Analysis of Knowledge Management System

This document is an analysis of Knowledge Management System in an organization, my employer EIL (Engineers India Limited, New Delhi) since I am aware of its detailed working. As consultant I am assessing and reviewing investment on KMS. I will explore the KM issues including modeling and technological aspects report on my findings. In case KMS implementation has met with problems, I will be presenting a solution to overcome problems.

About Engineers India Limited

EIL or Engineers India Limited is a construction design and engineering consultancy, specializing in Oil and Gas Production and Processing, LNG Terminals, Petrochemicals, Ports and Infrastructure Projects.

EIL's current portfolio includes: (1) Refinery up gradation and expansion projects (2) Pipelines, Terminals and Storages (3) Infrastructure Sector Projects. EIL is working on Government Projects on National Highways, Air Ports, Special Economic Zones, Bharat Nirman Yojna, Metro Rail, etc.

As a part of Knowledge Management initiative of EIL, Project Planning and Scheduling Department of the Projects Group has also taken knowledge management initiative in form of a planning website.

Purpose of EIL Planning Portal: is to enable each employee in knowing features of other projects, which we might not have come across as a routine and help taking up new projects with enhanced confidence.

Under 'Knowledge Corner' and 'TACIT KNOWLEDGE' sections, uploaded documents include: Quality Documents – Procedures, Work Methods and Best Practices, check lists, project repository of past projects, job close out reports and various past project inputs etc. All Group Planning Coordinators and Divisional Planning Managers are expected to review and upload the site on regular basis.

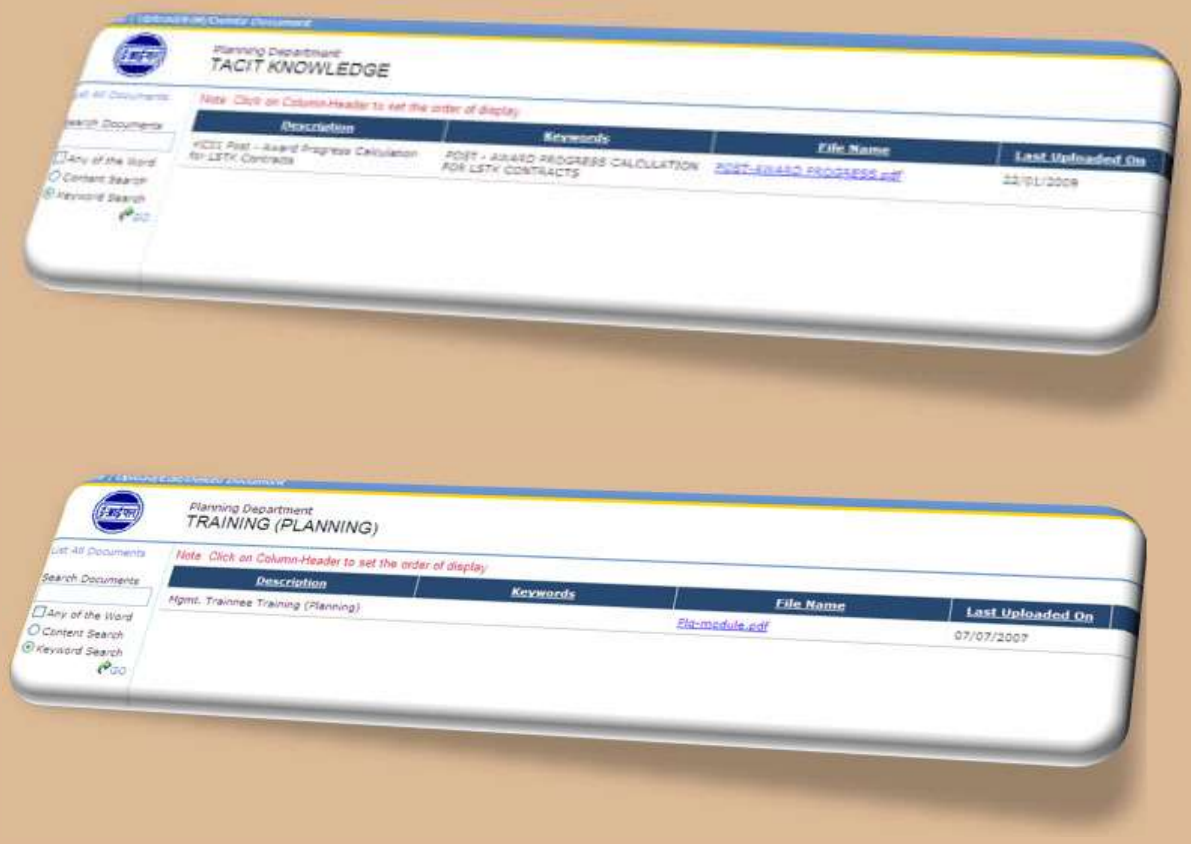
Sections of Knowledge Portal or "Planning Portal" as called popularly has total fourteen sections, which are: (1) Quality Documents, (2) Formats, (3) Instructions and Notes, (4) Check Lists, (5) TACIT KNOWLEDGE, (6) TRAINING, (7) Knowledge Corner, (8)

Resources, (9) References, (10) PLANNING INPUT FOR PROPOSALS, (JOB CLOSE OUT REPORTS, (12) Manuals, (13) Design Guides, (14) Department Circulars.

In addition there is an online Discussion Forum: Planning Engineers and Managers post their unresolved queries in an online discussion forum which is reviewed by DPMs (Divisional Planning Managers) and GPCs (Group Planning Coordinators) for deliberation in bi-monthly departmental Knowledge Management Review.

People also forward and post interesting data, write-up, and information related to Project Planning, Scheduling and Management Information System, so that knowledge is fruitfully shared among all.

Some Snapshots of EIL's KM System



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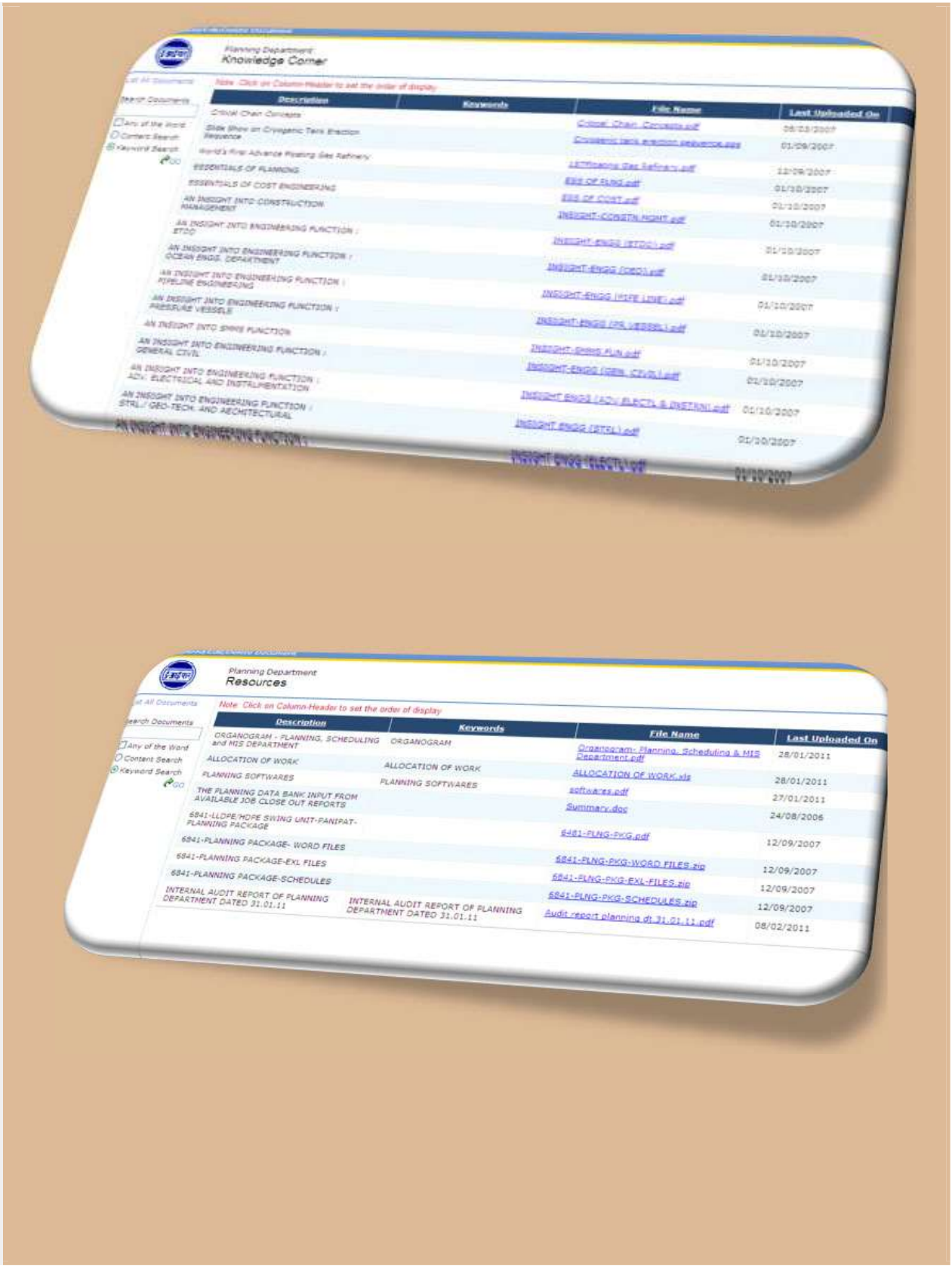

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IDENTIFYING NUMBER OF DECISION MAKING AREAS THAT WERE CRUCIAL TO ACHIEVEMENT OF KNOWLEDGE STRATEGY

Construction Project Management has complexity as an essential ingredient and not just accidental property. Key decision making areas that were crucial for the achievement of KM Strategy of EIL are (1) People Participation (2) People training (3) Right kind of technology (4) Motivation and Encouragement by Senior People and (4) Possibility of Incentives (5) Knowledge Leaders.

Also, It is becoming imperative for the EIL management to foster innovation in its services and do value engineering. For both of which, free flow of circulation of ideas is necessary.

Leadership and culture are the critical success factors in building world-class knowledge management - enabled by good process and technology practice. We looked at knowledge management best practice against a number of performance dimensions: strategy, leadership, culture, process and technology.

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Further, areas crucial for achievement of KM Strategy are:

- It is important to identify organizational and knowledge priorities and align them together
- Promote full organizational participation
- Knowledge strategy clearly aligns Top Priority of Company, which could be say (1) New Product Development, Operational excellence or (3) Customer Focus/Satisfaction etc
- Clearly Determine what knowledge is needed for company
- Determine what knowledge available within company
- Assess various knowledge gaps
- Strategy for Developing or buy relevant knowledge

MOST CRITICAL KNOWLEDGE MANAGEMENT ISSUES FOR THIS STUDY

In view of the problems that EIL faces with respect to KM system Study are because of (1) Lack of Participation, (2) Not so user friendly Interface and Usability of the software (3) Quality of shared information and (4) No Incentives

It is critical that KM strategy clearly aligns with a core component of business strategy - for instance, which could be:

- A customer centric approach
- A drive towards operational excellence
- Research or Development Focus
- New Product Development
- Marketing Strategy

This alignment of KM initiative with business goals gives it a specific, unique and strategic direction to KM efforts.

Further, At enterprise level KM Assessment Study must assess:

- Determine knowledge needed
- Determine knowledge available
- Assess knowledge gap
- Developing or buy relevant knowledge
- Knowledge Leadership

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I believe leadership is an important dimension in driving the success of any organizational initiative. The impact of leadership is even more pronounced given the cultural implications and low maturity of knowledge management within most organizations.

PROBLEMS THAT KM AND KM SYSTEM ATTEMPTED TO ADDRESS AND WHY THEY ARE IMPORTANT

We are in a Knowledge-Base Society. Knowledge is the basis on which Organizations compete! Products and services available in the society are increasingly complex hence, life-long learning is inevitable needed which makes Knowledge Management Initiatives all the more mandatory.

Today's business environment is characterized by continuous, often radical change. Such a volatile climate demands a new attitude and approach within organizations—actions must be anticipatory, adaptive, and based on a faster cycle of knowledge creation.

Some problems that KM attempts to address that are important determinant of firm's future success, include:

1. Has a positive impact on business processes
2. Enables the organization to position itself for responding quickly to customers, creating new markets, developing new products, and dominating emergent technologies
3. Builds mutual trust between knowledge workers and management and facilitates cooperation in handling time-sensitive tasks
4. Builds better sensitivity to "brain drain"
5. Ensures successful partnering and core competencies with suppliers, vendors, customers, and other constituents
6. Shortens the learning curve, facilitates sharing of knowledge, and quickly enables less trained for higher performance
7. Enhances employee problem-solving capacity by providing access to subject knowledge

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MAJOR DRIVING FORCES FOR INTRODUCTION OF KMS

Reasons why KM is most crucial in our today's knowledge-base business economy are: (1) KM fosters innovation By encouraging the free flow of ideas. KM Improves customer service by streamlining response time. KM boosts revenues By getting products and services to market faster.

KM also enhances the employee retention rates by recognizing the value of employees' knowledge and rewarding them for it. KM streamlines the corporate operation and reduces the costs by eliminating redundant or unnecessary processes.

Forces that drive introduction of KM include:

- **Force of IT Revolution,** Internet, wireless Communication has made technology as a driving force for KM. Reduced cycle times and shortened product development times.
- **Force of Changing Business Processes:** Business Processes and Rules are becoming complex and changing like outsourcing, value addition services, are also propelling need for KM.
- **Financial Factor** – Knowledge assets are giving increasing returns. Further, requirement to operate with a shrinking number of assets (people, inventory, and facilities)
- **Knowledge Factor -** Growing emphasis on creating customer value, improving customer service and innovation
- **Human Resource Factor -** Reduction on Human Dependence, Storing/recording individual knowledge, people training and the amount of time employees are given to acquire new knowledge needs to be addressed.

MAJOR FIELDS THAT FUELLED THE DEVELOPMENT OF KMS

All departments, be it Marketing, Projects, Customer Service, Project Planning, Technical Engineering, Research and Development, New Product/Service Development or Human Resource Management need Knowledge Management System.

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KM protects intellectual assets from decay, seeks opportunities to enhance decisions, services and products through adding intelligence, increasing value and providing flexibility. KM also complements and enhances other corporate initiatives such as total quality management (TQM), business process re-engineering (BPR) and organizational learning.

KM is helpful in areas of organizational learning, customer management and coordination with business partners. Knowledge management can improve the business processes by sharing knowledge with employees, customers and business partners.

Major knowledge areas that fuelled KM system are:

- Fields that require sharing knowledge with employees
- Knowledge of organization - organizational structure, history and procedures
- Knowledge of products and services
- Knowledge of customers/clients
- Professional knowledge - knowledge in particular fields or industries
- Knowledge of Decision Making and strategic planning
- Sharing Knowledge with Client/Customer
- Sharing Knowledge with Business Partners
- Manufacturing, distribution and operations

MODEL OF KMS –STRUCTURAL ASPECT, ORGANIZATIONL ASPECT, INTENTIONAL ASPECTS, ARCHITECTURE AND TECHNOLOGIES

KM Model or Design should consist of: (1) Enterprise goals, (b) Business strategies and (3) Organizational information systems

Earliest KM systems were like yellow pages and document mgmt systems. Off lately, KMS evolved into various groups like: Groupware, document management systems, expert systems, semantic networks, relational and object oriented databases, simulation tools, and artificial intelligence.

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More recently, development of social computing tools (such as bookmarks, blogs, and wikis) have allowed more unstructured, self-governing or ecosystem approaches to the transfer, capture and creation of knowledge, including the development of new forms of communities, networks, or matrixed organizations.

Once IT infrastructure for KM is established, we need to evaluate KM systems on basis of its maturity.

- IT-centred approach
- KM solutions applied to specific problem areas
- Professional Knowledge Management
- Integrated knowledge based management
- Knowledge Management Solution - Sharing Knowledge with Employees, Customers and Partners

KM Architect must be based on enterprise goals, business strategies and organizational information systems. KM System can be solutions for many business problems - organizational learning, customer management and coordination with partners.

MAJOR BARRIES AND SUCCESS FACTORS FOR KMS

Problems faced by EIL related to KMS are (1) People do not visit the KM System; (2) Difficult User Interface (3) Information Pasted is not immediately useful for new users, (4) Lack of people participation and (5) No Incentives, Motivation to encourage people participation.

In general, challenges for KM success or failure are:

- **Individual Side knowledge sharing barriers:**
  - Silo mentality
  - Employees Believe Knowledge is power
  - No time allowed
  - Lack of encouragement
  - Employees are afraid of negative consequences
  - Other employees don't tell what they know

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- **Technology System based barriers:**
  - Legacy System
  - Incompatibility
  - Difficult usability and functions
  - Poor IT systems

- **Organizational knowledge sharing barriers:**
  - Lack of awareness
  - High investment
  - Management do not walk the talk
  - Lack of knowledge sharing processes
  - No knowledge sharing by executives
  - Bureaucracy and Office politics
  - Resistance to change by mgmt
  - People don't trust each other

MAJOR ORGANIZATIONAL APPROACH TO IMPLEMENTING KMS

EIL did not want to buy costly and complex software in hope that it would help that solve the KM system related problems. There is no direct correlation between IT investments and business performance or knowledge management were identified.

Key to KM success is the communicativeness of the employee, social processes in place for knowledge exchange that generate new ideas for improvement.

Therefore EIL's focus was to exploit the already existing systems as far as their functionality allows. In addition, the complexity of problems has to be reduced.

In simple words approach of EIL was based on three popular phrases quotations:

1. A bird in the hand is worth two in the bush!
2. Stop talking, start walking!
3. To make a mistake is better than to make no experience!

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According to these phrases, pragmatic solutions are aiming at a 80-90% solution for an identified problem instead of a 100% solution. The remaining 10%-20% are either postponed for future. Pareto-principle, better known as the 80/20-Principle says that, performing 20 % of the effort will lead to 80% of the results

Hence EIL's pragmatic plan for KM was:

- KM System Must be intuitively applicable by the user
- fast and easy to implement
- active participation of the users
- common added value to be achieved in the short term
- application of a stepwise (evolving) approach

IMPLEMENTING KMS: EXTENRAL KNOWLEDGE PARTNERS AND STAKE HOLDERS THAT ARE REGARDED AS IMPORTANT ALLIES

Sharing knowledge with employees

- Knowledge of organization - organizational structure, history and procedures
- Knowledge of products and services
- Knowledge of customers/clients
- Professional knowledge - knowledge in particular fields or industries
- Knowledge of Decision Making and strategic planning
- Sharing Knowledge with Client/Customer

Sharing Knowledge with Partners

- Knowledge of organization - organizational structure, history and procedures
- Knowledge of products and services
- Knowledge of customers/clients
- Professional knowledge - knowledge in particular fields or industries
- Knowledge of capacity for receiving, manufacturing and distribution

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ORGANIZATION CULTURE AND KMS DESIGN

Organization culture is the most essential component for the success of KM strategy and initiatives. **However, sometimes sharing of this knowledge at job may appear job threatening to senior staff. If we keep on doing things the way we are doing, we will only get same result.** But for kaizen or continuous improvement, one needs new ideas, new thinking!

Traditional managers, believe **"Our time-tested way is the best way!"** Most managers follow routine and are orthodox in their ways of working. Anyone deviating from regular and expected is seen as incident maker. KM encourages creativity and new ideas.

If the Value System of the company is open; as in participation of employees in decision making, improvement, knowledge sharing, it greatly helps organization's internal knowledge pool.

There is no point in having a KM system that is not used by employees. Work Culture of appreciation, acknowledging knowledge sharers, knowledge leadership, use of technology for knowledge exchange and not just tool for formal communication.

Cultural change within an organization is highlighted by all world-class KM enterprises as the most important success factor in of a KM programme. The development of a common language and understanding of KM based around key business needs.

KMS becomes culturally embedded more quickly when knowledge objectives are articulated in the language of an organization's business objectives. Like 'Operational Excellence Programme' or 'Knowledge Centred Approach' or 'New Ways of Working'

MAJOR EXPENSES/COST OF KMS AND FUNDING

Major Direct Expenses in terms of cost are on the (1) New IT based Software System (2) Maintenance. (3) Real world KM leadership development Whereas, (4) Hiring of New KM Specialists (if any) expense in terms of Man Hours spend by as KM Coordinators and (3) Evaluation and Monitoring.

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Cost Justification of a KM System can be evaluated in terms of (1) internal expense (2) increase in profit, (3) measuring hard returns, (4) soft benefits, (5) cost of information (document preparation, rate of reuse)

Companies often try to tackle KM barriers by implementing costly and complex software tools hoping that these will serve the purpose of overcoming the identified problems. As the evolution of KM is driven strongly by large enterprises and consulting companies, the proposed solutions are often rather complex and dominated by IT.

Risk in High KM investments: Building intensive partnerships with customers and suppliers requires significant amounts of time and money. Once this has been invested, there is greater reluctance to break up the alliance should the performance of the alliance be insufficient.

KEY BARRIERS FOR MEASURING COST BENEFIT ANALYSIS OF KMS SYSTEMS

Principle is, "What cannot be measured cannot be improved!" Therefore, it is important to know what factors are barriers in measuring the cost/benefits of knowledge management system.

Tangible KM benefits, which can be measured and are directly observable: (1) Reduced Cost and (2) New Product Development (3) Corporate Learning or Training

Intangible Benefits of KM are: (a) Effectively managing customer relationships, and delivering competitive intelligence (b) Fewer mistakes, less redundancy, quicker problem solving and better decision making and (c) reduced R&D costs, time saving in learning, increased worker independence, enhanced customer relations and improved service.

These benefits may be difficult to measure in initial years but are of great significance and value in long term. It is difficult to measure business value of knowledge that may be useful in future.

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KM helps in creating KM assets. Common measurement approaches for KM system measurement are: (1) Based on company's performance, (2) Balanced Scorecard, (3) Return of Investment (ROI), (4) Surveys and (5) KM Life Cycle.

SOLUTIONS AND RECOMMENDATIONS

Knowledge sharing and collaboration should evolve from a top down prescriptive approach. The Chairman, Directors must contribute in discussion forums and chats.

- Should not Pursuing KM without being ready
- A Chief Knowledge Officer should be appointed
- Lead by example model should be followed. Identify few employees as knowledge leader - in the form of 'knowledge champions', 'knowledge mentors' - at different levels.
- Collaboration of management leadership programmes with knowledge sharing programmes or KM initiatives.
- Incentives (as a means of motivating for knowledge sharing)
- Storytelling (as a means of transferring tacit knowledge)
- Encourage Cross-project learning and record post experiences
- Do knowledge mapping
- Create communities of practice
- Create expert directories
- Do competence mapping
- collaborative technologies (groupware, etc.)
- knowledge repositories (databases, bookmarking engines, etc.)
- measuring and reporting intellectual capital (a way of making explicit knowledge for companies)
- Introduce social software (wikis, facebook, blogs, etc.)

Practically - Company should start with a strategy and a champion, with a focus on a worthwhile, high profile project that can set the tone for the rest of the organization. It is a high risk approach, but one that is most likely to pay dividends in the long run.

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