illustrates the four categories in which knowledge management project risks can be classified. This framework describes four quadrants on which project risk can be classified the level of risk (high/low) and the level of control that a project manager has on each category. Customer mandate, the shaded quadrant, is a high-risk area over which you have little control.



Customer mandate refers to the level of buy-in from the ultimate users, who is effect are your system's customers. Unless they buy in to the whole notion of the knowledge management system that you are building or planning to build, they will have neither the inclination to use it nor support it.

Similarly, initial commitment from the top management is a necessary but insufficient condition for your project's success. This support must be ongoing and active throughout the project. The problem with many of the companies that we have studied often falls into one of these two areas. Once a project has been initiated, the project leader must gauge the level of commitment from both senior management and the end-user community to avoid being caught in a situation where support for the project suddenly evaporates.

CONTROLLING AND BALANCING REQUIREMENTS

As shown in Fig, there are some areas where you, as the knowledge champion or knowledge management project manager, have significant control. However, there are some areas in which you have little or no control. Not having control over an area does not, by any stretch of imagination, mean that it will not contribute to the potential failure of your project. Customer or end-user buy-in and the environment in which the knowledge management system will be used are two such factors. The only thing you can do about customer buy-in problems is to try selling the project harder, and gauge end-user needs more appropriately; the operating environment is a wholly different story. That is where the cultural aspects of a knowledge management system and the people around it come into play. While all these risks must be thought be together rather than independently, a strong focus must be on the risks over which you have little control.

TRADITIONAL METRICS

FINANCIAL ROI AND TOBINS

Albert Einstein, very thought provokingly, reminds us that what can be measured is not always important and what is important cannot always be measured. It does not take an Einstein to conclude that the value of knowledge management cannot be fully measured in terms of financial return on investment.

A relatively old measure that has been in use for many years within business and academic circles is Tobin's q. This metric essentially measures the ratio between the firm's marker valuation and the cost of replacing its physical assets. While Tobin's q provides a snapshot of the firm's state of intellectual health at a given point in time, it provides no direction for knowledge management strategy development. It does not tell you what you are doing wrong or what to focus on. What is needed is a more dynamic view of knowledge performance that can help a firm trace both the growth and decline of its knowledge assets and the reasons underlying such changes. Traditional metrics like Tobin's q do not tell a firm how it can create further value, prevent imitation or substitution, and leverage its knowledge assets to gain a sustainable competitive advantage.

Nevertheless, when it comes to measuring returns on investment in knowledge management, two conventional approaches are in common use: putting a dollar figure on intellectual assets, and determining the dollar amounts saved or earned by using existing knowledge.

TOTAL COST OF OWNERSHIP

Current methods of measuring and evaluating information technology investments do little justice to information technology itself. How, then, can we expect those methods to be able to give us a clear picture of how our knowledge

investments- which stretch far beyond pure technology alone- are faring? Out interviews and studies show that companies do not always demand solid business cases for IT investments but have trouble handling decisions based on soft gains and benefits. Maturity of judgment becomes a distinctive inhibiting factor that prevents them from making decisions where limited quantitative data exists.

Many companies have responded by falling back on a total cost of ownership approach, which is much touted by Microsoft's release of windows 2000. This methodology identifies and measures components of IT expense beyond the initial cost of implementation. While TCO can be a useful tool to reduce ongoing costs by improving IT management practices, it does not provide a sound foothold for decision making. TCO does not cut it as a sufficient knowledge metric for several reasons:

- It leaves out significant cost categories, such as complexity costs.
- It ignores benefits beyond pure costing.
- It neglects strategic factors.
- It provides little or no basis for comparison with other departments and other companies, such as competing firms operating in the same markets.
- Lifecycle costs are difficult to gauge.

Applying TCO blindly can lead to bad and highly impolitic decisions. For example, the decision to switch vendors to get the lowest prices does not capture the implicit cost of supporting multiple vendors, the cost of dealing with compatibility issues, or the benefits of high volume purchasing. Total cost of ownership (or a similar measure fails) to do justice, comprehensively or completely, to the decisions made.

LEARNING MORE FROM THE TELEPHONE

Just as a telephone is hard to cost-justify and evaluate, knowledge management is something firms often find difficult to cost-justify in the face or other needed investments, but is something they want to and should have. Even though middle managers feel the need for a strong knowledge management initiative, convincing senior management to shell out the couple of million dollars for an initiative with intangible results can be a hard sell. However, there are ways and means to measure the short-term gains to demonstrate the need for, the extent of the longer-term guestimations of value added by knowledge management to the firm's bottom line and competitive standing.

THE METRIC IS THE LIMITATION

A recurring problem in knowledge management is the problem posed by a lack of standard metrics for measuring the impact of KM. Two of the most widely cited research projects relating to knowledge management and organizational learning are the case descriptions provided by DeGeus at Shell Corporation and by Ray Stata at Analog Devices. DeGeus approach at shell used scenarios in the strategic planning cycle that encouraged managers to revisit and challenge commonly accepted assumptions. The underlying belief was that learning would not take place unless managers exposed the hidden and embedded assumptions with which they approached new problems.

Similarly, Stata found that focusing on activities, such as improving response time in external changes and utilizing planning and quality improvement as learning tools rather than purely administrative tools, could accelerate learning.

Chaparral Steel, a large U.S. steel producer, similarly found that there was a lot to gain by emphasizing problem solving, constantly integrating internal and external knowledge into daily work-related activities of employees, and

allowing the time and resources needed to make this integration happen. In addition, a good reward structure helped further.

COMMON PITFALLS IN CHOOSING METRICS

No metric is better than one that is absolutely wrong. A choice of a wrong metric can have more ill effects than positive ones. Metrics, when applied to knowledge work, or in general, are vulnerable to seven common pitfalls.

USING TOO MANY METRICS

A few robust are better than a number of marginally significant ones. A good rule of thumb is about 20 metrics. They need to focus on the past, present, and future simultaneously to be able to relate past performance, present processes, and future results. The common problem that many measurement programs become victims of is that of putting too much emphsis on the past. Knowing the past is good, but it rarely is sufficient to give you a concrete idea about where your present efforts are leading your company. As John Naisbitt put it, "We are drawning in a sea of information and starving for knowledge. "Make sure you do not add any further to that glut of information by introducing more metrics than can be effectively, accurately and efficiently tracked. Forget quantity; focus instead on linking measures to strategic capabilities, competitive positioning, customer expectations, and financial indicators.

As John Billings once said, "Knowledge is like money, the more he gets, the more he craves. Nothing perhaps captures the essence of manger's rush to add more metrics once "they" figure out that they have found something that affects their company's bottom line. In this rush, many finally end up with more metrics than they can simultaneously keep track of.

Robert Kaplan and David Norton have an interesting discussion between a pilot and a passenger on the opening page of their book. The pilot says that he need to work on air-speed, so he ignores the altitude and fuel gauge altogether. "It is not what I am focusing on," he says. Amused at their own interesting analogy, they think that you would not want to fly in his plane, ever! Isn't this very close to what companies do when they focus on a single metric such as a bottom line or market share? On the other hand, some hand, some go to the opposite extreme and try to track too many at the same time. This is where lean metrics fit in. Lean metrics are the few but essential metrics that can be simultaneously tracked.

Some metrics might seem reasonable, but when they are put into action, they result in counterproductive consequences. A good lean metric must be precise, tied to overall value (not just profits), applicable, and designed to motivate extra normal effort from employees.

.DELAYED AND RISKY REWARD TIES

Rewards that are tried to metrics with a relatively longer term focus should be robust and structured in a manner that allows employees to reap short-term benefits by successfully achieving them. Job mobility is a fact of life. Delayed rewards will only bias employees to work toward metrics that deliver short-term payoffs to them. To keep the long view, select metrics that can be measured today but impact future outcomes. Alternatively, the long-term gains of the firm should be tied closely to the compensation of the employees (Stock options are a good example)

CHOOSING METRICS THAT ARE HARD TO CONTROL

Companies often make the grave mistake of implementing metrics that are beyond the control of their employees. Phrases such as "Build a $2 billion browser market by 2001, "Let every hand in America hold a Palmtop by the

dawn of the next millennium, " or "Put a Net PC on every desktop" are visionary ideas but almost impossible to control or achieve even through systematic efforts. There are exceptions of course: Microsoft's Internet strategy and Netscape's browser business are a few of those. But these are exceptions rather than examples of what can be normally achieved. Similarly for knowledge management systems, you cannot have metrics that cannot be controlled. Statements such as "Build the largest knowledge repository of Website design solutions" look good on paper, and that's about it.

CHOOSING METRICS THAT ARE HARD TO FOCUS ON

Performance of a company is not solely based on internally generated ideas. 3M and Xerox are leaders in innovation. But the difference is that 3M has actually commercialized more ideas than Xerox. The result has been that Bill Gates and Steve Jobs built entire industries on a few ideas that Xerox created (in its Palo Alto Research Center, PARC) but never used.

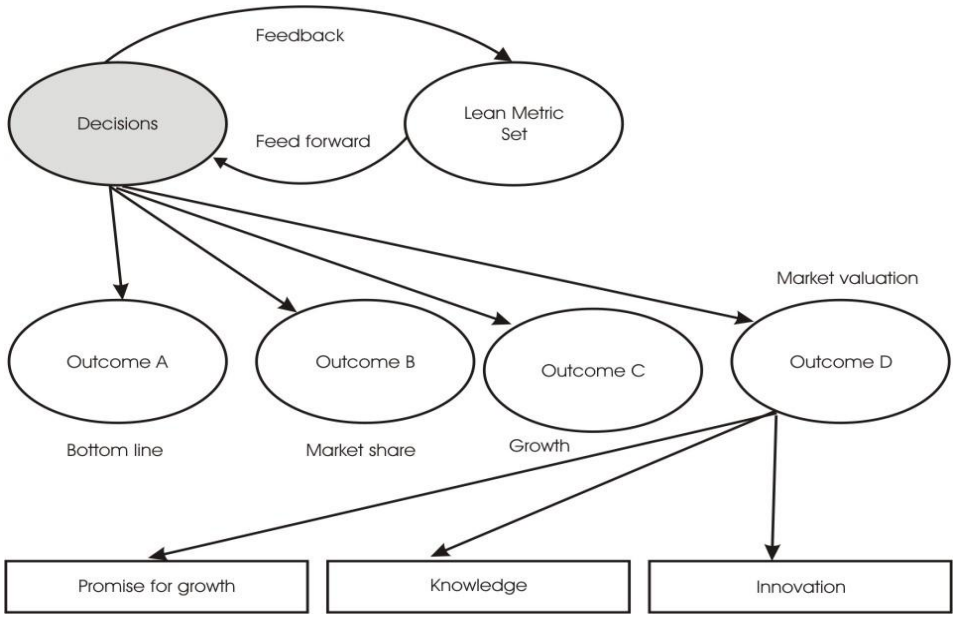
If you think that the Palm Pilot family of plan PCs are surprisingly successful products coming out of 3COM's bag of tricks, remember that the product was externally acquired from US Robotics (which had previously bought out Palm Computing, the commercial originator of the device). The key idea is that the metrics that you select must encourage decisions that also move your company in the same direction as its long-term goals.

CHOOSING METRICS THAT EMPHASIZE HARD RESULTS AND NEGLECT THE "SOFT STUFF"

Many companies emphasize hard (often financial) results while neglecting or totally ignoring soft ones. A national survey of U.S. organizations revealed that about 60 percent of the organizations studied never officially set any soft goals related to managing people, suppliers, customers, and innovation even when the hard goals were clearly laid out. Inspite of all the windy rhetoric about loving

customers, empowerment, and learning, not many executives are willing to put measures where their mouths are. It is dangerous for top management to focus on hard results and expect lower-level managers to take care of the rest. Financial success, for example,

as many research studies have shown, is highly dependent on ‘soft” employee attitudes and behavior. Make sure that your hard and soft measures go hand in hand and are well balanced.



CHOOSING METRICS THAT ARE TOO REAR-VIEW ORIENTED

Too often, measurement is not used to anticipate the future but to record the past. One way to avoid this trap is to ask yourself this question: Do we have metrics that can serve as early sorting signals for future problems and signal future opportunities?

MEASURING THE WRONG THINGS

Companies can run into troubled waters when they decide to measure things that are precisely wrong. This is very different from the notion that a few good measures today are better than

a perfect one tomorrow. One lousy metric tomorrow is better than a wrong one today. If that happens tomorrow might never come!

Wrong metrics can often prove more damaging than helpful. Not all metrics, such as calls answered per hour or sales pitches per week, that can be measured easily and cleanly are

necessarily good. Similarly, for knowledge work, measuring aspects such as time spent reading tw1edge reports or intranet screens are poor metrics. I could as well be sipping coffee (God forbid vodka!) while playing Quake II on my laptop while my desktop is connected to the knowledge management system at work! A poor metric would still create a perception of productivity The number of contributions by employees to a knowledge repository is an equally worthless measure. Employees then try to maximize the number of contributions, and then the due of those contributions takes a second place! There is something to be learned from McKinsey; McKinsey places value on the number of times its consultants' contributions are by other consultants.

ALL THE RIGHT THINGS NOT MEASURED

The other side of the coin is not measuring all the right things. ‘Without getting into Ito complexities of agency-agent conflict theory, a manager or employee will tend to maximize

William Schienmann and his colleagues point to the serious gulf between what should be measured and what actually is measured. See Schienmann, William, and John Lingle. Seven Greatest Myths of Measurement, IEEE Engineering Management Review, Spring (1998),

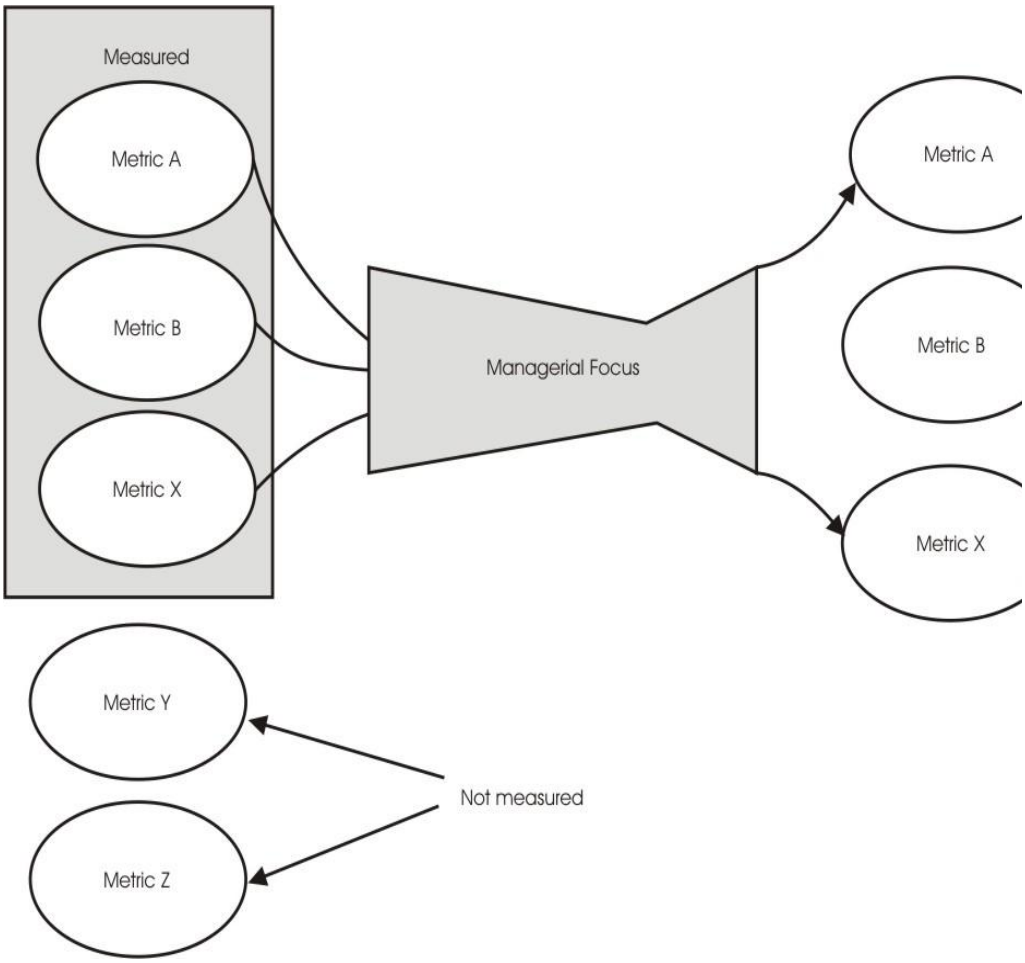
“...tomorrow might never coma,” from a song by Janis Joplin, in The Best of Janis Joplin, Warner Music.

The metrics that are actually measured. If a manager is told that a high market share for a product indicates brand value, he will try to maximize the market share of that product, even though quality (not measured) might be equally important. John Hauser and Gerald Katz explain this concept, which is further illustrated in fig.

Let A, B,C, Y and Z be some arbitrary metrics. If all five of these are important, but only three of these, A,B and X, are actually measured, employees will focus only on those and simply ignore Y and Z, however important they might be. Managers and employees who maximize A, B and X will be rewarded for their performance even if Y and Z go to the dogs. Soon the entire company or department is focused on improving the metrics that are actually measured, as they alone provide an indication of the quality of their work, If A,B and X lead

to productive results, then the metrics are considered effective. If they fail to produce good results, they are considered ineffective. Hauser and Katz suggest that the chosen metrics gain tremendous inertia and that employees who have

painfully learned to maximize the chosen metrics fear to change course. The problem begins right there.



Knowledge sharing and creation often tend to be akin to metric Y-ignored and little rewarded. Knowledge-intensive companies, on the other hand, have included knowledge sharing and creation in their repertoire of critical metrics. Every employee's compensation is, in part, determined by the amount of knowledge that the employee adds and the frequency with which other employees refer back to that contribution. Choosing the right metrics is

therefore critical both to evaluate the performance of your knowledge management strategy and to make it work in the first place.

THREE WAYS TO MEASURE

We met Roger Bohn's Stages of Knowledge Growth framework in the preceding Thanks to its simplicity and ease of use, it provides a more readily usable method for the measurement of process and technological knowledge. However, the biggest strength of this work is also its primary weakness. The Stages of Knowledge technique is good at providing a15,000-foot view and a clear bigger picture, but it does not let you examine progress improvements at a lower level. While we began with that model, we will need to some technique that is better suited for a micro level analysis.

Let us examine three possible approaches to measuring edge work and the efficacy of the knowledge management system. The first is as ward benchmarking methodology; this can be a good starting point, but in the long term this technique loses value and flexibility The second technique is the House of Quality. That competes with the third technique: the balanced scorecard approach. The advantage the House of Quality (QFD) methodology is that it has been widely used and a number of low cost software tools can partially automate its application.

BENCHMARKING

Robert Camp aptly describes benchmarking as the "search for industry wide best practices that lead to superior performance." In plain English, this simply means that benchmarking is an undertaking of companies that aim to emulate the ways things are done best, anywhere in or outside their firm, industry, or sector. Many large firms have adopted bench a significant, systematic technique for measuring the company's performance toward its strategic goals. This concept was popularized by Carla O'Dell and her colleagues at the American

Productivity and Quality Center (www.apqc.org). One argument for benchmarking is that there are existing best practices within different parts of the same company. So we should begin by identifying those skills and capabilities within our own organizations before we look outside. Companies repeatedly end up solving the same problems that have already solved in other offices or locations of the same company; they expend time and money building solutions to issues that have already been addressed: If only we knew what we know! Texas Instruments, Harris Corporation, AMP, UNISYS, and Rank Xerox have tried this approach and reaped substantial benefits and cost savings.

The benefits of benchmarking are not limited just to process improvement or reuse; they extend far beyond and promote both the growth and acceptance of a learning culture through out the organization. Benchmarking efforts can often provide insights into various areas.

Anecdotal evidence suggests that managers do not buy into ideas that strain finances of a company without short-term payoffs for too long. Even though a comprehensive knowledge management strategy might be at work in the background, show your senior management some short-term outcomes.

Make it rare. Focus on the areas of knowledge that give you an edge over competition. Through benchmarking studies, you can easily figure out the areas in which your com petition is not strong. If any of those areas are a possible source of competitive advantage, by all means, support them!

Gateway for example, is known for its customer service. If you have a problem with a computer you bought from them, you know that you will probably find a knowledge able customer support representative on the other end. Almost all PC manufacturers have some kind of customer support, but Gateway decided to strengthen this over any thing else. Most Gateway's customers tend to be repeat buyers simply because of their excellent customer service. Gateway also uses a

customer knowledge repository to be able to track all previous problems that a customer might have had in the past.

Some companies build a competitive advantage by taking one of the given metrics to a level that is rare and that customers value. NEC has built on this rarity as well. NEC'S printer division provides an overnight replacement warranty for all its laser printers for two years from the date of purchase. By being able to track customer information through a sophisticated knowledge retrieval system, NEC provides overnight replacements after asking little more than one question (the printer's serial number) on the phone.

Make it hard to copy. Customer data is an excellent example of a resource that is very hard to copy. Benchmarking can help you figure out the resources that you have and your competition does not. If you focus on resources that can be copied, it will, at best, buy you a temporary competitive advantage. However, if you focus on knowledge areas in which your employees possess skills, you can make it immensely difficult for your competition to copy those without luring away your employees. Consulting companies have known this for a long time, and it's about time you thought of applying the same idea to the knowledge assets within your own company.

Make it hard to substitute. Whatever categories of knowledge that you focus on, make sure that straightforward substitutes do not exist. Companies that thought they had gained an edge by outsourcing a part of their manufacturing operations to firms in Third World countries did not take long to realize that everyone else could do the same. And they did.

Knowledge relating to skills, reputation, and experience cannot be easily substituted with close equivalents. Make sure you focus on such areas when you begin.

Benchmarking is unlikely to reveal such areas unless a high level of job diversity in the employee pool that is involved in the effort).

Benchmarking practices often reveal anecdotal evidence and impressions about competition

It's dangerous to rely on such impressions because they cannot be generalized in any

Benchmarking is most useful when you know what your expectations and objectives are and

the process itself is closely tied to your firm strategic knowledge drivers.

HOUSE OF QUALITY AND QUALITY FUNCTION DEPLOYMENT

The House of Qua1ity approach was developed by Hauser and Clausing in an original paper that appeared in the Harvard Business Review. This methodology has been successfully adapted to link customer needs to business processes and internal decisions.

HOUSE OF QUALITY METRICS MATRIX

Figure shows the basic House of Quality metrics matrix. We begin by listing the desirable outcomes on the left wall of the house. As the quality function deployment (QFD) method incorporates an increasing number of these desired outcomes, the outcomes house begins to build up.

Be careful to select outcomes that are that observable without much delay and a seen clearly. Being able to see outcomes clearly does not imply that they must be easily measurable quantitatively. Outcomes can be high level or low level. Examples of such target out- comes include:

• Improve knowledge sharing to a level where 20 percent of an average employee's work is based on existing knowledge.

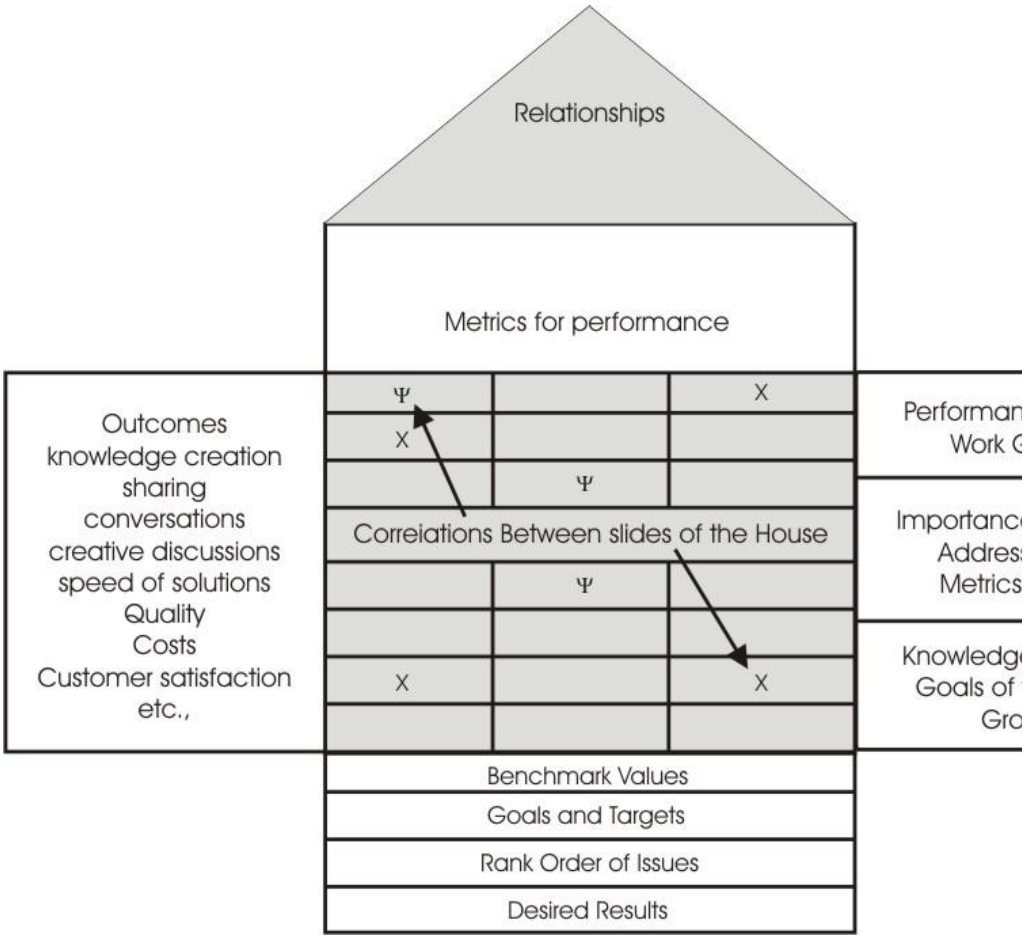
• Speed up problem solving by a factor of 5 percent over the next six months.

• Improve quality such that the rate of failure of product X decreases by 15 percent within the next 12 months.

• Generate more conversations among employees in our Atlanta and Barbados offices (a relatively vague but measurable outcome).

• Increase customer satisfaction levels by 50 percent

• Create a comprehensive knowledge repository on our Winblows 2004 (fictitious product) operating system for use by support representatives within three years, etc.



Although these should not exactly be your own goals, the point is that even though some of the objectives might be high level, the outcomes are observable. On the other hand, an objective like “create new knowledge” or “dominate the South American coffee markets” (where the coffee market is a vague definition, domination is not articulated, and the extent of what is considered South American is unclear) is too vague. You’ll never know when you get there, and when you get there you’ll never know that you are already there!

To attach relative priorities to each of these objectives, we attach weights to each of them. These weights form the right-hand wall of the house and indicate the importance of the issues in question. See Fig, for an example.

• Overall productivity of knowledge investments

• Service quality

• Customer satisfaction and the operational level of customer service

• Time to market in relation to other competitors

• Costs, profits, and margins Distribution

• Relationships and relationship management

Even though the term benchmarking probably did not exist when Aristophanes made the above quote in 414 B.C., he said something very profound about it! By benchmarking your own business against your competitor’s, you get information on how to tweak your company’s performance goals to stay competitive in relation to your competitors. Arthur Andersen, an international consulting firm, perhaps took the first strike at the intimidating problem of measuring knowledge work. Andersen developed a tool in association with APQC called the Knowledge Management Assessment Tool (KMAT); it contained a series of questions on a scale. Answers to these questions could then be compared to the

industry-specific and cross- industry averages of the responses. This process is, in essence, benchmarking.

By using such a relative measure, all companies stand to gain. By knowing where they stand on the intellectual forefront in relation to their competition, companies can focus on improving processes and process knowledge in areas where their scores are below average. Benchmarking, like any other business process, is most likely to produce a payback when strategic business objectives and goals drive it.

Benchmark Targets

Possible targets against which you can benchmark your company's knowledge management initiatives. You can identify other relevant targets from your own company, from rival firms, from nonrival firms, or from averages representing your industry or sector, Each has its own benefits and downsides, and the choice, finally, is one of subjective judgment and weighted costs.

Stephen Drew proposed the original version of the target set that this table is built upon. He also suggested that a possible target was international firms. I disagree with this stand and have not included that as a potential target, since the preceding options, by themselves, encompass international firms. Rarely do American firms compete solely with domestic rivals.

There are companies that represent the ideal firm within each industry. Lacking any other options. this is usually the best place to begin. These firms have performance levels that other

WHAT DO YOU BENCHMARK AGAINST?

Benchmark Target	Upsides	Downsides
Other units within your company	This breaks down internal barriers to communication and conversation between various divisions and offices of your company; targets are easily accessible	Internal policies might come into play; the measures are not indicative of what is considered performance in your industry
Competing firms this	Your company is measured against its direct competition; you get a fair understanding of the knowledge assets of your competitors as an aggregate; partners can easily be identified.	Legalities can make difficult; if a trusted third party such as a consulting firm is brought additional costs are imposed.
Industry	All of the above; this also	This can be very expensive;

	lets you gauge your company's standing in the overall market.	privacy issues begin to surface.
Cross-industry does not let	You might be able to gain valuable insights from noncompeting firms and apply them to your own company.	All of the above; this you gauge your company's standarding in relation to your competitors; the sample population is not truly representative of your own industry or sector; it is often difficult participate in such an effort; the cost of such an effort is rarely worth it

firms aspire to achieve. In the software industry arguably, every firm aspires to be a Microsoft. In terms of customer loyalty every firm aspires to be an Apple Computer Other examples, including some provided by Stephen Drew, of such role models can be listed.

Although benchmarking can be a good starting point, you need to be aware of its limitations.

Benchmarking, by itself, cannot be used as a strategy for knowledge management. The best that it can do is provide a relative set of measures that can help gauge what your efforts are leading to. Many companies, including Xerox, have successfully used in their 10- steps program; however, it is not a sufficient metric for knowledge work in and of itself.

THE BENCHMARKING PROCESS

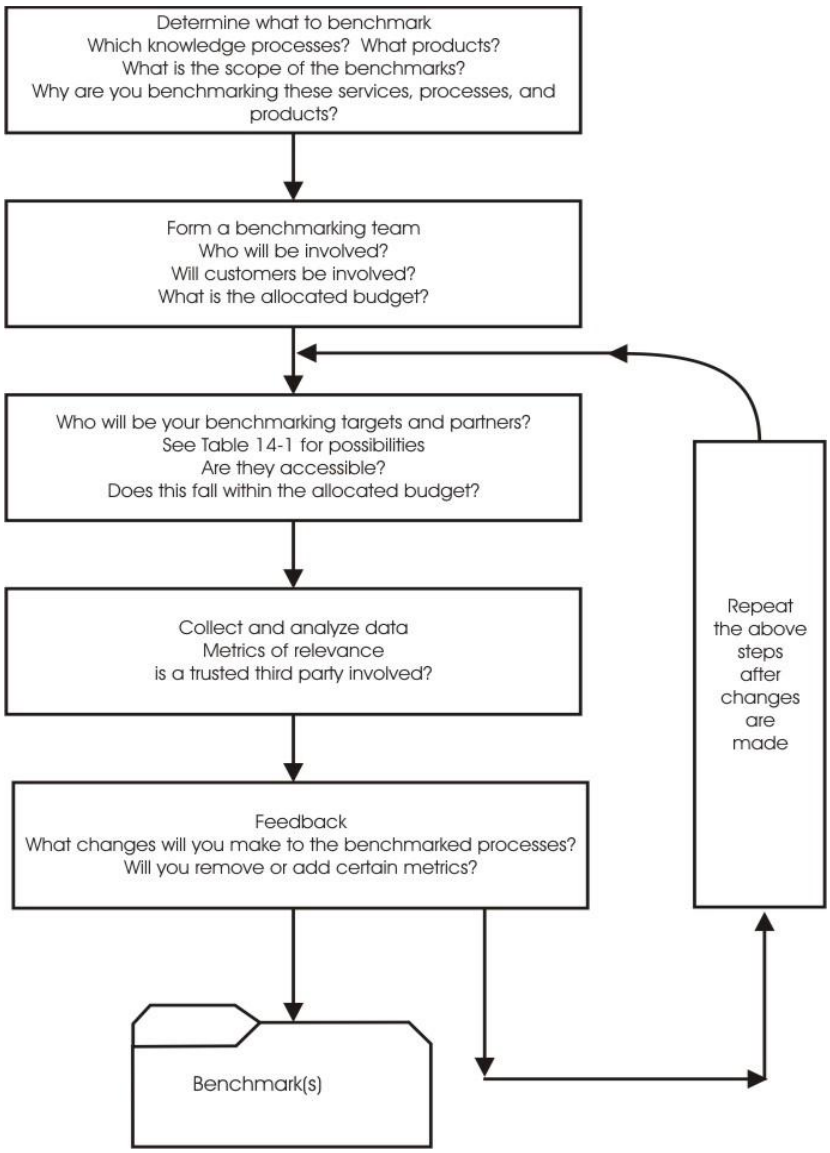
On the lines of Xerox's benchmarking program, M.J. Spendolini' has suggested a five- procedure thy benchmarking efforts. An adapted version of this process. applied to knowledge work is shown in Fig

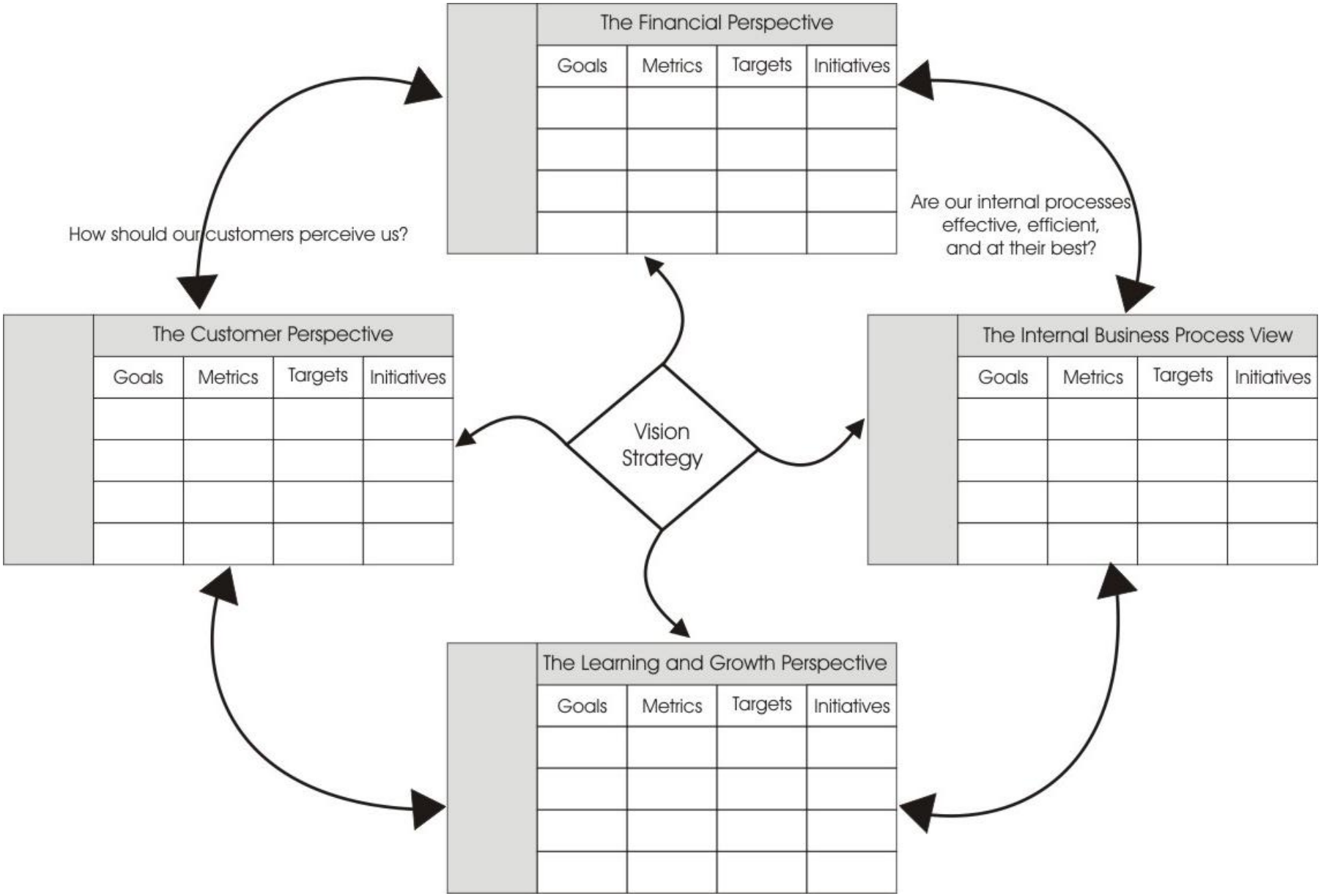
Prevalent Role Models in the Benchmarking Process

Speed of product development	Netscape Corporation
Knowledge management integration	Buckman Labs
Knowledge management technology implementation	Platinum Technology
Software development and marketing	Microsoft Corporation
Innovation and new product development	3M
Customer loyalty	Apple Computer
Brand Management	Disney
JIT manufacturing	Toyota
Logistics and enterprise-wide It leverage	Wal-Mart

Knowledge management measurement efficacy	Skandia
Mail order	Dell, L.L. Bean, Lands End, Gateway
Franchising	McDonald’s
Quality Management	Motorola
Product line recognition	O’Reilly publishers
Strategic planning	General Electric
Cost-based competition through Airlines, Apollo logistics and market Volume	E-machines Inc., Airtran, Southwest demand Printers

The benchmarking process can be used for self-comparison as well. That is, you can use the benchmark to obtain an initial benchmark value before you implement a knowledge manage- ment system or program. You can then, at a later stage, run the same benchmark to see if any- thing improved from last time. For example, you might want to see if your knowledge sharing network and customer support repository have a positive effect on the average level of customer satisfaction. You can benchmark the level of customer satisfaction both before and after the new system is implemented and see if any changes occurred. Be cautioned, however, that this is a slippery road: If you select the wrong benchmark, you will end up focusing on the wrong set of processes.


Determine what to benchmark
Which knowledge processes? What products?
What is the scope of the benchmarks?
Why are you benchmarking these services, processes, and products?
Form a benchmarking team
Who will be involved?
Will customers be involved?
What is the allocated budget?
Who will be your benchmarking targets and partners?
See Table 14-1 for possibilities
Are they accessible?
Does this fall within the allocated budget?
Collect and analyze data
Metrics of relevance
is a trusted third party involved?
Feedback
What changes will you make to the benchmarked processes?
Will you remove or add certain metrics?
Benchmark(s)
Repeat the above steps after changes are made


The Financial Perspective
Goals
Metrics
Targets
Initiatives
How should our customers perceive us?
Are our internal processes effective, efficient, and at their best?
The Customer Perspective
Goals
Metrics
Targets
Initiatives
Vision
Strategy
The Internal Business Process View
Goals
Metrics
Targets
Initiatives
The Learning and Growth Perspective
Goals
Metrics
Targets
Initiatives

BENCHMARK LESSONS

If you consider your company's knowledge management system as a competitive resource, then build into the four things that benchmarking teaches:

1. Make it valuable. Focus on including knowledge that is most valuable and then expand the coverage to less valuable knowledge. The key phrase is "valuable knowledge with rel

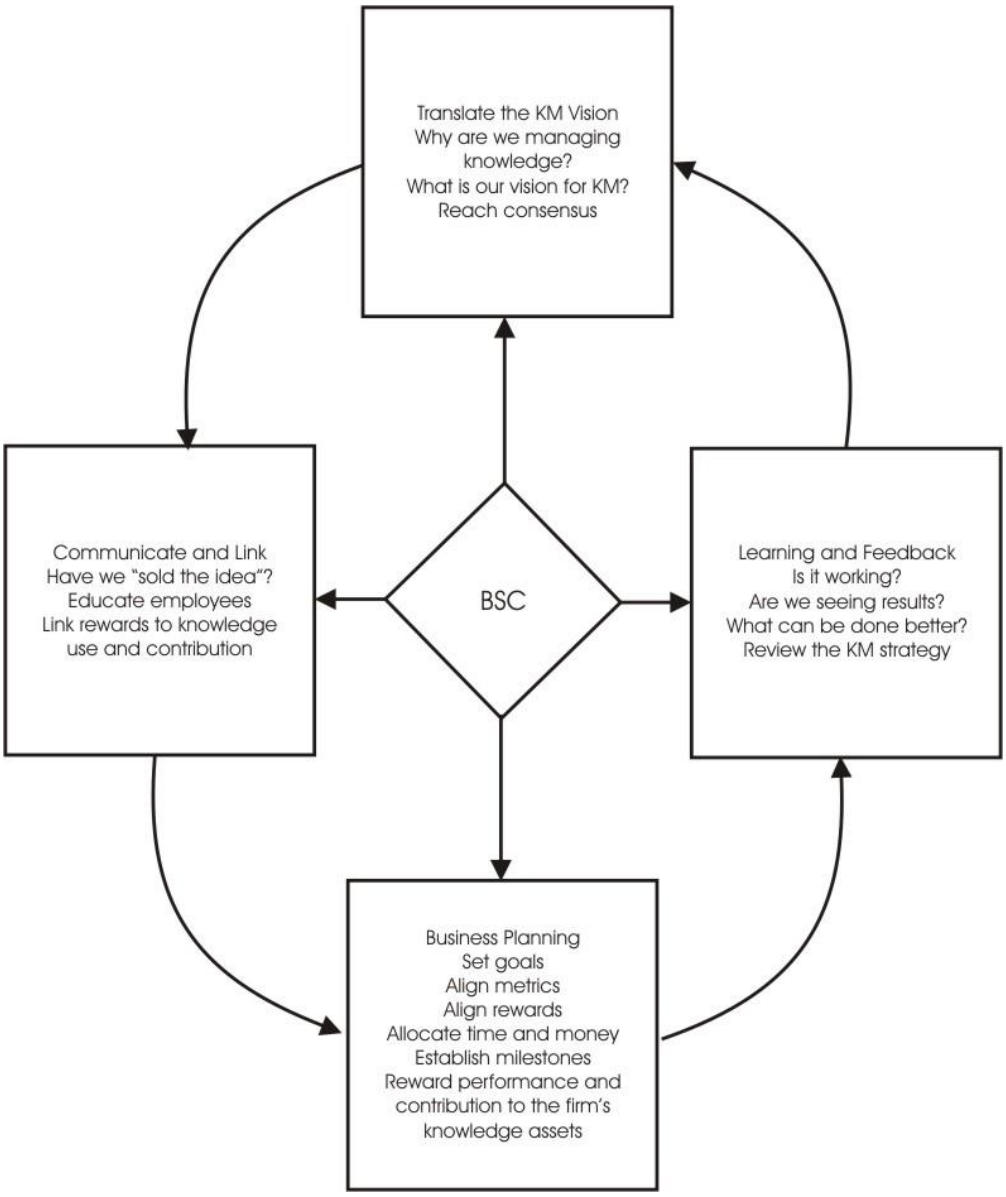
The balanced scorecard can also be used to evaluate the impact of the knowledge management system on four complementary criteria. The four processes involved in using the balanced scorecard approach for managing knowledge are described in Figure. These processes specifically put in the context of knowledge management, involve the following steps.

1. Translate the knowledge management vision. As Figure describes, this is the first process in the balanced scorecard strategy. At this stage, managers need to reach consensus

as to why knowledge is being managed or needs to be managed. What are the firm's visions for the knowledge management investment? The vision needs to be translated into concrete goals and objectives before any actions can be measured. The beauty of the balanced scorecard is that it can be used to create short-term, specific go individual employees, all of which feed to the organizational vision.

While we are on the subject of vision, let me make it very clear that this rarely comes by copying the mission statement! Mission statements often carry too much fluff or are at too high a level to be actually useful. They need to be brought down to the level where two people can agree on what it says after reading the same documents and that is rarely the case with mission statements

that most companies have. That's probably the reason why most mission statements are updated only when the next year's annual reports are due.



2. Communicate and link. This lets you measure as you go along your objective of selling the idea to your company's employees. You can gauge how well your employees are being trained to use the system as a part of their work. You can also measure how well you have linked rewards to both the effective use and contribution of knowledge. Here, the KM champion must communicate the strategy along the entire rung of employees and demonstrate the links between individual employee goals, and the departmental/organizational goals in terms of leveraging knowledge.

3. Do a reality check. This part of the balanced scorecard strategy determines how well your chosen metrics, explicated goals, targets, and allocated resources align with the initial ideas you had in mind for the knowledge management system.

4. Incorporate learning and feedback. The balanced scorecard lets you evaluate the goals, metrics, and targets that you have chosen for your knowledge management system and then analyze how well they are actually working.

In summary, the balanced scorecard approach lets you track the current health of the knowledge management strategy that you have chosen for your company.

By replacing the original four perspectives with measures successfully used by Skandia, a knowledge-based version of the balanced scorecard can be obtained. The underlying implementation and use would be akin to the conventional balanced scorecard method, but the measures provided will be those relating to knowledge management. This way, the financial, customer-related, process-capability-related, and employee-performance-related gains coming from the knowledge management system can be simultaneously tracked.

The actual implementation and use of the balanced scorecard approach is beyond the intended scope of this chapter. Now, you have a starting point for applying the balanced score card to knowledge management. For

implementation level details, I recommend reading The Balanced Scorecard (Harvard Business School Press, 1996) by Kaplan and Norton.

As Kaplan and Norton state, a balanced scorecard need not just have four dimensions. It can have five, six, or seven. The only concern of going beyond seven is that you have too much to keep track of and a lot of it isn't even critical. KPMG, for example, uses five different dimensions for its scorecards.

Although these choices seem reasonable, I recommend that you initially try using the dimensions similar to those suggested in Fig, which are based on Skandia's Navigator and which the company has used very effectively. The choice of dimensions is not set in stone. As long as you are sure about what you are measuring and why you are measuring it, that variable has a justifiable place on the balanced scorecard that your company adopts.

KPMG'S CHOICE OF DIMENSIONS FOR ITS BALANCED SCORECARD

Balanced Scorecard Dimensions	**Questions**
Client Orientation	What do I want to achieve with my existing Clients?
Market orientation	What am I going to do to decrease existing client turnover and find new clients? What am I going to do to strengthen my position in the business?
People orientation	What am I going to do to enable the team that I am managing to function better and to help my employees gain stronger competencies?

Result orientation	How can I attain better results with the same inputs? How can I increase the added value of my teams and myself?
Personal effectiveness	What am I going to do in the coming year to improve weak points and strengthen strong points?
Professionalism	How do I keep abreast of the newest developments? How do I collaborate with my peers more extensively?

ADVANTAGES OF KM BALANCED SCORECARDS

The balanced scorecard has some characteristics that the other approaches discussed in this chapter do not have. These characteristics make it especially useful as a knowledge metric.

• Ability to provide a snapshot of the intellectual health of your firm at any point in time.

• Built-in cause-and-effect relationships that can help you guide your knowledge management strategy.

• Sufficient (neither too many nor too few number of performance drivers and metrices.

• Capability to communicate the knowledge management strategy throughout the firm.

• Capability to link individual goals with the overall knowledge strategy of the firm. This implies that each employee can k his own and continue to contribute toward the goals of the knowledge management system and strategy without even realizing it!

• A direct, and often missing, link between long-term knowledge and competence goals of the firm and its annual budget.

• Translation of the lofty visions of a firm into more doable, realistic, manageable, and specific performance goals.

• Logical integration into the overall strategy of your business, and still make sense.

• Objective measurement of the contribution of knowledge to the more intangible sources of competitive advantage, such as customer satisfaction and employee skills and competencies.

The selected objectives are grouped and listed on the left-hand side of the house matrix.

The relative weights are assigned to each of these objectives on a scale of 1 to 5. Some other tools let you attach weights on a percentage scale of 0 to 100, as originally proposed in the House of Quality approach. A simple 5-point scale is easier to track. than a 100-point scale, which only makes some decisions and weight assignments both arbitrary and confusing.

Appropriate performance metrics can then be listed and clustered on the top of the matrix (the ceiling). The matrix itself indicates the levels of correlation between the metrics and the performance outcomes. Figure, for example, uses three different symbols to rep resent these levels of correlation (high, medium,

and low). Alternatively, a numerical value can be used, The decisions and metrics that also improve the outcome are said to have a high level of correlation. The interrelationships between all these parameters are represented on the roof of the house: By looking at the correlations within the body of the matrix, we can accurately focus on those areas of knowledge management that are most likely to affect overall company performance and help us move toward preset goals.

SOFTWARE TOOLS FOR QFD ANALYSIS

A variety of software tools can help automate the QFD analysis process. One of the more popular tools is QFD Designer (by Qualisoft Corporation) shown in Figure. Software tools allow real-time evaluation of the percentage of fills along different dimensions.

Skaridia's Intellectual Capital (IC) annual report also provides indicators of some other parameters that can be added to the House of Quality outcomes for analysis of knowledge management effectiveness. Some ideas, including some found in Skandia's annual IC report, for such parameters are the following:

• Competence development expenses per employee in dollars

• Employee satisfaction

• Marketing expense per customer

• Time spent on systematic packaging of know-how for future use, after a project is completed

• Research and development expense to overhead expense ratios

• Training expenses per employee

• Payback on development activities

• Average development time per new product

• Expense per dollar earned (e.g., in consulting)

• Renewal expense per existing customer

• Level of customer attrition

• Expense of business development (new customers) per dollar spent on overheads

• Training expenses per customer per year in dollars

• Information-gathering expenses per existing customer

• Total competitive intelligence expense per year

• Expense (dollars) of distribution of new sales material and data

• Time spent per unsuccessful business bid

• Total number of patents held

• Number of patents pending

• Average time of approval for pending patents

• Employee attrition rate

• Dollar figure value of losses per employee lost

• Dollar figure value of tosses per employee lost to a competing firm

• Expense of reinventing solutions per year

• Success ratio of new products and/or services

• Number of ideas implemented from the “suggestion box”

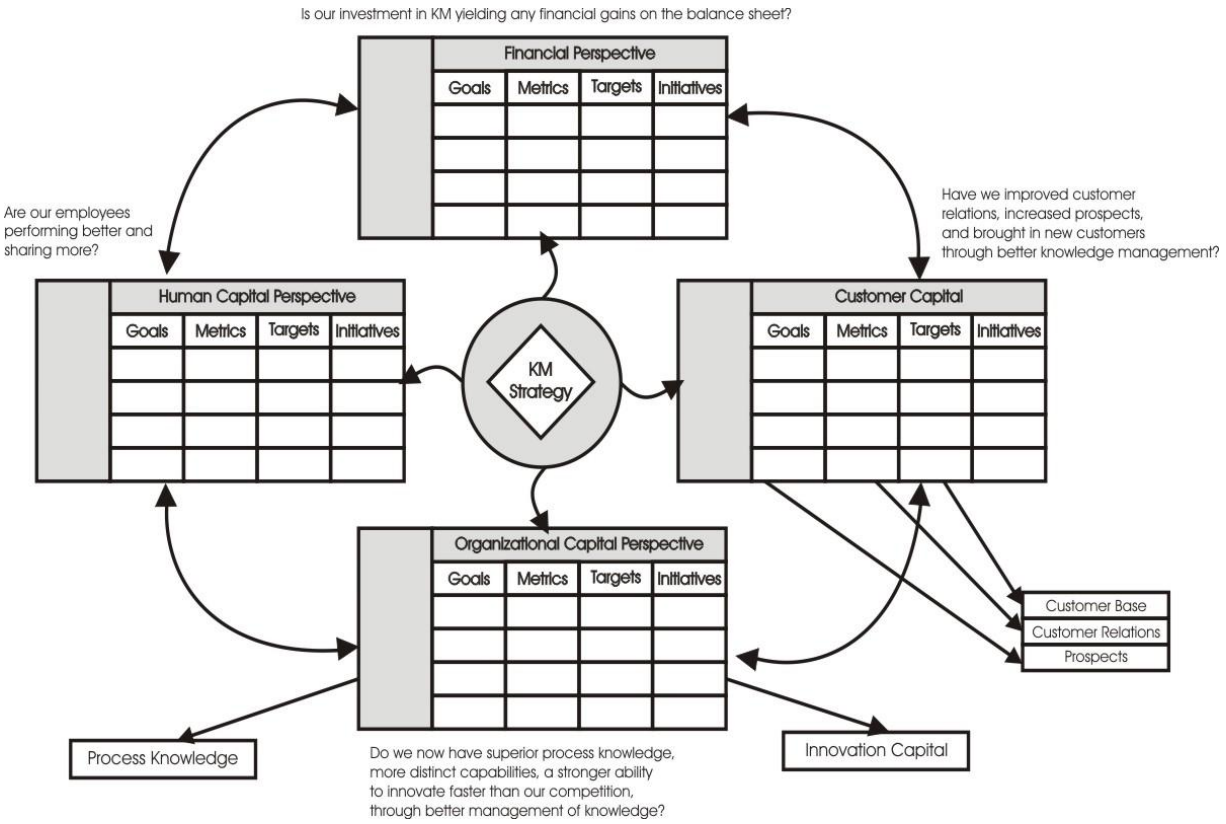
• Total production capacity or internal production capacity (this can be applied both to production and service firms)

• Capacity utilization

• Delivery time deviation rate

THE BALANCED SCORECARD TECHNIQUE

The third approach that is a viable method for measuring knowledge-centric performance of your organization is the balanced scorecard approach. Kaplan and Norton originally proposed the balanced scorecard in their landmark article published in the Harvard Business Review. The balanced scorecard provides a technique to "maintain a balance between long-term and short; term objectives, financial and non-financial measures, lagging and leading indicators, ad between internal and external perspectives." The basic scorecard for translating vision and strategy into actual goals is shown in Figure.



• Direct link to financial measures and your knowledge management system's effect on the company bottom line.

LIMITATIONS OF KM BALANCED SCORECARDS

On the downside, a well-designed balanced scorecard is more difficult to levels a similar QFD/HoQ (House 0 Quality) model. It is rarely possible to directly adopt another firm's balanced scorecard because subtle differences exist even between very similar However, there are some software tools that can make the initial ride lesser bumpy, such as the balanced scorecard tool, Gentia Balanced Scorecard, sold by Gentia Inc. (http://nee tia.com).

CLASSIFYING AND EVALUATING PROCESSES

This section touches on a very useful taxonomy that can help you classify sort, and processes by their category. Understanding and classi5'ing processes helps firms manage these processes as well as the knowledge that drives them. The sales process, fore pie, might have very little to do with the sales department in some high technology companies where primary customer interaction is with the engineering staff. What can be readily used here is a taxonomy of processes that has been developed by the American Productivity, and Quality Center (APQC) benchmarking clearinghouse.

The process classification framework (PCF) was originally developed as a collaborative effort across 80 organizations and envisioned as a taxonomy of business processes in 1991. A primary issue with the PCF continues to be the enablement of process benchmarking across industry boundaries. The utility of this process taxonomy is not just limited to benchmarking. It can be used to better structure the clustering of processes and functionalities your own company. The biggest strength of this framework comes from the fact that it was built by the joint effort of almost 100 U.S. organizations, many 0 which had an inter al presence.

The APQC process classification framework serves as a high-level, generic enterprise model that encourages businesses and other organizations to see their activities from a cross-industry process-oriented viewpoint rather than from a narrow, functionalist viewpoint. The process classification framework supplies a genetic view of business processes often found in multiple industries and sectors and service companies, health care, government, education, and. others, thereby allowing companies to compare processes meaningfully to other, different organizations.

The process classification framework represents major processes and sub processes, functions, through its structure and vocabulary. The framework does not list all processes found within any specific organization. Likewise, not every process listed in the framework present in every organization.

THE APQC PROCESS CLASSIFICATION FRAMEWORK

1.0 UNDERSTAND MARKETS AND CUSTOMERS

- 1.1 Determine customer needs and wants
  - 1.1.1 Conduct qualitative assessments
    - 1.1.1.1 Conduct customer interviews
    - 1.1.1.2 Conduct focus groups
  - 1.1.2 Conduct quantitative assessments
    - 1.1.2.1 Develop and implement surveys
  - 1.1.3 Predict customer purchasing behavior
- 1.2 Measure customer satisfaction
  - 1.2.1 Monitor satisfaction with products and services
  - 1.2.2 Monitor satisfaction with complaint resolution
  - 1.2.3 Monitor satisfaction with communication
- 1.3 Monitor changes in market or customer expectations
  - 1.3.1 Determine weaknesses of product/service offerings

1.3.2 Identify new innovations that are meeting customer needs

1.3.3 Determine customer reactions to competitive offerings

2.0 DEVELOP VISION AND STRATEGY

2.1 Monitor the external environment

2.1.1 Analyze and understand competition

2.1.2 Identify economic trends

2.1.3 Identify political and regulatory issues

2.1.4 Assess new technology innovations

2.1.5 Understand demographics

2.1.6 Identify social and cultural changes

2.1.7 Understand ecological concerns

2.2 Define the business concept and organizational strategy

2.2.1 Select relevant markets

2.2.2 Develop long-term vision

2.2.3 Formulate business unit strategy

2.2.4 Develop overall mission statement

2.3 Design the organizational structure and relationships between organization al units

2.4 Develop and set organizational goals

TABLE THE APQC PROCESS CLASSIFICATION FRAMEWORK (CONT.)

3.0 DESIGN PRODUCTS AND SERVICES

3.1 Develop new product/service concept and plans

3.1.1 Translate customer wants and needs into product and/or set requirements

3.1.2 Plan and deploy quality targets

3.1.3 Plan and deploy cost targets

3.1.4 Develop product life cycle and development timing targets

3.1.5 Develop and integrate leading technology into product/service concept

3.2 Design, build, and evaluate prototype products and services

3.2.1 Develop product/service specifications

3.2.2 Conduct concurrent engineering

3.2.3 Implement value engineering

3.2.4 Document design specifications

3.2.5 Develop prototypes

3.2.6 Apply for patents

3.3 Refine existing products/services

3.3.1 Develop product/service enhancements

3.3.2 Eliminate quality/reliability problems

3.3.3 Eliminate outdated products/services

3.4 Test effectiveness of new or revised products or services

3.5 Prepare for production

3.5.1 Develop and test prototype production process

3.5.2 Design and obtain necessary materials and equipment

3.5.3 Install and verify process or methodology

3.6 Manage the product/service development process

4.0 MARKET AND SELL

4.1 Market products or services to relevant customer segments

4.1.1 Develop pricing strategy

4.1 .2 Develop advertising strategy

4.1.3 Develop marketing messages to communicate benefits

4.1.4 Estimate advertising resource and capital requirements

4.1.5 Identify specific target customers and their needs

before you begin the process externally. Remember that benchmarks do tell you what to do next, but not how to do it.

- QEDs relate high-level goals to discrete actions. QEDs let you link goals, relationships, perceived significance, and outcomes for each strategic step that you take with your knowledge management system. QFDs integrate inputs from all stakeholders and provide explicit direction for enhancing your company's knowledge management strategy. QFDs can be automated to a fairly high degree with readily available soft ware. You can translate high-level goals to specific tasks, and these tasks can further be decomposed into measurable and manageable actions.
- The balanced scorecard links strategy, technology, competitiveness, and knowledge management. The KM BSC method helps you translate the knowledge management vision into action, communicate the KM strategy bottom up validate your choice of metrics, and analyze results of knowledge

management in the long run. It will provide a robust direct link between knowledge management, the system, your company's clients, markets, people, results, and profitability.

- Do not ignore the soft stuff Metrics must take both hard and soft results into account to present a true picture of your firm's intellectual health.
- Metrics in the rearview minor appear more significant than they are. Ask yourself: Do we have metrics that can serve as early warning signals for future problems and those that signal future opportunities?

In conclusion, we need to take a closer look at the cases of some companies representing a diversity of industries. All of them have one thing in common: They are immensely successful both from a competitive standpoint and a financial one because they realized the value of knowledge management and appropriately put their idle knowledge to work, and work hard.

Review Questions

1. Discuss the contributions of team managers in implementation of HRIS in the organization.
2. Discuss the concept of Balance Score Card in detail.
3. Discuss the APQC classification framework.
4. Discuss the contribution of experts and consultants in managing the HRIS of an organization.

Unit - V

CASE STUDIES

OBJECTIVES

- Understand how high performance companies manage knowledge.
- Understand process distribution in successful knowledge management projects.
- analyze HRM in KBO and km case studies from the aerospace , software, consumer technology, telecommunications, publishing, consumer products, pharmaceuticals and consulting industries.
- understand the strategic alignment of a successful knowledge management project with existing business processes.
- understand how your knowledge management project can build both upon the failures and success of these companies.

Introduction

In this unit we will take a closer look at some companies that have implemented knowledge management system. Their outcomes have had mixed results. Some have fallen flat while others have provided their organizations with an unprecedented competitive advantage. There is a lot to learn from these early. Pionee5rs who dared to make that leap of faith in the face of analyzing the HRM in KBO and rewarding the compensation.

HRM performing knowledge management projects how focused on activities involving delivery and production of services, customer support, competitive intelligence and external knowledge integration, project management in virtual teams, sales enablement and intellectual asset management.

This unit will give you an idea about the areas on which you must focus your knowledge management investments. The common failure points in a

knowledge management system was found to be the lack of commitment or resources for managing the system once it was implemented.

Case 1

Knowledge management in the aerospace industry the case of rolls Royce

Introduction – rolls Royce was founded in 1906. in addition to making expensive cars. Rolls Royce is also a market leader in the long- haul aircraft engines market. As of 1999, rolls Royce was serving about 300 commercial airlines where its competitive stance was the total cost of ownership.

The problem – the problem with rolls Royce was that everything that was done to maintain engines was time sensitive. However 20 million pages of paper. documenting a variety of aspects of aircraft engine parts (refer table 1) were produced by the company. Each engine model had over 20 variants. Each variant needed to be serviced differently about a 100 airlines with which rolls Royce had active relationships were based in other countries. Even with several gigabytes of data in the companies mainframes it was often difficult to get the right piece of information in time. The consequences were not just limited to productivity and financial health of the company but also linked to safety of the aircraft that company employees worked on.

Problem scope – rolls Royce decided to scope the problem down to the critical issues that had immediate paybacks for the firm. They decided that the key players to be considered would be limited to

- Airlines
- Airframe manufacturers
- Engine and engine part manufacturers
- Component manufacturers

It was also decided that the scope of the initial knowledge management project would be restricted to enabling different levels of reuse. mechanisms that would allow workers to find use reuse and reintegrate knowledge related to servicing long haul commercial engines.

Such scooping is essential to place reasonable limits on the expectations from a knowledge management system. scooping helps firms figure out if the targets of their knowledge management investments are the one that need immediate attention both in terms of business sense and strategic urgency.

Rolls Royce and referential sources of knowledge.

Air craft	Referential knowledge
Trent 700	Engine maintenance manuals
Trent 800	Illustrated catalogs of parts
RB 211 - 524	Supply diagram
RB 211 – 535	Service bulletins
	Time limits manuals
	Standard practices
	Overhaul manuals
	Maintenance manuals
Tay	
IAE V2 500 A1A5	
IAE V2500 – D5	

Knowledge management project goals

Rolls Royce was very good at laying out realistic and achievable goals up front. The initial set of goals specified for the KM systems were classified in two broad categories.

- Customer oriented goals-these were goals that would accrue benefits for the customer

1. reducing equipment downtime for maintenance
2. doing it right for the first time
3. improving maintenance quality
4. improving maintenance scheduling
5. reducing data handling as well as access and search costs.

- Internal goals – these were the benefits in terms of improved internal efficiency that were expected from the rolls Royce knowledge management system. The knowledge management team hoped that the new system would help the company in the following ways.

1. improve customer data access across multiple platforms
2. deliver applications that required little or no training
3. reduce publishing costs, ensure security and comply with ATA(air transport association)

Measurement – lacking any other mechanisms for measurements, rolls Royce measured its return on investment by using surrogate financial measures.

Most of these figures were translated into dollar figures as shown below.

- Paper costs saving of $3 million
- Customer productivity savings worth $1 million

- 5% improvement in maintenance time
- un measured savings in data processing costs.

Solution – this system resembles the improved version of an intranet. It had user specific table of contents a customizable interface, the ability to add annotations, provided dynamic updates and delivered notifications.

Case 2 knowledge management in sales and marketing – the case of platinum technology

Platinum technology inc based in Oakbrook terrau. Illinois is a company on the first track with close to $ 800 million in revenues in 1997 lane platinum has been on an acquisition war path since 1994. between 1994 and 1998 the company brought out 70 other companies.

The series of acquisitions resulted in a 500 percent growth I n its portfolio of product offerings. Platinum has almost 7000 employees and has been a six fold growth in its sales force head count since 1995. these employees are distributed across platinum's 120 offices world wide.

Platinum realized early on that managing the companies knowledge assets was a critical enabler that would allow it to sustain this growth with strong commitment from senior management platinum has been exploring the use of knowledge management in the following areas of operation.

- Sales and marketing
- New product development
- Contracting and outsourcing
- Customer and partner interaction knowledge management
- Consulting

- Education

In the sales and marketing division alone an employee has a number of potential sources that she can tap into for information needed to make a sale or to pursue a prospective customer these include

- Over 100 lotus notes databases
- Two custom developed applications
- 35 intranet sites
- Thousands of networked disk drives
- Printed documentation
- Discussion forums

The problem

Platinum's marketing and sales department was faced not with information paucity but with information overload and redundancy. Even if an employee making a sales call could retrieve information that see needed she would com e across multiple versions of it in different locations. There was no telling what content was current and applicable. To overcome these challenges, platinum's marketing and sales department took its first step towards building a comprehensive knowledge management system.

The system

The knowledge management system that platinum built was called jaguar. Jaguar began with two components an intranet based system that contained detailed documents and information and jaguar direct a machine resident bullet style nugget information repository. The system was built on documenters EDMS software and easy software from wisdom aware for capturing context

and tacit forms of knowledge. The driving web servers were based in the united states , Singapore and Europe and were supplemented with fortnightly updated notes databases replicated on 65 servers worldwide. Since the system was meant to support sales and marketing staff it provided the following information

- Platinum's products
- Current pricing
- Competitive information
- Enterprise wide information including that about other divisions of the company
- World wide sales calendars
- Information on platinum's partners
- Details ion mergers and acquisitions that were relevant to the company
- References to documents and manuals
- Subscription service that allowed users to subscribe to content of interest

Development stages

Platinum started at the point where it was easy to get a stable start managing explicit knowledge. Only later did the company proceed to manage tacit forms of knowledge. The system made extensive use of icons to represent different types of content and each intent element and meta data attached to it. Easily recognizable icons were used to identify information that was newer than two weeks and information that had changed in the preceding seven days. As a knowledge management team member put it, " we are a very visual society sop we made excessive use of icons. Ridiculous? Yes ! but effective ? yes !

Through out the development process the knowledge management team asked the actual sales staff about what seemed to work and what did not., based on their feedback the systems developers promptly incorporated relevant suggestions and features. The companies knowledge champion says that over 50% of the enhancements came from end user suggestions. As a result about 40 % of the companies sales force personnel use of the system daily. With such an exceptionally high level of usage, platinum found that banner advertisements with in the site were the most effective way of making company wide announcements.

Throughout the development process the knowledge management team asked the actual sales staff about what seemed to work and what did not. Based on their feedback the systems developers promptly incorporated relevant suggestions and features. The companies knowledge champion says that over 50% of the enhancements came from end user suggestions, as a result about 40% of the companies sales force personnel use the system daily. With such an exceptionally high level of usage, platinum found that banner advertisements with in the site were the most effective way of making company wide announcements.

At a later stage, the system introduced push content delivery. Users should select content areas that were of interest to them. As new content came in users could either opt to receive it in an e-mail message or go to a personalized page on the site and follow hyperlinks pointing them to new relevant information as it became available. General updates were automatically sent every Sunday. The company hopes that analyzing usage statistics on jaguar it can predict sales activity Ahead of time. To ensure the content is relevant and up to date emails are sent to contributors by the system one week before an expiration date. If they do not review their contribution, it gets archived, since the additional burden of validating and reviewing their own contributions was placed on

employees, platinum made sure that they were given extra time to spend on the task.

The initial version of the system was implemented with in four months of its initial approval. The system was so successful that it became the second most widely used application in the company next only to email.

Measurement :

Lacking any other formal mechanisms for demonstrating a return on investment for their knowledge management investments, platinum demonstrated the success of its system entirely in terms of the financial benefits. Benefits quantified in terms of their effect on the companies bottom line are easier to sell to senior management. the knowledge management teams quantified benefits in the following terms.

- The system paid for itself in 1.5 months
- The knowledge management system resulted in cost savings of about $ 6 million in its very first year.
- Sales force productivity increased by a then current run rate of 6%
- The system reduced international FedEx shipments by 15% (primarily resulting from the savings resulting from not having to produce and distribute lotus notes and database CD-ROM updates to several dozen offices worldwide, every few weeks.)

The knowledge management team further estimated that jaguar saved an average sale a and marketing person about two hours every week, created a bottom up pull of knowledge and contributed to the competitive stand of the firm as a whole. Although the aforementioned benefits delivered a lot more value to the company, the knowledge management team initially quantified

these benefits only in terms of FedEx savings that resulted from the introduction of this system. by choosing such a metric the KM team was able to successfully demonstrate the tangible benefits of the system (even though one might argue that they were pessimistically underestimated)

Case 3- knowledge management in customer support - the case of Nortel

Nortel corporation sells a suite of design and manufacturing applications in the united states and Europe. The global support group provides support to both European customers and units states. There are group of support personnel in both the united states and Europe. Nortel is required to provide 24 hour support, seven days a week, with limited budgets and restricted head counts of workers.

Issues – Nortel was facing problem providing support to its customers primarily because there was no suitable mechanism that allowed a support representative to check if anyone in the support organization had encountered a citation problem before. This meant that the teams in different offices did not share any of their knowledge related to problem solving and ended up reinventing solutions time and again. Nortel identified several knowledge related problems that its support group faced.

- Unclear definition of roles and responsibilities of personnel
- Lack of a formal process and guiding documentation
- Informal service level agreements
- Inconsistent measures of customer satisfaction
- Lack of formal training for support staff
- No centralized collection of repository of predefined solutions
- European and US offices operating as groups of teams rather than as a single distributed team

- Excessive rework and reinvention of solutions (no formal mechanism for capturing problems and solutions existed)
- Lack of knowledge sharing between teams based in the two continents.

The three phases of organizing knowledge

The support group knowledge management team at Nortel decided to manage knowledge more effectively, hoping to help the support group perform better, given budget and head count constraints,, they decided to tackle the whole process of managing knowledge in three discrete steps.

Phase 1: capturing knowledge and processes that were being used by their American and European support offices.

Phase 2: consolidating these processes to provide an environment for co operative trans pacific problem solving.

Phase 3: implementing integrated systems to enable collaborative knowledge intensive processes.

Nortel began by bringing in an external consultant who interviewed support staff both in Europe and the United States. After receiving positive feedback from these interviewees, the knowledge management team concluded that it had the support of prospective end users. to gain acceptance, the external consultants presented their understanding of the process to key stakeholders and support staff. Following this feedback from employees was incorporated into the process descriptions that the consulting company had written. The processes identified were then classified into different areas of process ownership. Roles were assigned to each area on the basis of training provided to support employees.

Nortel support staff members were then trained in terms of the new integrated process that were synthesized, as a final step, Nortel implemented an integrated progress tracking system that allowed team members to track progress on solving a problem s teams across the globe worked on it. The final step in terms of support technology was the implementation of a centralized database where all problems and their outcomes were recorded.

Although the implementation done by Nortel seems to be less sophisticated in comparison to some other companies knowledge systems its results were delivered exactly where they were needed most. Remember that esoteric notions of organizational good cannot drive knowledge management until it is helping the company solve critical process problems and eliminating knowledge related problems that are threatening to bring the company down. Nortel expended more effort on the people side than it did on the technology side: a perfect way to begin when the processes themselves are not clearly understood or explicitly defined. The lesson here is that the problem should define knowledge management technology, technology should define the problem. The effort paid strong dividends. Nortel is a leading provider in its markets and enjoys high levels of customer loyalty.

Case 4 knowledge management in the semi conductor industry – gasonics international

Gasonics is a company operating out of north America, Europe, Asia and the pacific rim with annual revenues in the range of $120 million. gasonics produces processing systems for fabrication of semiconductor wafrs. companies manufacturing electronic chips for use in electronic equipment use systems such as the ones that the gasonics produces.

Gasonics systems have for a long time enjoyed a reputation for high reliability and low systems downtime when compared to industry averages. The company depends on its customers for feedback and it extensively uses this feedback to improve both its existing systems and services. Faced with extremely low margin like other competitors operating in the industry, gasonicse operating costs and improve internal efficiencies since the whole process of designing and building wafer processing equipment is knowledge intensive, gasonics decided that the answer lay in stream lining its use of internal knowledge.

The Starting Point : Technical Publications

The technical publications department wrietes , typests, updates, provides and support technical manuals, literature and other information that support gasonics products. The company found that its technical publications department was an increasingly major cost centre for four reasons.

1.as equipment sold by gasonics was expensive, typically over $1000000 a piece downtime costs for customers resulted in thousands of dollar worth of loses every time the system went down. Hence the technical publications department at gasonics needed to provide an increasingly high number of customers custonmised version of their publications, this in effect is similar to mass customization.

2.updates were frequently required.

3.customers demanded electronic versions of product manuals.

4.the cost of archiving old documentation was increasing at an abnormal rate.

Gasonics realized that its technical publications department was the most logical place to begin its knowledge management initiative. since the goals of the business unit and the technical publications departments were highly congruent, improving one the company hoped would improve the other

The below table shows the two se4ts of objectives.

Technical publications department goals	Business unit goals
Speed up delivery of technical Documentation	Reduce training and support costs
Improve usability of documentation and application manuals	Increase equipment uptime Reduce training and support costs
Improve content and currency of publications	Increase equipment uptime, increase service revenues, reduce training and support costs, improve customer service through better feedback mechanisms.
Link publications to other enterprise resources	Improve customer service
Make technical literature, documentation and publications easily accessible.	Improve product and service offerings, improve customer service.

The goal : three months to target

Gasonics planned for a knowledge management system that could be operational within three months. the challenges that came up included:

- The need to replace legacy data and paper based information with consistent and accurate electronic data equivalents.
- The ability of customers to customize product and service documentation electronically.
- Integration with other enterprise systems.
- Justification of costs involved in doing the above.

Gasonics reduced paper related costs by 50% immediately. besides this obvious financial benefit, the company reducing training costs used technicians instead of engineers for providing support, and improved the quality of solutions provided by making maintenance efforts work right the first time more frequently than it had done in the past.

Case 5 knowledge management pilot case : Monsanto nutrition and consumer products

Monsanto a Chicago based company with over 2000 employees is the owner of leading brands of nutrition products such as nutria sweet and equal. The employee base consists of sales, marketing, research, manufacturing and administrative personnel. Monsanto began its knowledge management efforts with a small community of analysts consisting of marketing and business strategy analysts. This effort served as a pilot project for the large scale deployment of its knowledge sharing network based on plum tree knowledge server. As john Ferrari the process and technology manager at Monsanto aptly puts it you do not want to focus too much time and energy into solving technology problems; focus on process issues and use off the shelf customizable applications where possible.

By using a pilot deployment, Monsanto identified the areas in which expected problems of deploying a large scale, organization wide knowledge management system were concentrated. The pilot implementation led it to believe that about 75% of the issues were concentrated. The pilot implementation led it to believe that about 75% of the issues were people, process and culture. Technology the easy part was the remaining 25%.

Case 6 Knowledge Management To Build Economies Of Reuse – The Case Of Texas Instruments

Texas instruments the semiconductor firm that is credited with commercialization of the integrated circuit (also known as an electronic chip), began its knowledge management initiatives centered on its technical literature and documentation. As one would expect .TI has over whelming amounts of data relating to its semiconductor products this data needs to be managed updated and effectively distributed. for example

- TI has about 3100 data sheets relating to its semiconductor products. each of these average about 12 pages in length.
- TI produces and maintains about 50 user guides each of which averages 250 pages.
- TI supports its products with 400 application notes each of which is between 2 to 100 pages in length.
- TI maintains 14 gigabytes of SMGL files and 12 gigabytes of meta data.
- TI revises about 90000 pages of documentation every year
- TI has about 100 technical writers, 5 illustrators and 10 team leaders who collectively manage this process.

Texas instruments decided to change these work processes so that they would be better aligned with the ways in which documentation staff worked on these documents and technical literature. the focus was on creating content in a manner that allowed ease of reuse and enabled production of multiple outputs from a single input or data source. By toggling all content, I hoped to be able to manage context along with associated data. I uses the notion of a fundamental shift to describe this process migration from document thinking to object thinking.

To make this shift happen the knowledge management team actually converted all paper documents to an electronic form. These expense of the conversion process was justified on the basis of the following.

- Cost containment –reusing portions of existing documents resulted in cost savings of up to 70% of the cost o new documents.
- Value added – by adding non textual information to documents (such as code, models, executable files and demo files)additional context was added to knowledge that was well explicated and codified.
- Reduced labor cost – it took fewer people to do the same job so savings in employee compensation were a direct outcome.

The important lesson to take from this highly specialized initiative that primarily focused on managing already confided knowledge is that a good place is to begin knowledge management is with content that is already there. Creating meta data for that content is the next logical step. but Jeff Barton of Texas instruments warns that creating such met can be the expensive part of the process.

Conclusion – we looked at cases analyzing knowledge management projects in some of the most innovative pioneers in knowledge management. We examined

the strategic drivers for knowledge management have put these programs into place primarily as a vehicle for increasing revenues and cost containment. The common thread running through most of these cases was an intent to leverage best practices, improve collaboration, profit from knowledge, strengthen organizational competence, widen competitive gaps and leverage expertise.

Clearly identify the business objectives that drive knowledge management. All these companies have demonstrated their ability to show tangible even if small returns on their knowledge management investments otherwise it is all too easy to lose focus of what the project is supposed to actually accomplish.