REVIEW OF LITERATURE

In this section we present a series of reviews on KM, its impact and its measurement. This review of literature helps us to formulate the working hypothesis which is then validated by collecting primary data and applying appropriate mathematical techniques. We categorize our literature survey by defining knowledge; defining knowledge management; applications of knowledge management; implementing knowledge management and caveats in the same; measuring impact of knowledge management; study the impact of knowledge management on IT industry in India and the world; study the impact of knowledge management on non-IT industry in India and the world; rewards, recognition and new advances in the field of knowledge management; a brief note on action research; and a brief note on learning organizations. From this literature review we will analyze the value extracted from the literature review.
Defining Knowledge:

In this section, we first give an overview of topics needed to understand knowledge management: Different perspectives on knowledge, and models of learning. We then discuss what we mean by knowledge management, and present a model to understand the contents of a knowledge management system in an organization. Finally, we present case studies of such knowledge management systems that have been described in the software engineering literature.

Before we discuss knowledge management, let us clarify what we mean by some common terms in this field. The term knowledge is defined in the Oxford Dictionary and Thesaurus (1995) as: “awareness or familiarity gained by experience (of a person, fact, or thing)”, “person’s range of information”, “specific information; facts or intelligence about something”, or “a theoretical or practical understanding of a subject”. A more philosophical (and positivist) view of knowledge is to see it as “justified true belief” (first introduced by Plato, according to (Nonaka and Takeuchi, 1995)). Davenport and Prusak give a broader definition of knowledge (Davenport and Prusak, 1998): “Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms.” We often divide knowledge into two types, tacit and explicit knowledge (Polanyi, 1967). By tacit knowledge we mean knowledge that a human is unable to express, but is guiding the behavior of the human. Polanyi writes in his book about “The Tacit Dimension” that humans “know more than we can tell”. For example, humans can recognize people’s faces
from thousands of others, but we cannot usually tell how we recognize a face. Another example is the struggle of Japanese engineers to make a machine that bakes tasty bread. According to Nonaka and Takeuchi (Nonaka and Takeuchi, 1995), there were several trials to construct such a machine, but the bread simply did not taste as well as bread made by normal bakers. The company NEC decided to send people to a local baker to see how the process of making bread was actually carried out. The researchers returned with new insight on the kneading process, and later were able to replicate this in their machine. This is an example of tacit knowledge that is difficult to transfer by other means than looking at someone actually baking bread. Explicit knowledge is knowledge that we can represent, or “codify”, for example in reports, books, talks, or other communication. Some terms that are related to knowledge, are experience and information. In normal English, experience means “actual observation of or practical acquaintance with facts or events”, or “knowledge or skill resulting from this” (1995). Most people see experience as a type of knowledge that you have gained from practice, what some people call “local knowledge”. Information is seen as “something told; knowledge”, “items of knowledge; news”. In normal English, it is difficult to distinguish the words information and knowledge. As Tom Stonier writes in his book “Information and Meaning” (Stonier, 1997): “although we all have an intuitive understanding of the term ‘information’, our understanding is not sufficient to allow us create, for example, a theory of information which would allow us to explain manifestations such as meaning, knowledge, insight, or wisdom”. Within artificial intelligence and information processing, however, information is often referred to as “data with meaning”. The characters (data) “4m” do not say much in itself, but if we know that “m” stands for “meters”, it can be useful information. Knowledge is then often defined as information that is used, or made operative (in an artificial intelligence-sense: in a computer system). For an
interesting discussion about the terms data, information and knowledge in artificial intelligence, see (Aamodt and Nygård, 1995). This use of the term knowledge in artificial intelligence is however disputed by Dreyfus (Dreyfus, 1992), who claims that knowledge requires other processes than those in a computer system. Nevertheless, the view of knowledge as “usable information” is also held by Peter Drucker, who in his book about the “knowledge society” defines knowledge as “information effective in action, information focused on results” (Drucker, 1993).

In the book “The Social Life of Information” (Brown and Duguid, 2000), we find another discussion on the difference between knowledge and information, which differs greatly from the one in the artificial intelligence field. Brown and Duguid see three distinctions between the words: First, they claim that “knowledge” entails a “knower”; it is more associated with a person than “information”. Second, knowledge is harder to detach (from the “knower”) than information. Information is something that people can “pick up, possess, pass around, put in a database, lose, find, write down, accumulate, compare”... while they claim that knowledge is “hard to pick up, and hard to transfer”. Third, they point out that is that knowledge entails the knower's understanding and “some degree of commitment”. A person can have conflicting information, but will usually not have conflicting knowledge.

To sum up this discussion, it is clearly out of scope to finish the discussion on knowledge in this thesis, but in the following we will use a pragmatic definition of knowledge, what Taylor (Taylor, 1991), who has been working with information use environments, would call “instrumental information” - information that is used so that individuals know how to do something, or “factual information” – information that is used to determine facts. We will refer to this type of
"operational information" as explicit knowledge, and we will also use the word tacit knowledge.

**Implicit knowledge**
A fundamental to knowledge management is the codification of knowledge into two basic forms (Frapaollo, 2008): explicit knowledge (i.e. easily codified and shared asynchronously) and tacit knowledge (e.g. experiential, intuitive and communicated most effectively in face-to-face encounters.) There is, however, a middle ground. With dedicated and focused efforts, some knowledge believed to be tacit can be transformed into explicit knowledge. This body of knowledge is the organization’s implicit knowledge. The value and leveragability of implicit knowledge is vast and represents a new frontier in knowledge management. However, an organization must take several strategic steps in order to position it adequately. First, the sources and nature of the implicit bodies of knowledge must be identified and quantified. This is not an easy step. It demands a level of scrutiny beyond what is typically applied to identify tacit and explicit resources. Getting to implicit knowledge mandates taking a second look at all the so-called tacit knowledge resources to determine whether that knowledge could be codified if it were subjected to some type of mining and translation process. Then, it requires implementing that mining/translation process
Defining knowledge management:

There are many interpretations of knowledge management, and of how to describe computer systems to support it in companies. In 1974, the book “The Corporate Memory” was published (Weaver and Bishop, 1974), arguing on the benefit of collecting information from different sources in a company and making it “searchable”. At this time, the information was gathered on paper, and “search” would mean to submit a form to a department who would manually search through their files. The word corporate memory is still in use, but now meaning a database for storing documents from many people in a company. The word “corporate brain” is also used to describe such a database. Another related word is “organizational memory”, which does not really have a clear definition, but “intuitively, organizations should be able to retrieve traces of their past activities, but the form of this memory is unclear in research literature. Early efforts assume one could consider memory as though it were a single, monolithic repository of some sort for the entire organization” (Ackerman and Halverson, 2000). Many see this term as meaning both a process of collecting and using information as well as a repository. So what do we mean by knowledge management? We think that this term includes issues from all the terms discussed. Some goals of knowledge management can be (Wiig, 1997):

1) To make the enterprise act as intelligently as possible to secure its viability and overall success and

2) To otherwise realize the best value of its knowledge assets.

Thomas Davenport has defined it as “a method that simplifies the process of sharing, distributing, creating, capturing and understanding of a company’s
knowledge" (Davenport et al., 1998). If we look a bit more into knowledge management, we find that some important aspects are to (Wiig, 1995):

- Survey, develop, maintain and secure the intellectual and knowledge resources of the enterprise
- Determine the knowledge and expertise required to perform work asks, organize it, make the requisite knowledge available, "package it" and distribute it to the relevant points of action
- Provide knowledge architecture so that the enterprise's facilities, procedures, guidelines, standards, examples, and practices facilitate and support active knowledge management as part of the organization's practices and culture

**On doing knowledge management**

There is too little agreement on the nature of knowledge management (KM) among researchers and practitioners. This paper (Firestone, 2008) addresses the significance of this problem for evaluating KM as a discipline and discusses what to do to facilitate evaluation and to create conditions that will encourage self organization around the most successful concepts of KM. The paper also presents a conceptual definition and specification of KM, and then uses aspects of it to analyze two primary approaches to KM: the DEC Interruption Approach, and the Background Conditions, or Ecological Approach. It analyzes the DEC Interruption Approach by sketching out an ideal pattern called the Open Enterprise Pattern, and presents an example of it in the Partners Healthcare Case. It then analyzes two contrasting significant examples of the Ecological Approach: the World Bank case, and the Halliburton case.

The main goals of a KM strategy are:

1. Improve communications
2. Improve capture and persistence of content
3. Improve capture and persistence of work
4. Improve accessibility to data and information of all forms
5. Improve the capture, recognition, and exploitation of metrics and statistics
6. Improve automation

Since knowledge management is a fairly recent field of study there are no agreements yet on what constitutes knowledge management. This problem of lack of agreement on what KM is, suggests four possibilities:

1. people can be doing KM and calling it KM;
2. people can be doing KM and calling it something else;
3. people can be doing non-KM and calling it KM; or
4. people can be doing non-KM and calling it non-KM

Instead of trying to offer a common definition of knowledge management, we should each offer a conceptual definition and framework of our own and consistently apply it in evaluation. By itself, this won't remove definitional problems, but it will allow clear evaluations of KM impact to be completed for each of the contending concepts of KM. Eventually KM will self-organize around the more successful concepts and the definitional problem will end
Applications of knowledge management:

Knowledge Management – An imperative for enterprise empowerment for enhanced stakeholders’ value
Owing to globalization, economic growth and evolution in electronics, the business process outlook is continuously shifting its horizon. Knowledge-driven business enterprises are focusing on ‘survival activities’ by operational excellence and ‘advancement activities’ through innovation for competitiveness and balance between these two for growth (Kalaiselvan & Ganapathiraman, 2007).

Survival activities are focusing on product market positioning, planning, organizing, production, controlling, resource development, deployment etc. Whereas, advancement activities are focusing on developing distinctions and norms through innovation, improved product quality, design to cost and global pricing strategies, scaling knowledge, process automation and ensuring knowledge connectivity, and the shortest delivery through enhanced productivity.

This paper focuses on global business environment, overview of knowledge management lifecycle process and perspectives, KM mission, KM strategy and measurement, KM objectives and goals, knowledge audit, knowledge mapping of business processes, knowledge networks, organizational culture, top management involvement, precursors to success, pitfalls, software tools and solution benefits of knowledge management system to stakeholders.

Knowledge management benefits are significant in terms of intangible and derived tangible value to the organization and the stakeholder. Benefits are broadly classified in terms of knowledge benefits – faster access to best knowledge,
intermediate benefits – promotes efficient operation and organizational benefits – faster innovation and productivity improvement, and improved customer service:

- Productivity improvement through operational innovation and excellence: KM enables organizations to reduce cycle time for new product and service development, supply, installation etc. by preventing reinvention or duplicate activity and promotes concurrent working on a task through collaboration. This approach leads to a savings and reduces costly mistakes

- Enhanced value to stakeholders: Increased bottom-line and stronger revenue growth of an organization leads to satisfied employees and shareholders. Increased responsiveness to customer and partners leads to business innovation and quicker problem solving. KM enables organization to get predictive trends which leads to value added features in products and services results in customer success

- Competitive advantage: KM enables organizations to new opportunities, new markets, new products and services by systematic capture and sharing knowledge from both internal and external environment (customers, prospects, markets, competition, experts). Knowledge audit and mapping process enables decision maker to quickly respond to the business requirements

- Efficient human resource management: Organization can identify the real contributors, capture knowledge and introduce expert system for mission critical function and thereby reduce the vulnerability due to churning out of employees (resignation, retirement, transfer). Prevention of knowledge loss
- knowledge retention, Out-sourcing is easier and secured as the real knowledge is codified and not visible to the user

- Improved decision-making: Auto creation of flags & reports through knowledge discovery and knowledge mapping process

- Adaptability and flexibility

- Maximization of knowledge re-use

- Paves way for learning for better work and may require less direct supervision

- Improved quality: Products and services enhancements

- Knowledge assets development: Internal process and external knowledge

**Change management and knowledge management applications**

If there is any change needed in organizations today, it would be to introduce entrepreneurship. Efforts along these lines have been labeled under the rubric ‘corporate entrepreneurship’. To introduce entrepreneurship in the corporate requires change and it is in this context that the author wishes to discuss the topic of change management (Tan and Tan, 2007). The extent of change required in each organization seeking to introduce entrepreneurship is contingent on the organization – does it want everyone involved or only teams or isolated units (lets call this ‘organizational depth’)? Regardless the organizational depth to which
entrepreneurship is intended, change is needed because most organizations focus on efficiency and not on innovation or creativity. The need for infusing entrepreneurship in the organization is the greatest in growing small and medium-sized enterprises (SMEs) as the firms grow in size with new employees who may not know of the firms’ entrepreneurial origins.

In the same vein as corporate entrepreneurship and organizational change is required in firms, the new millennium has also brought the onset of the knowledge-based economy. In this economy, there has been a growing interest in knowledge management and knowledge creation in companies. This paper explores first the introduction of corporate entrepreneurship as change management, and second, the relevance of knowledge management applications to the changes needed for corporate entrepreneurship.

The three threads, corporate entrepreneurship, change management and knowledge management, offer great insights for the management of any corporation interested in making changes in the organization. Although the discussion has been in the context of corporate entrepreneurship as the ultimate aim of the change, the context has provided a backdrop for discussion of the process. As the paper brings out, there is value in harnessing the knowledge management perspective while implementing the changes needed for corporate entrepreneurship. It has been revealed the nature of knowledge that is created when implementing the changes. The fact that there will be tacit knowledge created implies the need to persist at the change efforts to have the systems to identify the knowledge and changes taking place as the intended change may bear fruit in other forms unless this is done. The authors also found that middle managers should be actively engaged in the process of change and not neglected as in the knowledge-based economy innovations and
new ideas do not come only from the top or the bottom. Further, the middle managers play roles as important communications nodes.

The process of change needs to move from the intended change to a future state. However, unlike the change management literature that speaks of freezing after the changes have been implemented, for corporate entrepreneurship, the change needs to be continuous. The nature of the change may differ at the outset when the corporation may be seeking radical change (eg when the company's employees were not expected to innovate at all) from the situation when the radical changes have been introduced. At the later phase, corporate entrepreneurship may give rise to new businesses (radical change) or new processes (incremental change and knowledge). Here, the corporate entrepreneurship efforts will benefit from the knowledge management arena in using information systems to help perpetuate the changes. It will also gain from the organizing learning literature as after introducing the changes, there is a need for the corporation to become self-learning and sustain the entrepreneurship: the whole point behind corporate entrepreneurship. Whereas the entrepreneur starts and leads the firm, with growth and time, the aim is for the firm to have its own organic life and entrepreneurial vision.
Implementing knowledge management and caveats:

A successful KM program
A successful KM program needs 12 steps (Walker, 2006). The 12 steps to a successful KM program are: 1.Value proposition: does the KM program offer value to the company, The value proposition needs to consider value from the perspective of all stakeholders including the executive team, employees and customers; 2.Strategic alignment: if you choose to have a KM strategy it needs to be aligned with the organizational strategy; 3.Organizational structure: the KM strategy needs to incorporate elements that overcome any structural barriers (business unit silos, internal competition etc.); 4.Managing performance: the KM objectives of the program needs to be determined (relationship to the business objectives), where the measurement framework is simple and integrated into existing culturally accepted frameworks; 5.Cultural sensitivity: the KM program needs to be congruent with the organizational, national and professional culture; 6.Technology: the technology selection should be premised on enabling the KM strategy and integrated into the existing infrastructure with similar touch and feel of existing technology; 7.Knowledge creation: creation of knowledge including, what to be created? who will do it? who has the time and resources? vetting the knowledge before storing; 8.Knowledge structure: the structure should be determined in the context of ease of findability and usability; 9.Knowledge review: review of the knowledge before storing, including vetting the reviewer, required expertise, resources and processes required, integrity of the stored knowledge; 10.Knowledge reuse: the accessing of the stored knowledge should be made easy and seamless; 11.Knowledge base vitality: a process is necessary to ensure that the content of the knowledge base is maintained to ensure integrity – archiving old content and update content as the environment changes; 12.Environmental
scanning: scanning should be done continually to ensure that the KM program is aligned with organizational strategy

**Business impacts of knowledge management**
The five business impacts of knowledge management (Seiner, 2002) are: the implementation of knowledge management promotes many ‘healthy’ business practices: including, the recording of knowledge artifacts, quality management of knowledge, leveraging lessons learnt from past decisions and experiences, the sharing of best practices; knowledge management involves stewards (those accountable for knowledge) in the daily use of their knowledge and in daily activities: knowledge stewards are accountable for authoring and maintaining knowledge, and making certain that this knowledge is accurate and of high quality before it is made available to other individuals in the company. To make this happen consistently, stewardship becomes part of the steward’s job description; knowledge management mitigates or eliminates the risks associated with attrition: companies that record knowledge and encourage the sharing and spreading of knowledge are able to make new employees productive quicker and more effective; a knowledge management system promotes getting a good understanding of the knowledge, information and data needs of employees: in order to provide a meaningful view for each employee, business analysis must be performed to understand precisely what information will be helpful for the different types of employees at different levels. Since employees use different information for different jobs, the employee portals must also be customize-able to form a meaningful view specifically for each employee; a knowledge management (employee) portal provides 24x7 access to ALL recorded knowledge, information and data about customers, prospects, employees, partners: most companies have individuals that are invaluable because of their knowledge and their experience
from which they draw. These individuals are called upon time and time again to answer questions, provide assistance, provide support, and basically lead the way. It is easy to understand the risks of losing this person (or these persons) when they leave the company for any reason. Recording knowledge and making that knowledge available through an employee portal 24x7 takes care of that problem.

**Integrating local KM strategies**

Being global and distributed is more than a catchphrase; it’s a reality and must be attended to as such. Organizations must master the act of integrating disparate global sources of knowledge found within their bounds in order to create and sustain competitive advantage. The four considerations when implementing a global KM strategy are (Desouza and Awazu, 2006), **Communicating the KM strategy**: leadership must be advocates of the KM strategy in order to gain an organization-wide understanding of the KM vision; **Have a global rather than local focus**: to be successful, organizations need to make the shift from local to global. Individuals should also be trained on the need to follow formal procedures for knowledge sharing and storage; **Appreciate local variances in KM practices**: cultural differences impact how knowledge is managed in diverse countries. We must appreciate the differences in cultural knowledge management practices and develop ways to work around them; **Integrate enabling technologies**: divisions of the organization may operate very different technological solutions for fostering knowledge exchanges. This requires solution integration and connectivity management. Failure to appropriately integrate the different technological architectures will lead to poor knowledge searches and failed efforts in building a truly global KM program.
It is advised that global companies follow the above practices so as to make their multinational KM strategy seamless across cultures but there are several challenges to a global KM implementation which are very critical

**Filtering an organization's critical knowledge**

How focused or unfocused is an organization’s KM strategy? Has the company identified their high-value knowledge, and put in place strategies to preferentially manage it? Are the companies applying strategies tailored to the specific knowledge topics? This paper (Milton, 2007) explains the differences between focused and unfocused KM strategies, and gives practical advice on high-grading knowledge, bringing focus to companies programs and project teams and developing knowledge registers to identify what they need to know and avoiding mistakes wherever possible.

Unfocused KM: We see many KM strategies that we would characterize as unfocused. These are strategies where an organization puts in place processes and technologies for general knowledge sharing, without high-grading the knowledge. They may introduce after-action reviews or retrospects, or put in place a knowledge-sharing portal, in order to capture and share learnings that are generated through operations. Sharing will take place as a reaction to the discovery of new knowledge. If something goes wrong, the lessons are identified, captured and shared. If something goes right, then possibly the lessons will be identified and shared. If these lessons are reapplied in future operations, the business will benefit. A system such as this, which learns reactively from events in an unfocused manner, has undoubted business benefits. Systematic re-use of lessons leads to fewer repeat mistakes, and to reduction of the learning curve.

Semi-focused KM: A somewhat more focused KM system is a network-led system. Here, various key knowledge areas are identified, and networks are set up...
to manage each one. If the networks are preferentially set up to cover the most critical knowledge, this represents a degree of focus. Conversely, some organizations try to cover every area of their operation with networks, which doesn't represent much selectivity and focus

Focused KM: Focused KM is where an organization defines in advance the knowledge of greatest value, and focuses on this knowledge, proactively setting up learning systems to acquire the it

Key points in this paper:

- When initially developing a KM strategy, few organizations define exactly what is the most important knowledge that they should be managing
- Because of this lack of "high-grading" knowledge, KM strategies can often be categorized as unfocused or semi focused
- Such strategies will generally add value to an organization, but they're reactive strategies, defined by the concept of learning after an issue has arisen, rather than seeking knowledge to prevent issues arising at all, which is defined as proactive learning
- High-grading also enables organizations to better identify the knowledge that must be protected and that which can be of most use

Harvesting knowledge from frontline staff
In a contact centre, an advisor can take approximately 60 calls per day. In a 250 seat contact centre that's 3.25 million customer interactions a year. This paper (Taylor, 2006) talks about the opportunity these figures make for harvesting this powerful tool for profit.

The following are the top live tips for getting the best ROI from the wealth of knowledge held by the frontline staff:
• Breakout sessions: Call breakout sessions as often as you can and in a fun, engaging way so staff feels relaxed and happy to pass on the valuable information they hold about your customers. Liven it up, be creative, make a plan of different themes to keep them interesting e.g. use a color theme - blue food, blue water, even a blue room - it will make an immediate impact, but don't do the same thing every time. Use visuals and mechanics like story-boards, cartoons, objects so you appeal to the usual and aural communicators. Get the message across that all ideas are valid contributions.

• Senior management sponsorship: Senior manager should brief customer advisors in person, passing on their passion for the brand, product or service. Spend time in the contact centre listening to calls, hearing what customers are saying and how the advisors interact with them. You get a far better feel for the market and the advisors feel more valued. Do it regularly, as one of the UK's biggest financial institutions does, so that advisors feel comfortable with senior managers around. You'll reap the rewards in just a couple of months and it will "humanize" senior management.

• Create knowledge gurus: Create knowledge gurus who can "champion" customer feedback, interface directly with their teams, product development, marketing and HR and mentor new staff. Utilize them externally to, e.g. to present at industry events or presenting at corporate pitches.

• Reward and Recognition: Create a R&R scheme that focuses on business benefits gained from customer services' feedback. Create the right feedback channels to get their suggestions and clearly demonstrate the financial impact of successful ideas. A great example - a cable/telco that was suffering from a bottleneck at faults management; frustrated callers were routed to customer services teams who were sending out engineers – an expensive way to often fix simple problems. An advisor developed an online thoughts
diagnostic tool to identify and rectify some faults over the phone with customers. Once rolled out across the team, it saved the company vast sums of money, giving the innovative advisor company-wide recognition and a financial reward.

- The company intranet site: An effective intranet underpins all the above suggestions and is a great meeting point for all sorts of information. However, you need to easily navigate information and give feedback, robust systems, non-paper backup (otherwise they'll never use the intranet) and it needs to be "sticky," i.e., fun, to bring them back. A virtual magazine, with competitions, photos of team nights celebrating employee and company successes and maybe a regular SMT profile e.g., favorite holiday/celebrity can make them come back regularly. Make it personal and fun and make sure it is a two-way communication tool. Harvesting staff knowledge is a crucial exercise and it really is vital to use that knowledge to drive your business. So, have fun and act on the information you get.

**Implementing a knowledge retention strategy**

Across the globe, organizations are hemorrhaging knowledge through attrition. It's an issue affected by retirements, shrinking knowledge pools and often, promotions and relocations. For the knowledge manager, knowledge retention is becoming an increasing headache. This paper (Young, 2006) describes a step-by-step strategy to combat the problem, using multiple examples from oil firm BP and other major organizations.

Key points on this paper
• Knowledge loss and brain drain is a global issue that's increasingly affecting organizations' ability to compete. Companies can no longer expect to buy in knowledge for reasonable sums as demand outstrips supply. Instead, they must focus on retaining knowledge.

• For effective knowledge retention, your processes should be integral and supportive of your KM strategy.

• It's vital to identify exactly what knowledge a person has and high grade it accordingly with their help and input from colleagues.

• Capturing knowledge from an expert is hard work and it takes skill and practice to uncover the most important knowledge in employees that are leaving.

• The circumstances under which an employee is leaving will have a direct impact on your knowledge retention capabilities.

The reasons why companies lose tacit knowledge

• Leaving for a better job elsewhere: Career progression might be just that, they're going to another company for better prospects or simply for more money. In this situation the relationship you have with the person is key to how events will unfold. If they were unhappy and were driven more by a desire to leave your company than a desire to work for their new company, then it's unlikely they'll cooperate with any knowledge capture or retention exercise. However, if they were generally happy with you as an employer, then they may be more inclined to co-operate with your knowledge capture work.

• Retirement: Retirement is generally regarded as the prime situation for knowledge retention. By default, we assume that because the person has a
considerable number of years in a particular role, they've knowledge that we need to retain. However, having done a very considerable number of these knowledge capture interviews, I no longer assume that length of service equates to quantity or quality of knowledge

- Promotion: When people get promoted because of their exceptional performance in a job, it usually means that the job he leaves behind suffers from lack of his personal touch, how he did it, when he did it, key contacts, key artifacts etc. Hence the company has to develop a mechanism to tap into all employees' knowledge using a companywide intranet

- Relocation: Another situation in which knowledge retention should be considered is when someone is moving from one location or post to another

Downsizing and External factors: In a recession many companies tend to fight by downsizing their staff, this can result in loss of knowledge. There can of course be external causes of attrition eg young people from South Africa are migrating in droves for a better lifestyle in other countries thereby causing a huge knowledge shortage in their native South Africa

**Challenges of KM to HP in China**

In 2001, Hewlett Packard China began extensive knowledge initiatives, focusing on knowledge sharing. But by 2004, several factors including major organizational change had effectively ended all knowledge work. This article (Lu and Leung, 2006) describe the approach of HP China's chief knowledge officer and explain some inherent cultural barriers facing knowledge management in the Chinese context. The few salient points in the failure of KM efforts in China are:

- Compared to developed countries, China approached KM at a late stage, it wasn't until the late 1990s that knowledge management was introduced formally
• Hewlett Packard China launched its first knowledge initiatives in 2001 under the guidance of chief knowledge officer, Gao Jianhua. Instead of following the established top-down (from HQ to other offices) KM practice in HP's headquarters, he took full consideration of the context of KM in HP China and developed a different set of practices, for establishing a knowledge sharing environment within the company.

• KM initiatives focused on social knowledge sharing in the form of seminars, mentoring schemes, reading groups and recognition for knowledge sharing. This was done by following the practice of; knowledge documentation, standardization, book reading association, formal and informal learning institutions, the mentoring system, rewarding knowledge sharing and use of information technology.

• Organizational change ended the encouragement of knowledge sharing with staff fearing that sharing their expertise meant they were being replaced. This is because in China the culture was hoarding rather than sharing knowledge, the predominant social norm in China. One's expertise is supposed to distinguish one from others and it will only be valuable when the expertise is hoarded to the original knowledge owner.

• The final blow came when all concepts of KM was lost within the company after the resignation of the chief knowledge officer.

• Long-held beliefs of Chinese workers with regard to sharing expertise can prove a major barrier to knowledge management.
Measuring impact of knowledge management:

Auditing knowledge management practices: model and application
This paper (Meliha, Amila and Amer, 2008) proposes a knowledge management audit model to assist organizations to obtain an accurate picture of their knowledge-based assets and the strategies used to manage that knowledge across the organizations. The model also serves as a means for assessing how well the identified assets and strategies meet organizational business goals and strategies. The practical application of the model is illustrated in the local government environment. Implications of such an audit are also discussed.

The study was done on a local self government of Sarajevo, Bosnia and Herzegovina and the results were published. The results of this audit have a number of important implications for city managers in continuing their KM journey. This section provides a summary of main findings and makes recommendations for changes in the local KM program in the light of identified weaknesses and development opportunities. Overall, the results of the KM audit can be summarized within three categories: strategic alignment of KM; strengths and weaknesses within KM solutions; and synergies between KM programs and organizational contexts.

Key points of this study are:

- Strategic alignment of KM: There is wide recognition that a balanced integrated KM approach should support the organizational strategic drivers. Different organizations may have different reasons for starting KM and it is important that they consider carefully what is important to them and why
• Strengths and weaknesses within KM solutions: This audit identifies a number of strengths and weaknesses within KM solutions. Success strategies cannot be created without a proper knowledge base. One of the key questions that relates to KM in local governments is whether authorities have the critical knowledge in service, citizen, business, method and regulation areas to create successful strategies.

• Synergies between KM programs and contexts: Initiatives that combine appropriate knowledge stocks, processes and enablers create value for the organizations in the form of performance outcomes. As noted earlier, no solution is best under all circumstances and organizations need to choose the one that best fits their set of circumstances.

Knowledge Audit
This paper as well as previous papers by this author (Hylton, 2005) emphasize that the major contributing factors to the disproportionate high KM failures over the years has been improper approach, most specifically the low regard or total disregard of the knowledge audit. However, just as KM initiatives have failed because of improper approach, so also knowledge audits do fail, and we will go on failing if they are not approached and conducted properly. The importance of careful planning and execution of a knowledge audit towards successful knowledge management cannot be overstated.

Key points of this paper:
• Senior executives/managers are primary cause K-Auditing problems: Experience and anecdotal evidence suggests that key senior decision makers (concerning KM/K-Audit) are often a major frustration factor to the assigned
K-Audit leader/team. One of the problems is that those given the main responsibility for KM/K-Audit are generally not senior management staff

• What of true commitment: The bulk of organizational leaders and senior decision-makers shy away from full start-to-finish or end-to-end knowledge management commitment

• KM is a long marathon journey: not a leap, not a sprint: knowledge management is not a high profile 100m, 200m, or 400m sprint, where the brawn and glamour of raw power and muscle (ie technology) is the main precursor or driving force to success. Rather, KM is world class, elite marathon athlete, on a very long, people focused pursuit: a journey, which in reality, lasts the lifetime of the organization

• The K-Audit is the only starting point of the full KM journey: Unless a knowledge management initiative begins with the knowledge audit, it is at best grossly deficient and at worst doomed to certain failure. Exclusion of the knowledge audit suggests an inadequate and high risk KM road map. Companies/organizations exclude the knowledge audit at their peril

• The K-Audit is the key to successful realistic KM quick-wins: It is the knowledge audit which sets the stage for, and augments the discovery, verification and validation of the truths that facilitates implementation of quick-win KM solutions. But companies/organizations should not forget that full KM/K-Audit is not a sprint or ‘quick-fix’

• Senior executives/managers need greater KM/K-Audit awareness: This apparent disconnect is because of the fact that most individuals who are at, or close to, the apex of the organizational triangle, lack ‘true’ knowledge of KM and its intrinsic value, and even more so the knowledge audit
In conclusion: there is no quick-fix KM/K-Audit. Fundamental to the problem of good KM/K-Audit, a problem which needs to be addressed from the top.

**Knowledge Management Metrics**

The value of most organizations today is less determined by their physical assets than their intellectual assets (Brown, 2004). Intellectual property such as patents, technologies, ideas, and designs are what keep leading companies like Bose, 3M, Medtronic, and Boeing ahead of their competition. A big challenge for many organizations is to document and pass on important knowledge to others in their organization so that they can benefit from the discoveries of others.

There are two types of knowledge that can be found in any organization:

- **Explicit** – formal codified knowledge documented in reports, papers, specifications, patents, formulas, books, and other forms of documentation
- **Tacit** – informal uncodified knowledge that resides in people’s heads that can be difficult to capture and transfer

The challenge of any organization then, is to extract and retain tacit knowledge. For this an effective metric or gauge for Knowledge Management might be an index that is comprised of the following four types of measures:

- **Awareness** – knowledge of what to document, how to document it, how to access KM data bases, etc.
- **Behavior** – participation in KM activities such as committees/teams, making presentations, etc.
• Outputs – creation of data bases, white papers, lessons learned reports, best practice documentation, etc.
• Outcomes – impact of new knowledge on key measures of organizational performance such as new product sales, productivity, cost reduction, or quality improvement

**Metrics for knowledge management and content management**

Metrics are a concrete way of defining what a knowledge management or content management project will achieve, and whether it met those goals (Robertson, 2005).

The tangible benefits of metrics to businesses are:
• Targets to be set: Metrics provide clearly defined goals and scope for projects, allowing for more concrete design, planning and implementation. Metrics state “this is what we plan to do, and this is the benefit it will have”
• Success to be assessed: Metrics provide very specific ‘success criteria’ for projects, allowing the outcomes to be assessed at the end of implementation
• ROI to be estimated: In the current times of tight IT budgets, there is an expectation that projects will deliver quantifiable benefits. This is often defined in terms of ‘return on investment’ (ROI). Without strong metrics, estimating ROI is little more than guesswork
• Ongoing viability to be tracked: Metrics continue to provide value beyond initial implementation. Appropriate measures will quickly highlight issues, allowing them to be resolved before they grow or spread
Lessons to be learnt: By providing a concrete way of assessing the success (or lack of) various approaches, a greater understanding can be gained. This can then be applied when establishing new initiatives.

In short, metrics can be of tangible benefit both at the early stages of a project, and throughout its life.
Impact of knowledge management on the IT industry in India and the world:

A KM Maturity Model for the Software Industry
Organizations can't be ahead of customers; they can only anticipate their next move. And KM is a key portal into market mood swings. This paper (Natarajan, 2005) explains how KM practitioners have only scratched the surface of what's possible. By methodically going through a stage-by-stage evolutionary process, an organization can build a model to measure KM maturity to gain a more secure foothold in the marketplace.

KM maturity in a competitive world where knowledge retention is the key to anticipate changing customer needs is a must for all organizations, especially those in the global software industry.

The four stages towards KM maturity are:

1. Organizational success due to either being first in the market with a great product or idea, but no processes in place to capture or disseminate knowledge. The ability to respond to customers or prospective customers is lacking and so is the ability to impart knowledge to new employees. This is the pre-knowledge initiation stage.

2. Organizations in this initiation stage have established an in formation-sharing mechanism by which regular reporting, sales force automation and updating ensure that explicit information capture occurs on a regular basis and is tapped for all customer-related transactions. There's some predictability in knowledge sharing at the service delivery level, but little or none within the sales or service delivery communities. This results in generally satisfied customers but poor replicability of success because of a lack of knowledge input to the sales force. The focus is still largely on
explicit information sharing rather than to enable tacit knowledge capture or sharing

3. This is where organizations establish processes and procedures for systematically capturing, storing, sharing and using intelligence with key customers, suppliers, shareholders, etc. The beginnings of tacit capture at least at an anecdotal level are also evident. Organizations have established an information sharing mechanism by which regular reporting, sales force automation and updating ensure that at least the explicit information capture occurs on a regular basis and is tapped for all customer related transactions

4. KM is integral to business activity and both explicit and tacit knowledge is shared between employees of a function and across geographies and hierarchies. This is when the organization moves towards true knowledge maturity

Keypoints of this research:

- What KM is missing is a systematic approach for focus on key factors to make KM Maturity (KMM) accelerate the evolution from knowledge being a resource to using it as an enabler to strengthen the organization
- There's a definite need to move KM maturity from a mere concept to a clearly articulated set of stages that can lead an organization
- The final push into knowledge maturity is provided by leadership. To avoid regressing to a previous stage, large amounts of motivation and training play key roles

Having reached a critical mass in revenues and profitability, a focus on all K-factors is needed to develop a scalable business model

**Knowledge as a Competitive Differentiator in an IT company**

This interview based article (Melnick, 2006) talks about knowledge as a critical differentiator in an IT company Atlantis where Blake is COO and CKO. This paper
talks about the strategic knowledge advantage which Atlantis used after the 9/11 attacks and the subsequent IT meltdown. The established KM methods and rules Atlantis follows are:

Methods-

- Democratization of knowledge: every employee has the ability to influence the company's direction
- Iterative improvement: each employee strives to move beyond best practice in all their daily activities, by capturing ideas for improvement as they go about their daily tasks and activities
- Rewards and recognition: Employees are rewarded for contributing to the collective knowledge base of the company
- Bring the customer into the improvement process by having them contribute to the knowledge base of the company
- Flattening the hierarchy so people are free to talk to each other

Rules-

- Rule1: KM is a construct of information management (technology) and knowledge-building (people). This is really important for companies to understand. It's not all about technology
- Rule2: You can't really "manage knowledge"
- Rule3: Within an organization, you need to address the primary concern of employees, for example, "what's in it for me"

Inspite of a fairly successful KM policy Blake still has a few areas of concern:

- As with most organizations involved with KM initiatives, measuring and demonstrating the ROI to the top management is always a challenge
As KM figures prominently in Atlantis' new corporate strategy, Blake is struggling with how to externalize (demonstrating a direct impact on the organization's revenue) KM.

Use KM as a discriminator in the markets in which Atlantis currently operates and in sectors they hope to migrate to in the next three to five years.

The challenge to Atlantis is to build on this KM platform and to dissipate the challenges to KM.

Impact of KM on medium sized software companies in Norway
An abstract of the PhD thesis of Dr. Torgeir Dingsoyr, 2002 explains that companies that develop software have a pressure from customers to deliver better solutions, and to deliver solutions faster and cheaper. Many researchers have worked with suggestions on how to improve the development process; software process improvement. As software development is a very knowledge intensive task, both researchers and industry have recently turned their attention to knowledge management as a means to improve software development. This often involves developing technical tools, which many companies have spent resources on. But the tools are often not used in practice by developers and managers in the companies, and it is often unknown if the tools improve how knowledge is managed. In order to build efficient knowledge management tools, we need a better understanding of how the tools that exist are applied and used in software development. We present and analyze eight case studies of knowledge management initiatives from the literature. We found evidence of improved software quality, reduced development costs and evidence of a better working environment for developers as a result of these initiatives. Further, we examine success criteria in knowledge management codification initiatives, based on
Intranet tools in medium-sized software companies. We found four factors that we consider important: Having a culture for sharing knowledge, having a stable focus on knowledge management, developing knowledge management tools incrementally, and coupling knowledge management initiatives well to business goals. This research was based on participation with software companies in improvement projects. In addition, we investigate how knowledge management tools are used for different purposes by different groups of users in two software consulting companies. They use tools both as support for personalization and codification strategies. The consulting companies are two medium-sized Norwegian companies with 40 and 150 employees, which work in development projects that last from a few weeks to several years. We used semi-structured interviews with developers, project managers and managers, examined logs of tool usage, and company-internal minutes from development meetings, as well as handbooks, project plans and annual reports. The frequency of usage varied between the two companies: in one, most employees used tools on a daily basis, whilst in the other, employees used tools weekly. We find that tools for codification are in use for transferring knowledge from projects in order to solve technical problems, get an overview of technical problem areas, avoiding rework in having to explain many people about the same technical solution, improving the employees’ work situation by tips on better configuration of technical tools, and also for finding who knows what in the organization. The tools for personalization are in use for searching for competence to solve technical problems, resource allocation, finding projects and external marketing, and for competence development. In all, we found a variety of uses of a variety of tools by several groups of employees in a company. Hence this thesis throws up several facets to knowledge management ie we have to first define KM, then implement KM and
finally measure KM. This will have to be followed by the importance of KM to industry, both IT as well others.

**Knowledge management in software engineering**

In Software Engineering, to reuse life cycle experience, processes and products for software development is often referred to as having an “Experience Factory” (Basili et al., 1994) - a separate organizational entity with responsibility for capturing and reusing experience. This approach has been very much referenced in the software engineering field (Basili et al., 1994). Experience is collected from software development projects, and packaged and stored in an experience base. By packaging, we mean generalizing, tailoring and formalizing experience so that it is easy to reuse. The Experience Factory organization assists software developing projects with earlier experience both in upstart and during execution, and can suggest improvements in processes based on collected experience (we call this “strategic improvement management” in Figure 1). The interaction between the Experience Factory, the sponsoring organization and the software development projects is shown in Figure 2. These ideas were further elaborated in the PERFECT project (PERFECT Consortium, 1996). Here, we find advise on how to “implement” an Experience Factory in an organization; on which steps to take - from “characterizing the business situation” and “setting goals”, to making an “implementation proposal” and “establish an Experience Factory”. It also gives advice on which roles different people in the organization can have in this work.
Another addition to the original ideas in Experience Factory, we find in a paper from Daimler Chrysler (Houdek and Schneider, 1999), which clarifies some issues that are taken for granted in the original Experience Factory work:

- Improvement activities in a quality improvement paradigm-perspective is a long-term activity
- For projects, process improvement and learning will require additional effort
- Knowledge transfer between projects requires some similarity between projects

**Maturity of BPM in India: The Process Management Dimension**

This article attempts to cover a lot of ground in limited space, and, consequently, some aspects do not receive attention (Bhat and Fernandez, 2009). However, several interesting points emerge. India has a lot going for it in terms of process maturity. The building blocks of process documentation (existing in varied forms) is a good starting point for BPM initiatives. The process improvement culture is strong and has the potential to make a stronger impact with appropriate strategic
alignment, leveraging technology and further research. Indian industry leadership has demonstrated commitment towards processes and ensured appropriate governance structures as well. There is further opportunity for the leadership to bring in the right mindsets for a better connection between strategic priorities and process initiatives. Maturity of process management shows some dependence on the business need – for instance on competition, growth intensity, nature of the business (knowledge intensive, project-based, etc). As Indian companies seek to expand internally and across the globe, there will be a greater need to ensure that their processes are aligned and able to support growth objectives effectively. In this they would do well to consider how to maximize their process investments without spreading themselves too thin – by investing only in the processes that make a difference.

**Empirical Study Based Evaluation of KM Models in the IT Sectors: Implications for Quality Outcomes**

This study was undertaken to evaluate the Knowledge Management (KM) practices processes & systems in relation to Nonaka’s spiral model and Knowledge Management Maturity Model (KMMM®). The metrics used had 88 variables, classified as four dimensions of Nonaka’s Model and eight dimensions of KMMM Model. A sample size of 114 was selected from the IT sector on proportionate random sampling basis (Rodriguez, Gayathri and Rao, 2006). The instrument was validated for content, criterion & construct validity, which includes factor analysis. Hypothesis testing that was undertaken to study the perceptual differences in the KM performance revealed that there is no significant difference in the perception of KM dimensions w.r.t. KMMM and Nonaka’s Model. The positive effect of infrastructure capabilities and process capabilities on KM success has also been studied to get a better understanding of the benefits of KM implementation. The study has revealed that w.r.t. Nonaka’s Model as well as KMMM model, the
Knowledge Workers are moderately satisfied with the KM practices. Further, the Dimensions – ‘People Competencies’ and ‘Environment & Partnerships’ based on KMMM, and ‘Externalization’ and ‘Combination’ based on Nonaka’s Model were found to be the dimensions which were highly practiced. Through the empirical study results and findings, suggestions have been made to enhance the KM practices in the IT sector.

This empirical study has delineated the fact that mere systems, processes and technology cannot produce results without people involvement. This is the reason why People competency (KMMM) and Externalization (Nonaka’s Model) have been considered to be the most significant dimensions by the knowledge workers in the IT sectors. Personal interviews with the knowledge workers also revealed that ‘knowledge hoarding’ still exists, as people are not fully aware of the importance of KM. Hypothesis testing indicated that, as such, there is no significant difference between the perceptions of KMMM and Nonaka’s model in these organizations. However, they significantly differed in the dimensions Socialization and Combination. Socialization involves the transfer of tacit knowledge among the knowledge workers, and Combination involves conversion of explicit knowledge into more complex sets of explicit knowledge. As both of these dimensions involve ‘human aspects’, effective knowledge transfer across the cross-functional work teams, creating interdependence across multi-disciplinary branches, and informal systems such as induction, mentoring, experience sharing etc. will have to be given due importance to develop coherence with respect to these two dimensions.

Knowledge Management is a dynamic field and many new models are likely to emerge out in the nearest future. Nevertheless, KMMM and Nonaka’s Models have a proved validity across the IT Sectors and this paper has empirically studied the
perceptions of the Knowledge Workers based on these two models. Furthermore, KM in different organizations may be required to serve different organizational objectives. Though limited in its sample size, this research has proved that by and large the two models are perceived similarly by the employees despite the fact that KMMM Model is ‘strategy based’ whereas the Nonaka’s model ‘structure based’. Future researchers in this area may thus formulate a hybrid model by combining these two models and empirically study the KM performance

Knowledge Sharing Practices in KM: A Case Study in Indian Software Subsidiary
This study is concerned with the knowledge sharing practices in Knowledge Management (KM) for innovation. This paper investigates a wide range of functionalities under the purview of KM that supports different set of organizational activities (Bhirud, Rodrigues and Desai, 2005). Knowledge sharing practices in the organization are also explored for the purpose of formalization and sharing best practices and experiences within the organization

The purpose of this paper was to understand the knowledge sharing practices in a knowledge-intensive organization. One of the main objectives of the KM is to foster innovation. The value addition takes place when the new knowledge is created which in turn is through knowledge sharing. The organization under study had an environment suitable for knowledge sharing. The knowledge sharing practices were found to be very effective. Information and communication technologies have been very appropriately used in knowledge sharing. However, a close observation also revealed the existence of barriers in knowledge sharing. Accordingly managerial implications were drawn to minimize the same.
Preliminary Study: Knowledge Management (KM) Practices in the Small Medium Software Companies

Generally, knowledge management solutions provided by software developers and vendors do not target smaller-sized companies for their tools (Sharif, Zakaria, Ali and Rozan, 2005). This is because of purely market driven; small medium companies are apparently not a ready market. The large companies market is far from saturated; therefore there is no need to penetrate more difficult market such as small medium companies. However, we believe that Small Medium Companies (SMCs) also need KM. For example, in the context of Small Medium Software Companies (SMSCs), KM concept is not new. In fact, there have been KM related concepts such as knowledge assets, knowledge processes that involve in their business process. Whereas, the SMSCs itself is knowledge intensive organization wherein the knowledge is very crucial resources and has numerous of knowledge intensive tasks. Despite that, what we want to highlight here is about how far KM practices in SMSCs are systematically emphasized, managed, or being concerned among members. This paper concludes a review study of understanding KM practices in Small Medium Software Companies. Thus, as an initial stage, we propose a model as a framework of study for understanding KM practices in SMSCs. Although this is a review study, it has significantly sparked a new idea by giving a simple guideline as a basis for understanding KM practices in SMSCs.

The aim of this paper is to give an overview of our preliminary study of KM practices in SMSCs. From a literature review, we propose a conceptual model as our framework of study for investigating KM practices in SMSCs. We derive the model by adapting established KM models (Nonaka and Takeuchi 1995; Handzic (2001). To tailor with the main area processes in SMSCs, we choose an improved CMM$_{SM}$ for smaller-sized software companies as our basis guideline when come to
understand key process in SMSCs. However, we only concentrate on project management process as stated in level 2 of CMM \(^{SM}\). We will undertake a fieldwork study based on proposed model and expecting significant findings from it, which lead to produce an adapted KM model for KM practices in SMSCs. We believe that SMSCs also need KM and the reality is that, SMSCs is knowledge intensive organization and certainly KM practices have been practiced in SMSCs for ages. We also expect from a fieldwork, by having such model, we can know how KM practices in that CMM\(^{SM}\) level (e.g. level 2) which lead to indirectly illustrate what level of that company according to the CMM\(^{SM}\)

Knowledge Management in Call Centers
Globalization and technology improvements have exposed companies to a situation with tough competition. In this new era companies are focusing on managing customer relationships in order to efficiently maximize revenues. In terms of customer relationship management, call centres are considered as one of the primary organizational channels for interacting with customers, but perhaps the greatest challenge of running a call centre, is to ensure that customers are provided with the right information in a timely fashion (Rasooli and Albadvi, 2006). In this regard knowledge management has a number of practical tools and strategies but to leverage the potential of these tools, organizations must understand how to implement knowledge management especially in their call centre department. Based on Tsoukas and Valdimirou’s (2001) theory there are some elements to be considered for knowledge management implementation in call centres. The primary goal of this research is to investigate how two large car manufacturing companies which are using their call centres as a main customer interaction channel have implemented these components. Five elements are identified: knowledge acquisition, utilization, adaptation, dissemination and generation. The
research strategy has been based on case studies and the comparisons are conducted within each case and the related theories as well as between the cases. The study found more similarities than differences between the companies as regards to the theories provided. It was found that both cases that already have implemented a knowledge management system in their call centres, have mostly focused on the management of explicit knowledge (designing, organizing and providing access to a knowledge base) rather than creating an atmosphere for transforming tacit knowledge of experts to explicit knowledge. In addition the study revealed that in both companies, tendencies to focus on technology rather than people and process, has obscured the real benefits that knowledge management can bring into their call centre department and subsequently whole organization
Impact of knowledge management on non-IT industry in India and the world:

Telecom industry:
Knowledge management @ Bharti Airtel Limited, India
Knowledge management at Bharti is primarily a tool to achieve strategic business objectives through an integrated set of initiatives, systems and behavioral interventions. Broadly speaking, KM seeks to eliminate re-invention of wheel anywhere in the organization. The vision for KM was complete elimination of reinvention without losing time to bring in consistency in outputs across processes (Singh and Induria, 2007). The need was felt to first completely exploit all available internal knowledge.

Bharti’s knowledge management program called Insights@Airtel was launched based on the same set of guiding principles. Through documentation and publication of best practices and knowledge sharing sessions, best practice implementers shared their success stories. Non financial parameters based reviews, process audits and six sigma projects were a major source of shared best practices. Initially email and now the KM portal on the intranet were used for sharing these best practices.

KM and quality at Bharti is not for fashion but purely for business results. Every activity is linked with business results – improvement in customer satisfaction, employee satisfaction, customer satisfaction measurement metrics (CSMM) scores, and KPIs. In last two years, total of over ten thousand knowledge submissions were contributed by employees from all over the country. Out of these about 51% were internally generated knowledge from employees and 40% are replication of best practices. The drive fro replication has been rightly supported by recognition and reward policy adopted across circles. In addition, there has been over 300
knowledge sharing sessions to share knowledge from originating circle to other cities.

Bharti has an employee base of over eight thousand which are getting supported by over forth thousand associates. Most of these associates are interfacing with customer in different roles. Hence it was critical for KM system to capture customer service insights and customer feedback to contribute effectively on process and performance parameters. Over 38% contributions (over 1600 knowledge pieces) come from employees working on customer interfacing functions ie call center, customer service delivery, product development, market intelligence etc.

The endeavor of KM has been to provide top management a 360 degree view of the entire fulfillment processes across Bharti’s value chain. This framework helps in transforming individual’s knowledge into tangible and measurable business results. This outcome has very strong correlation with shareholder value. Therefore, by design and practice KM has started affecting shareholder’s value positively.

A knowledge management framework for the telecommunication industry: the KMFTI model, Libya
Recent years have witnessed a continuing growth of developments in knowledge management systems to capture the information flows within organizations and turn them into exploitable management databases (Elashaheb, 2005). Examples to this are such as the Total Quality Management and the Business Process Reengineering models. There is no doubt, that during the last few years there has been a broad interest of exploiting knowledge. However, traditional Knowledge
Management (KM) systems and frameworks do not necessarily take into account the specific nature of the telecommunication industry, particularly those related to capturing, sharing and exploiting unconventional data flows that occur between the personnel on the move such as technicians and engineers. Thus, a large amount of these data is lost and will never be able to benefit the organization or its employees in any way. Therefore, this research addresses the development of a new KM framework to fill in this gap and provide the telecommunication organizations in general and the General Post and Telecommunication Company (GPITC) in Libya in particular with a solid base where bulk and rough data will become exploitable and manageable in a concise and intelligent way. The main questions being posed by this research are as follow: Could the Existing Knowledge Management Systems help the GPTC in Libya in particular and the telecommunication industry in general to better manage their data flows and turn them into an exploitable knowledge base, and how a strategic Knowledge Management Framework (KMF) could contribute to establishing adequate guidelines and policies in such telecommunication environment? In this regard, the investigations in this research will stress on the Identification of the broad range of issues that are preventing the adoption of KM systems within the GPTC or any given telecommunication organization rather than trying to focus on a specific and unique question about the exploitation of KM. This approach is justified by the fact that no specific KMS appear to be developed for such Industry. Furthermore, the various parameters are described under this common framework which is expected to benefit the telecommunication sector as a whole.

**KM in Education:**

**Knowledge Management Is A Perfect Education Development Tool: Is Thailand’s Higher Education Really Ready To Embrace It?**
This paper seeks to identify Knowledge Management concepts that relate to the implementation of KM practices in higher education development, especially for Thailand's education systems (Thitithananon and Klaewthanong, 2007). It also discusses the benefits and problems of KM practices and implications in different environments that vary from so many factors, such as local knowledge culture, organizations structure, organizations technologies, organizations behavior, organizations budget, and human resources and so on. The research classifies two main categories of Knowledge Management concepts that have been assuming from all organizations models, such as old KM style and the second generation KM style. It also explains about advantages of KM method for the education systems, for example the benefits on the research processes, the curriculum development processes, student and alumni services, administrative services, and strategic planning. Moreover, it discusses about drawbacks of KM methodology that is applied into organizations and it narrates the general background of Thailand's education systems which may need to apply KM methodology in order to develop it's perfectly.

To sum up, there are many benefits from the use of knowledge management in higher education but there are also some problems that occur when knowledge management processes take place but the benefits outweigh to the negatives. Therefore, all academic institutions in Thailand have to consider applying KM method on Thai education systems in order to be in agreement with world technologies development, the 9th National Economic and Social Development Plan and the Royal Decree of Rules and Regulations in Excellence Country Management 2003. However, the requirement of KM development in Thai education culture depends on the institution’s needs because of the internal wealthiness within organizations in term of mission and vision, infrastructure,
culture, financial, and resources. In addition, the use of KM methodology in higher education must spend the long period of time for meeting the development completion and the implementation of KM methodology is not prefabrication pattern so the Thai institutions which need to develop and improve their own organizations by using KM method must assess the organizations themselves before KM take place carefully. Nevertheless, the sufficiency economy concept that is the speech from His Majesty the King Bhumibol Adulyadej also needs to ponder with all projects of the nation development because of the economic crisis effects since 1997. Normally, nothing is perfect.

**Knowledge Sharing in the Jordanian Universities**

This study investigates knowledge sharing in the Jordanian universities by analyzing the relationships between staff’s attitudes toward knowledge sharing and their demographic variables (Al Faori and Abu Hasan, 2009). After interviewing 300 participants; it has been found that the academic staff is less interested in sharing their knowledge than administrative staff. The study provides solutions for the practitioners and recommendations for the researchers in this field.

This study gives further insight into knowledge sharing in the Jordanian Universities. The results of the study reveal that academic staff is less motivated than administrative staff in respect to knowledge sharing. Academic staff has fewer mutual relationships, team working opportunities, intentions and motivations to share their knowledge. Thus, academic staff at the Jordanian universities must be encouraged to share their knowledge with their colleagues. Further qualitative research is suggested in order to understand the reasons behind the academic staff’s lack of interest in knowledge sharing. This will provide solutions for this serious problem.
Moreover it has been found that younger staff is not encouraged to be creative. It is suggested to provide more freedom and encourage younger staff to be more creative. The results revealed no differences between female and male staff in terms of knowledge sharing.

Researchers in this field are encouraged to conduct detailed research for further understanding of this phenomenon. Finally, research is needed not only in the Jordanian academic institutions but in other institutions, as the related literature shows a lack of interest in knowledge sharing throughout Jordan.

“Blondie” -- Design Of A KM Architecture In An Educational Institution
Blondie is the student portal at the Indian Institute of Management Lucknow, available at the IIML Intranet. It was to offer content to meet the requirements of various user groups – students (PGP1 and PGP2), and faculty. The major selling point of Blondie in the initial days was its positioning as a one-stop shop for all student needs. The case described here highlights the design and architecture of the KM platform for the student community (in a premier Business School of India), and focuses on its marketing efforts – attracting new users, retaining logged in users, and promoting revisits (Shukla and Srinivasan, 2006).

The case described in this paper was written based on personal interviews of the designers and coordinators of Blondie (Webteam), and printed/ online material available within the Institute. The data for this case was collected between December 2002 and February 2003.

As networking and computing technology matured at the Indian Institute of Management Lucknow (IIML), the network infrastructure also expanded from the
erstwhile centralized Computer Centre (CC) and faculty/staff offices to include student hostels and faculty residences. Add to this, the increasing technology dependence among the students, both for curricular and extra-curricular activities. The internet is a critical source of information for students who are expected to undertake a significant amount of pre-class preparation on real-life cases, and work on numerous projects and assignments based on primary and secondary data. Also, the internet helps them research on potential recruiters, and equip themselves with the critical skills and competencies to perform effectively in the campus placement process. “Blondie” is a portal for the IIML student community available through the campus-wide internal computer network that gives them access to all these resources at one place (http://192.168.1.26) within the IIML intranet. Also, as IIML expanded the batch size of students to 240 students in the 2001-03 batch (17th batch), email became the most efficient and effective way of communicating among students. This increasing technology dependence and the expansion of the network helped Blondie become an integral part of a student's life.

Srikanth, graduating from the Indian Institute of Management, Lucknow (IIML), at the end of his 2-year Post Graduate Diploma in Management, was concerned about the sustainability of his brainchild, Blondie. He has been a key member of the Web team, a voluntary group of students with technical know-how to administer Blondie. Rajat, another member of web team however, was not as skeptical about the sustainability of Blondie. He believes that since users have gotten accustomed to using Blondie and are currently using it extensively, it is difficult for such habits to be change. The issue in his mind however is whether the new web team consisting of the juniors (18th batch students) can face the future challenges or not. The web team (managers of Blondie) did share some major concerns - (1) whether the juniors would devote the kind of quality and quantity of time that they as
founding fathers of the portal invested; (2) what measures will they take to attract and retain traffic to the portal; (3) how and what route will they take to expand the scope of Blondie to include other user segments like the faculty and staff members; and (4) what shape will the portal take as Blondie ventures into serving the alumni segment through the Extranet?

The Business School in the 21st Century & Beyond: Integrating Knowledge Management Philosophy
This paper examines the business school in the 21st century with special emphasis on integrating Knowledge Management (KM) philosophy as an innovative platform in ensuring sustainability and survival. The authors (McFarlane, Mujtaba and Cavico, 2009) propose the integration and use of knowledge management philosophy and concepts by means of the KMBOK (knowledge management body of knowledge) and exploration of market leadership models to create competitive programs and effective knowledge workers to deal with the problems and challenges of today and the future. The field of knowledge management and its applications and ideas are proposed as the next logical passage for rebuilding and developing business schools to their optimum

Business schools that are market leaders have become that way because of their valuable human resources. In organizations, people value is an important factor in adding to quality and developing brand recognition. Thus, management of knowledge workers is a key factor in business schools; where else does one find knowledge workers than in these schools that set the stage for both the theoretical and practical principles and theories underlying business activities, individual entrepreneurial spirit, and organizational transformation and growth! Business schools are made up of experts in all areas of business and leadership that shape
and influence societal-wide thinking and the mind-frame of current and future entrepreneurs by advocating best practices, inventing new norms for efficiency and effectiveness, and leading change management efforts. Business schools that are followers spend more time maintaining their current platforms while business schools that are leaders spend most time breaking away from their current constraints and “comfort zones” to create new paths to the future, empowering those with whom they come into contact to think anew and develop bold visions.

As 21st century business schools struggle in today’s highly competitive “market jungle” they must rethink their visions and strategic values. They should recognize the immediacy of change and the power they have to shape their own future while preparing for the uncertain aspects of the change process. In order to become successful leaders in the global education arena, 21st century business schools should follow several important principles:

- Closely assess the external global environment in which they operate and restructure themselves strategically to respond to current and emerging challenges.
- Optimize technological usage in creating and developing programs that uniquely “bridge the gap” between the theoretical and practical world while empowering knowledge workers and innovators for the working world.
- Promote both entrepreneurial and intrapreneurial spirits within individuals and organizations by developing appropriate frameworks for managing and delivering training, while maintaining sound connections with the corporate world.
- Strive to create unique and new approaches to delivering education and training that integrate broader aspects of the practical world and theoretical world appropriate to the process of empowering graduates to “dare to be different” in their thinking and problem-solving skills and abilities.
• Capitalize on change to create new platforms for the business world at large through innovative curriculum structure and knowledge exchanges across international cultural, social, and political domains that represent globalizing influences on business and economic survival.

• Integrate knowledge management body of knowledge (KMBOK) and make knowledge management concepts and philosophy a new strategic front on which to initiate change in structure, process, and ideas in business schools.

IT Based KM in Indian Higher Education System: Addressing Quality Concerns and Setting the Priorities Right

The Quality of Education being offered in institutions of Higher Education is a question being debated widely. With the growing cost of Higher Education in India, the question has become especially pertinent for all its stakeholders – students to policymakers alike. This paper (Kumar and Kumar, 2006) attempts to look into IT based Knowledge Management as a techno-management tool for redressing their concerns. Various probable avenues are discussed where IT based KM interventions could make an impact on the existing Indian Higher Education system. For example by affecting the overall quality of Higher Education in India and in addition making it more stakeholder friendly. An insight about the priorities assigned to various IT based KM interventions in different areas of Indian Higher Education System is statistically analyzed, based on the inputs from a cross-section of Indian Academia. Adoption of the proposed system shall not only improve the “Quality of Service (QoS)” but also decrease the economics of Higher Education in India.

A far sighted planning at Institutional level, supported by good R & D as well as Curriculum Development activities are important quality parameters in any
institution of Higher Education looking forward to a satisfied stakeholder base in Higher Education System. A concerned and sensitized institutional administration towards the special needs of bright young men & women as its immediate constituents as well as stakeholders, is also an essential requirement of a quality conscious Higher Education System. From the results as discussed above, IT based Knowledge Management interventions seem to be promising techno – management tools to help cast an impact over all the vital areas of the Indian Higher Education System viz. Institutional Planning, Curriculum Development Process, R & D activities of the HE institutions, etc. and thus provide a quantum leap in the “Quality of Service (QoS)” being currently offered by them.

The identified interventions in selected areas are if taken up by appropriate agencies viz. Governmental (for policy making) and institutional (for implementation), are bound to rationalize the investment in higher education system as well as lead to more responsive Higher Education System with optimized resources utilization. These modern interventions of IT based KM could also lower the overall investment in the existing higher education system by carefully identifying the key areas where these interventions could be applied

**Knowledge Networking:**

**Networking and Knowledge Management for the New Era of Global Marketing**

KM is always a collaborative management and without collaboration and networking among professionals KM efforts will not succeed. This paper is an attempt to define the Indian opportunity for harnessing the power of the knowledge revolution (Iyer, 2005). Starting from a brief account of the startling pace of discoveries in Gene Technology (GT) and Information Technology (IT) the author
analyzes three critical factors that will determine the rate of success in exploiting such opportunities. The first factor is the role of the State, and that of private enterprise, in shaping the future of education in India. The second is the use of English in instruction and communication. The third factor is the ability to create conditions that encourage and engender entrepreneurial activities. Finally, he suggests some ways to convert the opportunity into a thriving reality, by creating an Indian knowledge network. In this new era of the knowledge revolution, India must seek out and exploit some of its inherent strengths to accelerate economic development, while creating extremely attractive avenues for employment generation. Bio-technology (BT) and Information Technology (IT) are the two new pillars of the era of knowledge management. Indian science and engineering graduates have made an international mark in both these corner-stone disciplines. IT is now emerging as an engine of economic growth in India. The Indian knowledge pool has been built up, and is sustained, in the prominent science, engineering, and management institutes of this country. However, this resource has so far been grossly under-exploited for the creation of wealth and high-value employment generation. The dominance of trans- and inter-disciplinary research domains to solve large and complex technology problems will require networking for the knowledge revolution. This paper has presented one such model of an industry-specific database, comprising the expertise, facilities, and capabilities of technology generation that could be commercially profitable for academia and industry alike.

Three factors will determine the success (or otherwise) of India’s strategies to exploit the opportunities in the knowledge sector. These are as follows:
1. The role of the state, and that of private industry, in the development of education in India. Given the diminishing funds available with the Government, it is politically imperative for these scarce resources to be primarily utilized for attaining mass literacy rates, and for universalizing primary education. Simultaneously, the State must encourage, enable, and empower the private enterprise to enter the spheres of secondary and higher education, especially for the professional programs in Engineering, Medicine, Management, and Law. The private sector also has very attractive opportunities to spread primary and secondary education, via innovative uses of distance education and web-centered learning tools. In the sphere of university and higher education, where the private sector is the main beneficiary, it has an obviously much larger role in funding such institutions. One such role could be in terms of research partnerships with academia. Many such partnerships, with varying degrees of university and industry participation, are already being witnessed, especially in hi-tech areas such as informatics, biotechnology, communications, new materials, etc. The second, and perhaps more gratifying, phenomenon is the grants and endowments being made by “successful” NRI ‘s from USA, to modernize and advance the quality of the R&D infrastructure in their Alma Mater.

2. The second important determinant of India’s success in the knowledge management sector will be the spread of the learning of English, and its use as a medium of instruction. Occasionally, politicians have gone on “English bashing”, and have raised the bogey against the use of English, mostly for narrow political and chauvinistic needs. In spite of this, English has managed to survive as a language of business in large sections of Indian commerce and industry. English is the language of the knowledge era, and
its importance as a key to the growth of knowledge industry must be acknowledged by one and all

3. The third factor that will determine India’s success in the knowledge industry is the need to create conditions which will engender a culture of venture capital and Angel funding. These are two important instruments which fuelled the knowledge revolution in the USA, and have also now spread to Europe. The demands of the knowledge sector are quite different, qualitatively and quantitatively, from the social and risk market profiles catered to by the traditional banking sector. The gradual emergence of such risk capital instruments and institutions in India is already beginning to fuel the growth of high-risk knowledge entrepreneurship. However, the chances of a venture capital culture blossoming in a traditional government environment have yet to be understood

**Building knowledge economy through national innovation systems**

Innovation is a key driver of long-term economic growth, the primary basis for competitiveness in world market and part of the response to challenges of knowledge economy. While developed nations have the advantage of institutions such as fund rich established research laboratories, liquid financial markets, venture capitalists and angel investors to fund innovative ideas and a legal framework that protects intellectual property. Developing countries face challenges such as low investment in institute of higher learning and national laboratories, weak linkages between research institutions and corporate organizations (Sinha and Sinha, 2007). In particular, business organizations have to deal with a lack of technology base of trained scientists and world-class research universities, low levels of profit coming from customers with disposable income and shoestring
budgets for R&D that are impediments to innovation. While India has the advantage of a solid base of technically trained manpower and existence of world-class research organizations such as National Chemical Laboratory, IITs and Indian Institute of Science, yet there are many a roadblocks to emergence of India as a force to reckon with in the knowledge economy, on the strength of its innovative corporate practices and an infrastructure conducive to spur creativity. A systemic approach based on the notion of national innovation system has provided an appropriate framework for coping with such complexity. National innovation systems are defined as the set of institutions which jointly and individually contribute to the development and diffusion of new technologies and which provide the framework within which governments form and implement policies to influence the innovation process. As such it is a system of interconnected institutions to create, store and transfer the knowledge, skills and artifacts which define new technologies.

In this paper, the authors describe the characteristics of our innovation system as it exists and its link with the needs of the business enterprises to cultivate innovation culture and infrastructure. They suggest that what is required at this juncture is to benchmark against the best practices in innovation management. With this perspective further they elucidate the TIFAC’s (Technology Information Forecasting & Assessment Council) Mission REACH (Relevance and Excellence in ACHieving new heights in educational institutions) program launched in the year 2000 and compare it with Cooperative Research Center (CRC) program of Australia that aims to strengthen long-term collaboration between public research actors and industrial firms so as to increase the innovative capacity of Australian firms and generate spillovers throughout the economy. Finally it is concluded that these systems of innovation brought in by respective government agencies differ
greatly owing to differing starting points, technological and industrial specialization, policies and attitudes to adopts change.

In conclusion, the interactions between actors that is those who generate knowledge and those who utilize knowledge must be included in the NIS umbrella. Some of the focus areas that may be pursued under the program of TIFAC CORE includes leveraging advantage of ICT in education and research, seamless transfer of knowledge from teachers to students, students to teachers, and student and teachers to industries and vice versa, e-learning, e-innovation portals, knowledge incubators etc., knowledge portal for knowledge led education and research and ideation for new product development, research and development programs that support innovation through investments into research projects and/or investments into research centers and equipments, using expertise of CORES for information and communication technology, energy and environment management, nanotechnology, pharmaceutical technology, bio technology and technology management catering for multi-disciplinary trends in technology, programs that seeks to improve the prospects for the successful commercialization of new technologies in these field, programs which strengthen existing and emerging clusters to foster interdisciplinary engineering and cause seamlessness between science and engineering, programs which facilitate international linkages in research and development, encouraging teachers to perform a triple role; role of an expert teacher, investigating scientist and an innovator industrial consultant and in the process help India leapfrog to a major knowledge economy of the future

Towards a more innovative company
To be more competitive, organizations have to develop new products and new technologies on a permanent basis (Nagel, 2007). Not only it is important to improve on existing products and technologies but it is equally important to
develop new options for the longer term. An innovative company should therefore create an environment of learning and experimenting, more so than well structured planning. Also internal venturing to create new options as well as to rely on open innovation as well as understanding ‘real options’ is the key. This paper focuses on company’s ability to cope with strategic options to learn and innovate at a pragmatic level. The authors present ideas of how corporations can survive in an unpredictable environment by creating options for the future and this paper deals with several questions how to organize innovation within the organization. Finally, the authors present their quick scan how to measure the innovativeness of a company. This can act as a starting point for discussions in the management team about innovation and strategic options.

In conclusion, living in an uncertain world most investment projects need real reforms included to some degree. An innovative company should create an environment of learning and experimenting, more so than well structured planning. For a company operating with speculative projects, looking for options and keep them is the key in a dynamic and uncertain environment to create the necessary flexibility and to shift the business over time. Internal venturing has a dual role: it creates not only new businesses, but it also creates different options for future growth.

Discontinuing technology projects (real option investment, later shut down) in which time had disproved the technology project and reallocating the resources that these projects had created was a major value creation mechanism in the large company. Mechanisms behind value creation of waste products were transferring talented individuals into new internal challenging projects, creation of new
organization capabilities, increase in absorptive capacity, new knowledge development and increase in intellectual capital (patents etc.)

Corporate headquarter should facilitate the initiatives from business unit’s instead of only controlling them. When considering winning teams that strongly disagree (yet believe in a common goal) are more innovative than well-structured, agreeing teams. Also learning firms strongly rely on strategic alliances (or other forms of external technology acquisition) in order to get access to new technology and to strengthen their competencies.

Options are valuable when uncertainty is high, and they should be used tandem with traditional evaluation methods such as calculation of the net present rule of investments, when projects move progressively through the development funnel. Future research suggestions, we should see how real options approach deals with decision making theories.

Quick Scan: A scan is way of operationalizing the innovativeness of a company and therefore forms an excellent start for the discussion within the management team of a company on where and later on how to raise the innovativeness. This QS has been developed in teaching 15 years at various MBAs in the Netherlands and recently also in Slovenia. Hundreds of students – in groups of 3-5 students – tried to extract the best suitable factors from literature and practice for their management. Our QS is again an extract from all these innovative ideas. Yet it is not a validated scale. It remains highly subjective and the score have only a meaning when compared ideas within the same company or comparisons between various years within the same companies. Comparison between companies is not useful. Again the outcomes are a good start for the discussion. The scan can be
seen in the paper’s appendix and it should be noted that this scan consists many aspects of the existing set of products, markets and technologies. Nevertheless it probably has to be reworked for individual’s specific needs.

**Technology Scouting – a case study of the Deutsche Telekom Laboratories**

Technology Intelligence has become an important field of study in which a variety of different methods are discussed that all aim at identifying opportunities and threats arising from advances in technology (Rohrbech, 2007). In this respect technology scouting is a method that can lower the time lag between the advance in technology and its detection by methods such as patent or publication analysis. Furthermore, in an environment of increasing technological complexity and of globalization of R&D the successful identification and usage of external sources of knowledge becomes increasingly important. In the sourcing of technology the scouts can also play an important role in identifying valuable sources and by facilitation the sourcing.

Based on two case studies of Deutsche Telekom and British Telecom, as well as literature review, the paper proposes a definition of technology scouting, a generic process and identifies motivation of the actors in the process.

In conclusion, to start a technology scouting activity 3 elements are crucial. Firstly, the *goal* has to be set, especially the definition if the scouting should be directed or undirected. Secondly, an *incentive system* has to be worked out that stretches over all actors involved in the process. Thirdly, the definition of the *backward-loop* is essential. The company has to ensure that it has something to offer in exchange for the information given by the sources of the scouts. Joint research projects are one such exchange.
Knowledge Management in HR:

Building competitiveness through world class workforce: The Tinplate Company of India Limited

The new economic policy of 1991 opened up the Indian markets to the world. Indian manufacturers which once operated in the protected economy were now open to the competition from organizations worldwide (Bhowmick and Chatterjee, 2007). It became imperative for the organizations to develop a competitive advantage to tide over the crisis. They were quick to evolve with restructured strategy of neo manufacturing from simply economics of scale to an agile organization with a higher degree of flexibility. But that was not enough. Soon it was realized that focusing on manufacturing stand alone was not enough, one needs to have an integrated approach to carry out manufacturing in line with the value delivered to customers. Thus evolved the concept of value curve and formulate strategy accordingly.

The paper discusses about The Tinplate Company of India Limited (A Tata Enterprise), a manufacturer of tinplate, which once enjoyed monopoly in the Indian tinplate market. But the liberalization ushered in a huge euphoria and India transformed into a freight advantageous zone for the tinplate manufacturers worldwide. The drastic reduction in import duties coupled with weak regulatory policies by government with respect to the packaging segment led to unscrupulous dumping of the tinplate from outside. This landed the organization in a crisis situation. To add to the woes other domestic competitors with foreign collaboration posed a threat as a new entrant. But the organization was quick to respond to the situation. It immediately called for a revisit of the Vision. The organization which till then attempted only to comply with the customer satisfaction as its main mantra for gaining market share, transformed itself into a cost effective solution provider.
The senior management of The Tinplate Company was wise enough to realize that improving only upon technology was not enough. Instead it needed to initiate a drive where it needed to tap the tacit knowledge of its experienced workforce which is an asset and would provide a competitive advantage over its competitors. The paper deals with one such initiative which transformed the organization from a mere bunch of workmen to a ‘World Class Workforce’ driving excellence in all facets of work. The initiative, under the guidance of Win consultancy, helped in building up a knowledge repository and forge ahead in the competition which no other organization can copy. The initiative has improved upon the work culture of the organization with drastic improvement in productivity and capable of taking on the challenges in both, domestic and export market, with an inbuilt culture to tide over crisis.

**Router model of knowledge management**

All successful organizations go through various phases of life-cycle – start-up, growth and maturity. Accordingly management focus and knowledge emphasis of the organizations change (Rajagopal, Jain and Narayanan, 2007). For a high growth organization like Cognizant Technology Solutions (Cognizant) management focus should be on development of human resources while knowledge emphasis should be on sharing of vast pool of knowledge across large number of employees.

While knowledge management is a corporate function, knowledge creation is essentially a distributed function. All business units, client teams, project teams, internal support group teams and so on are creating knowledge in their day-to-day
work. This knowledge is distributed across the organization, in individual
desktops, servers, knowledge repositories etc.

Traditional knowledge management approach advocates pooling of knowledge in a
central place. The information systems strategy driven by this approach develops
mechanisms for users to a) create knowledge artifacts, b) submit them to a central
repository and c) search through huge volumes of knowledge artifacts.

The authors call this model as Centralized Knowledge Management model. This
model allows building adequate quality control for the artifacts posted in the
corporate knowledge management system. But it excludes a vast majority of
knowledge artifacts strewn across the organization in various forms including
individuals’ minds that do not find their way in corporate knowledge management
system. Also there is a perennial problem of keeping the repository current. To
overcome this huge loss of knowledge, the authors have adopted what they call
‘Router Model of Knowledge Management’.

The key characteristics of Router Model of Knowledge Management are:

• Corporate knowledge management system is just a front end
• The knowledge may reside anywhere within corporate IT map
• Leverage multiple sources and make them ‘search-able’
• Use of latest push and pull technologies to leverage investment in legacy
  knowledge systems without a Knowledge Management straitjacket
• Extensive use of collaborative technologies like book marking, tagging,
  shared workspace to identify knowledge nuggets
• Promote development of communities through blogging, book marking, people profiling, wikis etc. to tame the complexity like Web2.0 on internet
• Barring client confidentiality issues we are part of knowledge democracy

The Router model has generated a huge interest within the organization and is helping in architecting a culture of participation. The systems are thus being designed not to merely through out documents on request but to help the user find best possible solution within the least possible time.

This paper discusses in detail some of the features of ‘Router Model of Knowledge Management’. The authors also touch upon a few problems that Cognizant is facing in implementing this model across the global organization of 36000 employees.

**Human assessments and interconnections of modules of an optimal industrial productivity steering system**

An optimal productivity steering system includes many separate system modules which all have to be place, to assure the final success of these kinds of, mostly ongoing industrial projects (Fogelholm and Miettinen, 2007). Also the full cooperation of the personnel included should be to assess the end result. The emphasis of required performance measurements should be to produce sufficiently accurate and relevant information as a basis for the required decision making. This pertains also to the required data to be utilized in the continuous attempts to increase the productivity of any industrial process in actual use.

But these performance measurements indicating the influenceability in productivity steering do represent only one module in a chain of steps of a total system, required for continuous productivity steering activities. An optimal productivity steering system requires also a set of comprehensive recording,
calculation and implementation system modules, which all have to be in place to assure the success of any productivity increasing projects.

Initially, to calculate accurate enough the required performance measurements, the basic production-based information has to be available in the format required by these productivity figures, which basically means that the resources has to be registered per production run, and not per shift or day. Thus, an industry-type optimal recording system, as specified through a Balanced Score Card framework, is a prerequisite for obtaining basic data.

The requirement for the determination of appropriate performance measurements used in productivity Gap Analysis is connected to next step in the system, whereby the main influenceable resource consumptions, mainly connected to those of material and time, can be determined, and their influenceability as far as material and time-waste is concerned, can be assessed through productivity benchmarking.

Finally, the actual financial rewards from these kinds of productivity-increasing projects have to be accurately enough assessed through an Activity-Based costing system, which is still not available in many industries.

The taxonomy indicated in this paper shows alternative development paths for industrial productivity increasing projects. One alternative track is to use Benchmarking, whereby the services of external experts are used to asses the influenceability of individual productivity elements connected to time and material waste, and the possibility of general productivity increases in the production process, and to assist in the closing of these productivity gaps hereby identified. The other method is to concentrate of the utilization of internal experts of the
company or plant to determine or implement these required productivity changes. The second alternative is restricted by the problem of accurately determining the actual productivity gaps, as the influenceability is hard to assess accurately, and the implementation is mostly ‘one-of-a-kind’.

A further issue discussed in this paper is the question of the role of so called ‘human factor’ in implementing systems described above. The doctrine of rational-economic assumption about human nature derived from the philosophy of hedonism has dominated the managerial thinking for a long time. This view is challenged and some critical alternative perspectives are given.

KM in e-Governance

Ten guiding principles for knowledge management in e-government
Knowledge management, popularly known by its acronym KM, as is known today is only 5 to 15 years old and is a distinct contribution of the private sector where the concept of knowledge as a ‘competitive advantage of the firm’ and ‘knowledge capital’ hold the sway (Misra, 2007). It is only recently that knowledge management (KM) has started making entry to public sector. One of the reasons for this development has been the emergence of information and communication technologies (ICT) in the last decade and the emergence of the knowledge worker and the knowledge economy.

Solow’s remark, made 20 years ago, that ‘You can see the computer age everywhere but in the productivity statistics’ (Solow, 1987) still survives. However ‘There is pervasive evidence that the information and computer technology (ICT) investment boom of the 1990s have let to significant changes in the absolute and
relative productivity performance of firms, sectors and countries' (Hughes and Morton, 2005). More specifically e-government contributes to economic development. For example, the overall GDP growth attributable to e-government in the period 2005-2010 in the European Union has been estimated at 2% (Corsi et al., 2006).

For suggesting guiding principles, the importance of e-government is described and five popular myths in knowledge management for e-government exploded, issues in knowledge management for e-government identified, the knowledge pyramid, types of knowledge places where knowledge can be kept, and dimensions of knowledge management are described followed by a stocktaking of knowledge management toolbox (De Brun, 2005). Then a knowledge management cycle consisting of six phases of: 1. Undertake knowledge audit, 2. Create knowledge, 3. Capture knowledge, 4. Store knowledge, 5. Use knowledge, and 6. Review knowledge is developed.

Finally ten guiding principles for introduction of knowledge management in e-government for increasing productivity in developing economies are proposed. They are:

- Guiding principle 1: Develop a knowledge management strategy for the organization
- Guiding principle 2: Proceed step-wise, from simple to the complicated
- Guiding principle 3: Do not re-invent wheel
- Guiding principle 4: Make use of information and communication technologies (ICT)
• Guiding principle 5: Make use of people, process and technology (PPT) model

• Guiding principle 6: Prepare a simple and modular knowledge sub-plan based on knowledge management strategy

• Guiding principle 7: Include knowledge management sub-plan in the e-business plan of Ministry/Department

• Guiding principle 8: Secure top management support to knowledge management sub-plan

• Guiding principle 9: Demonstrate results. Launch a scalable pilot project

• Guiding principle 10: Review the implementation of knowledge management sub-plan from time to time

The paper is concluded by observing that for ushering in e-government, it is essential to prepare an e-business plan incorporating, among other sub-plans, a knowledge management sub-plan together with a change management sub-plan, for quicker, smooth and substantial e-government for increased productivity in developing economies.

**E-Governance to E-Democracy**
We are witnessing changes as the e-democracy movement grows. Networked communities are quickly evolving through the internet, and citizens are increasingly using the new technologies to organize themselves so their voices can be heard, and to develop tools to attempt to influence government policy and programs at the political and public administration level (Jolly and Jain, 2007).
Some of the changes we are witnessing as the e-democracy movement grow. However, this raises an even more fundamental question: Does the public want to be more engaged in government or do they simply want the opportunity to make their views known every once in a while? If the governments do engage the public more frequently into public debate over issues of the day, how often do they do this? What mechanisms will be available to facilitate this process? How often should referendums be used and what subject matter should be considered priorities for referendums? What institutions within government need to be set up to make the wider transition to e-democracy beyond online voting and online consultations? The paper tries to answer these questions. However, as we have learned, technology is only a medium and a driver of new and important trends in society to the extent that they are driven by new ideas, conceptual constructs that contain innovation and creativity. Technology is not the creator of change, but is simply a tool. Usage of technologies, no matter their form, results in cultural evolutions because of the way that people adapt them. Implementation of new technologies may change the way societies organize and administer themselves, but they are never the driver of ideas, only the facilitator.

**KM in marketing:**

**KM strikes a marketing nerve**

Initial findings from research conducted by recruitment consultants LFI, (special report, Knowledge Management, 2001) show that KM, e-Business, Customer Relationship Management (CRM), and Branding are key marketing issues for many sectors.

Key points of this study:
Knowledge is an organization’s intellectual capital, which is now recognized, by most organizations, as an essential ingredient in their future development and profitability due to its contribution to:

- Achieving competitive advantage
- Improving products and service by learning lessons from past successes and mistakes
- Improving service and cross-selling by enabling coordination between different functions and divisions
- Increasing efficiency and financial performance by reducing cost and time requirements
- Enabling organization adaptability and innovation

In the professional and financial services sectors, clients paying fees for advice expect their advisors to be experts. Consultants, law firms, bankers, risk analysts and other advisors are used for their knowledge and their ability to expedite the clients’ learning process. KM enables everyone to be an expert – or at least to locate quickly those who are experts - and so enables firms to live up to their clients’ expectations. KM aids innovation by ensuring that ideas are shared so that ideas not suitable in one context can be used elsewhere. Sharing also sparks new ideas, particularly when reflected in performance appraisals and incentivization programs. However, much of an organization’s knowledge resides in its employees’ own expertise and experience.

KM differs from information management by seeking to:
• Add value to users through synthesizing, interpreting and filtering content and keeping it up to date – rather than simply delivering information (and increasing information overload)

• Incorporate ongoing user contribution and feedback – rather than providing a one-way transfer of information

• Support improvements and innovations – rather than the existing operations

**KM in product development:**

Reproducing knowledge: Xerox and the story of knowledge management

This paper is a commentary on discursive transformations that occur in stories told about Xerox’s photocopier technicians (Cox, 2007), comparing particularly Orr’s brilliant ethnographic study and a later management case study. It argues that significant shifts take place in how knowledge is understood between these accounts so that what begins as elusive, oral, improvised and social becomes increasingly presented as encodable in a structured database, countable, auditable, and individualistic. These ideological transformations seem much to do with Xerox’s own historic need to rebrand itself, and simply to sell a commercial product. Thus, how knowledge is represented and what knowledge management might mean seems to be heavily influenced by corporate vested interests. The paper stresses the need to capture complexity in case studies if they are to promote a realistic or critical understanding of the organization

The conclusions of this research paper are based on the following theories by the different authors:

• A subtle and sensitive ethnographic account of work practice (Orr, 1996)

• A seminal analysis which identified a classic social form (a community of practice) in which knowledge is created (Brown & Duguid, 1991)
- A genuinely successful computer system for people to share knowledge in a global corporation (Brien, 2000)
- A bottom-up initiative that produced a knowledge sharing system (Bobrow & Whalen, 2002)
- A bottom-up initiative that changed Xerox management philosophy (untold)
- A marketing exercise used to launch a product (Linklite)
- The tale of how PARC, anthropology and KM are used as material for corporate rebranding (Text100)

A fuller understanding involves accepting uncertainty and not evading the complexity by trying to define one account as the true one. We need to have a 'negative capability' to be 'capable of being in uncertainties, mysteries, doubts, without any irritable reaching after fact and reason' (Keats, 1817). There are plenty of grounds to read the story as Xerox wishes it to be read: to see Eureka simply as a success story about how knowledge can be reified and efficiently harvested. Equally, there are elements in Orr's account of the technicians' knowledge that can be presented not as post-modern, but as pre-modern. There is something atavistic in the storytelling around mechanical work. One might also recognize that the culture of the repairmen has the hallmarks of a male boasting culture. Orr does not himself comment much on matters of gender. But what is most missing from the INSEAD case study is a sense of complexity. The author would argue that we need to develop many more of the case studies we work with in teaching KM/management to represent such complexity: to let in the forbidden knowledge of organizational confusion, multiple stories, conflicting values, subverted intentions. As part of this we need to question how existing seminal case studies have been produced and to identify the discursive transformations that occur as the
story is spun in the service of corporate and management school needs, in order to recapture the truly challenging aspects of these stories

KM in SMEs:

Case Study of E-Knowledge Networks in High-Tech SMEs
This research adopts the case study method to assess critical sources of innovation and determinants of e-Knowledge Networks (EKN) and how they can be leveraged to accumulate innovation capacity to the decision to implement an innovation management in the context of the high-tech SMEs (Chen, 2008). The completed questionnaire, company reports/industry-specific newsletters and an in-depth interview created an established chain of evidence for each company.

The core issue of the modified integrated EKN model is to create value for customers. It provides a language that executive teams can use to discuss the direction priorities of their enterprises. They can view their strategic value measures, not as performance indicators in four independent perspectives, but as a serious of cause-and-effect linkages among objectives in the four balanced perspectives.

The propositions of this research can act as a list of items for high-tech SMEs to address when adopting EKN. This helps to ensure that the essential issues and approaches are covered during ideas, concepts, implementation and commercialization. For academics, it provides a common language for them to discuss and study the approaches, which are crucial for the success of EKN in SMEs for future research.
The integrated EKN model can be an easy-to-follow innovation model for high-tech SMEs to address when adopting e-knowledge network. This helps to ensure that the essential determinants and approaches for innovation processes are covered during ICI (Ideas, Concepts, Invention), pre-project, project and project product launch/follow-up. In other words, from research, development, design, manufacturing, marketing/distribution to form the EKN for implementation/commercialization. For industries, this provides a practical and complete business model for them to use as a reference and study the innovation approaches (the advantage and disadvantage), which are crucial for the success of EKN in high-tech SMEs.

**A Consistent Assessment of Intellectual Capital in SMEs. InCaS: Intellectual Capital Statement – Made in Europe**

The globalisation and the accompanying increasing international competition put considerable pressure on European small and medium-sized enterprises (SME). The key to competitiveness increasingly appears to be the way people combine, master and commercialise their know-how (Mertins and Will, 2007). Hence it is crucial for European SMEs to utilise and manage knowledge efficiently in order to obtain a competitive advantage.

While different national approaches on the management of Intellectual Capital (IC) have been developed and tested, there is no European wide standard regarding the measurement of IC. The collective research project “Intellectual Capital Statement – Made in Europe” aims at harmonising these scattered approaches on a scientific as well as a practical level. Based on scientific consensus, a first framework has been developed providing a common ground for the measurement of IC by introducing the Intellectual Capital Statement (ICS). The ICS is an instrument to
assess, develop and report an organisation’s IC, to monitor critical success factors systematically, and to support strategic management decisions. As InCaS puts emphasis on a practical approach suitable for SMEs, the framework is to be understood as a starting point for phase I of the project, providing the basis for further development of the method towards practicability and harmonisation. It will be expanded to the final “European ICS guideline” and supported by the “ICS toolbox” in subsequent project phases. The main focus of this paper is the InCaS project and the accompanying European approach on measuring IC. As a first result a brief overview on the existing approaches on measuring IC is provided. Furthermore, the InCaS project as well as the ICS method is described and preliminary results are discussed.

**KM in Earthquake Risk:**

**Earthquake Risk and Knowledge Management**

Out of 644 recorded earthquake and tsunami related disasters in the world during the period (1973-2003) of thirty years, the Asian region experienced 356 events contributing to over 55% of the world disaster happenings. India, being a peninsular landmass and continuously drifting north easterly direction that is countered by Himalayan basalt formations, is under constant threat of an imminent major earthquake (Deshmukh, Rodrigues and Krishnamurthy, 2008). This necessitates all round preparation in knowledge management that would result in preparedness to challenge any disaster and readiness to tackle the after effects of it. India is one among the best in knowledge delivery system. Lately, some concrete steps have been taken to strengthen efforts in disaster management by establishing the National Disaster Management Authority (NDMA) – an apex body of the Government of India chaired by the Prime Minister. It mandates to take measures
for prevention of disaster, or the mitigation, or preparedness and capacity building. One of the capacity building measures, according to the recently formulated Disaster Management Act is to identify existing resources and resources to be acquired or created. Appropriate knowledge and information repository is an important resource to be accessed, when required. This paper captures the overview of disaster and its management, elaborating earthquake risk as a critical area, getting into the basics of knowledge management and how this can be effectively applied to lessening the adverse effects of the earthquake on people. It ends with suggestions and recommendations that will help at various levels of governance and field operations in reducing the impact of a major disaster like earthquake on people and properly.

The application of KM in disaster management in general and in managing earthquake risk in particular cannot be underestimated. To make it effective the following suggestions can be considered:

- Various organizational systems should be integrated and effectively manned to achieve instant reach of information. For this, a specific policy should be ready for effective defense against an imminent disaster risk. Haggie (2003) had proposed a framework of scanning, problem-solving, abstraction, diffusion, absorption and impacting as a KM potential policy.

- Technological requirement in replacing inadequate and outdated equipment and system with the latest ones should have priority.

- For use of latest technology, personnel should be trained, retrained and if necessary new, effective and efficient ones recruited and retained. It is also critical to internalize effective habits that encompass knowledge, skills and desire (Covey, 1994) and are valuable to inculcate appropriate patterns of behavior.
• Collaboration and coordination within and with related organizations should be made effective and useful. The performance system based on Focus, Capability and Will proposed by Smith and Sharma (2002) for achieving high performance, is worth emulating.

• Finally, as Nonaka and Takeuchi (1995) have recommended there needs to be a switch to a hyper text organization and construction of a knowledge network with the outside world. The Indian Disaster Resource network (IDRN, 2007) refers its web-resource as a powerful tool for effective emergency response; however, the present site structure is far from what is needed.

To sum-up, it is necessary to have in place an agile and transparent system that is reliable, having improved security and aiming at focused and cost effective responses. Referring to climate change and multiple crisis situation on the Earth that would lead to catastrophes, Mr. Al Gore, Vice President of the United States of America alerts not to be in a dream world thinking that “the threat was not real or imminent; that it would affect others but not ourselves; that ordinary life might be lived even in the presence of extraordinary threat; that Providence could be trusted to do for us what we would not do for ourselves” (Gore, 2007). We need to gear up ourselves to counter the negative consequences of major earthquake events with effective and robust KM system.

KM in NGOs:

Knowledge Management Practices and Challenges in International Networked NGOs: the Case of One World International
This paper is based on the outcomes of a study that explored the knowledge management practices and challenges in an international NGO network (Smith and
The investigation constituted comparative case studies of two centres (one in Zambia and the other in the Netherlands) belonging to a single international network. An empirically grounded framework of knowledge management practices based on the taxonomy proposed by Holsapple and Joshi was utilised as the reference framework for the study. The framework provided guidelines to characterize factors that influence organizational knowledge management; knowledge manipulation activities (processes) and organizational knowledge resources. The results of the empirical study confirm that a variety of factors affect knowledge management behaviours in an organization. These factors include managerial and internal controls such as management styles and incentives for knowledge creation and sharing; resource influences; and environmental influences relating to an organization’s culture and the needs of partner organizations.

The study highlights important variation in diversity, gaps and perceptions in managing knowledge between centres in the network that are based in Europe and Africa. This is despite significant communality in knowledge management processes and infrastructures. The results further show that institutionalization of knowledge management practices within a network seem to enable or constrain knowledge management at centre and network level. Recommendations are proposed to improve knowledge management practices at local and international level and include enhanced technical and advisory services at international level; capacity building; creating greater awareness of knowledge management; decentralization of knowledge management processes; implementation of a knowledge management strategy at network level and improving relationships between centres.
The authors conclude that networked NGO’s and specifically OWI could operate more efficiently and incrementally enhance service provision by leveraging their knowledge resources more effectively. It is in this light that knowledge management practices should be examined in NGOs and particularly networks with their complex structures and attendant reoccurring and unavoidable problems.

**KM in Grocery Industry:**

**Exploration of Knowledge Sharing Challenges in Value Networks: a Case Study in the Finnish Grocery Industry**

Business activities are increasingly organized through networks. This article considers the value network of the Finnish grocery industry, a network where the web of relationships between two or more companies creates tangible and intangible value through complex and dynamic exchanges (Timonen and Ylitalo, 2007). In value networks the relationships between the participants of the network tend to be more complex than the traditional make-buy-relationships, as companies create value together through different types of relationships such as deep buyer-supplier-relationships or strategic partnerships. This variance in the nature and level of collaborative relationships poses new challenges to knowledge sharing. Complementing previous research on the challenges to knowledge sharing in other network settings, this article explores the knowledge sharing challenges specific to value networks based on a qualitative case study about the value network of the Finnish grocery industry. The data consists of 32 thematic interviews of top and upper management representatives from 16 companies in the value network.

The results show that the current collaborative relationships in the Finnish grocery industry are functional and working, but mostly just traditional “arms-length” buyer-supplier-relationships. However, the challenges to knowledge sharing seem
to be somewhat different to those present in other network settings. The challenges to knowledge sharing in value networks do not seem to concern so much the opportunities to knowledge sharing, but the motivational and cultural factors affecting what knowledge is shared and how much knowledge is shared. Based on these results, the knowledge sharing challenges of the value network can be crystallized under three points. First, the focus of knowledge sharing has been on information, and the organizational arrangements do not encourage the sharing of valuable know-how. Second, the organizational cultures and top management directives do not encourage external knowledge sharing, and therefore knowledge is not shared. And third, the experiences of past abuses of trust and the retail groups' renewed focus on price bargaining undermine the trust between the companies, thus inhibiting knowledge sharing.

KM in Winery:

Knowledge Value Chain: Implementation of new Product Development System in a Winery
The paper discusses the positive influence that knowledge creation exerts over organisational performance in relation to collaborative learning environmental and organisational uncertainty (Wong, 2006). The paper shows that the Knowledge Value Chain (KVC) would be the best sufficiency of means for expressing the environment condition into corporation rather than the normal value chain and the former is thus becoming more important and significant method of implementation. This paper employs Porter's value chain model in line with the development of knowledge application and the value-added process for the New Product Development (NPD) of a Winery in South Australia. Additionally, the modified KVC model employed in this case study consists of two key components of knowledge management (KM)'s infrastructure, and the processes of KM
activities. The increasing awareness of the Winery has culminated to achieve the international environmental standard and the Federal government regulations. Therefore, this modified KVC model will provide more details on how the incorporation of environmental issues to success the Winery’s requirements for their new product development and the government regulations. In addition, this KVC model meets these requirements developed to manage and capture tacit and explicit process knowledge is further discussed in this paper. This modified KVC model will not only discuss how it enables the corporation improve and develop the most competitive advantage position. Remarkably, this KVC model is also to guide this business to maximise the long-term return to shareholders while recognising the values and beliefs of customers, employees, suppliers and the broader community in future. Finally, it will be widely used as an effective means of corporation management and sustainable development in order to aspire satisfactorily to a better life in the present and the future.
Rewards, recognition and new frontiers in knowledge Management:

KM development across world business regions
In 1998, the first MAKE (Most Admired Knowledge Enterprise) study identified North America and Europe as the leading global regions where organizations led the field in intellectual capital development and knowledge-driven strategies. But in 2006, the global KM landscape look very different and some Asian organizations have reached parity with their Western counterparts. This paper (Chase, 2006) explains the results and identifies key trends from the latest study. The 1998 Global MAKE winners (top 20 Finalists) were distributed as follows: North America: 16 organizations (80 percent) & Europe: 4 organizations (20 percent). But the 2005 MAKE awards throw up a different picture altogether. Eight years later, the 2005 study recognized 55 finalists with the following geographic distribution: North America: 17 organizations (31 percent), Europe: 15 organizations (27 percent), Asia: 16 organizations (29 percent), Africa: 1 organization (2 percent), South America: 1 organization (2 percent) & International: 5 organizations (9 percent)

Key points of this study:

- The global MAKE program was developed to identify and recognize organizations that are leaders in creating and driving knowledge strategies
- In 1998, North American and European organizations formed 94 percent of MAKE finalists and 100 percent of the MAKE winners
- Of the 2005 MAKE finalists, 31 percent were from North America, 27 percent from Europe and 29 percent from Asia (the rest of world equaled 13 percent)
• The highly competitive "big four" categories: computers and IT, electronics and electrical equipment, professional services and consulting and oil and gas, continue to dominate the MAKE winners: in the 2005 Asian MAKE study, companies in the consumer products, electronics and electrical equipment, IT software/solutions, and motor vehicle manufacturing sectors dominate the rankings - capturing 14 out of the 27 finalists' positions (52 percent)

• Those companies who have implemented and maintained strong knowledge driven strategies are now beginning to see the benefits

The evolution of Infosys (a case study):

Infosys has evolved an integrated approach to the management of its knowledge capital, with four fundamental dimensions - people, process, knowledge and technology - constituting its KM architecture. At Infosys, KM aims to continuously help create business value by providing employees with the power of organizational knowledge. A key success factor has been in ensuring that all employees share their experiences and learning with the rest of the organization. The company has put into place systems and processes to help build a pervasive culture of knowledge exchange, typically through top management leadership and support. However, Infosys believes that for knowledge sharing to be woven into the fabric of an organization's work culture, the drive to share can only be sustained through addressing factors intrinsic to the employee and their environment - hopes, aspirations, fears, the sense of belonging, potential for learning and growth, internal motivation, rewards, recognition, etc. The evolution of KM at Infosys mirrors the changes in the structural and functional complexity of the organization in response to market factors and business demands. During the
early years, with a single office and a few hundred employees, KM was largely informal. With global work centers and increased complexity of business demands, the late 1990s witnessed the establishment of more formal, structured systems for knowledge exchange. In mid-1999, Infosys' format KM initiative was launched with the publication of the company's KM vision. The key elements of Infosys' KM vision are to:

- enable every action by the power of knowledge.
- empower every employee with the knowledge of every other employee
- leverage knowledge for innovation
- be a globally respected knowledge leader

**New frontiers of knowledge management**

New Frontiers of Knowledge Management is a contributed volume edited by Kevin C. Desouza. The book contains a collection of 12 chapters, which cover a range of topics focusing on the new frontiers in knowledge management with creative thinking, novel insights and innovative ideas. The book starts with an excellent introduction by the editor, which is a must read section for any reader before embarking the rest of the chapters. It defines the term 'new frontier' in knowledge management, sets up the rationale for the book and provides a succinct summary of each author’s novelty in his/her contribution to the book. The editor stresses the necessity of sharing options and feelings on the new frontiers and highlights his three motivations in pulling together this unique book, which aims to

- ‘provide an avenue for researchers and practitioners to be adventurous, venture out, and postulate some of their creative thinking.’
- ‘assemble authors who would cross the local space and write on knowledge management in an integrated fashion’ and
Most of the authors set forth their arguments on addressing knowledge management problems and challenges from mixed perspectives of social, organizational and technological dimensions. For example, Chapter 2's contributors share their insights on science and technology management emphasizing the conversion of technical textual data to technical knowledge; Chapter 3 emphasizes the importance of making knowledge visible and postulates how this can be achieved; Chapter 4 addresses the challenges in personalizing knowledge delivery services, arguing that knowledge is emergent and needs to evolve based on its particular context; Chapter 7 explores the diversity of software artifacts use in supporting information and knowledge management through the four analytical lenses of interaction, interpretation, connection and collaboration; Chapter 8 argues the potential impact of the ubiquitous information environment (UIE) and proposes a framework for studying the UIE technologies and invites more research in this area; and Chapter 11 explores knowledge integration processes within teams and tests the link between a team's human capital and its knowledge integration competency with case analysis.
Action Research:

Action research is known by many other names, including participatory research, collaborative inquiry, emancipatory research, action learning, and contextual action research, but all are variations on a theme. Put simply, action research is "learning by doing" - a group of people identify a problem, do something to resolve it, see how successful their efforts were, and if not satisfied, try again. While this is the essence of the approach, there are other key attributes of action research that differentiate it from common problem-solving activities that we all engage in every day. A more succinct definition is, "Action research...aims to contribute both to the practical concerns of people in an immediate problematic situation and to further the goals of social science simultaneously. Thus, there is a dual commitment in action research to study a system and concurrently to collaborate with members of the system in changing it in what is together regarded as a desirable direction. Accomplishing this twin goal requires the active collaboration of researcher and client, and thus it stresses the importance of co-learning as a primary aspect of the research process." What separates this type of research from general professional practices, consulting, or daily problem-solving is the emphasis on scientific study, which is to say the researcher studies the problem systematically and ensures the intervention is informed by theoretical considerations. Much of the researcher's time is spent on refining the methodological tools to suit the exigencies of the situation, and on collecting, analyzing, and presenting data on an ongoing, cyclical basis. Several attributes separate action research from other types of research. Primary is its focus on turning the people involved into researchers, too - people learn best, and more willingly apply what they have learned, when they do it themselves. It also has a social dimension - the research takes place in real-world situations, and aims to
solve real problems. Finally, the initiating researcher, unlike in other disciplines, makes no attempt to remain objective, but openly acknowledges their bias to the other participants.

The Action Research Process
Stephen Kemmis has developed a simple model of the cyclical nature of the typical action research process (Figure 1). Each cycle has four steps: plan, act, observe, and reflect.

Figure 1 Simple Action Research Model
(from Maclsaac, 1995)

Gerald Susman (1983) gives a somewhat more elaborate listing. He distinguishes five phases to be conducted within each research cycle (Figure 2). Initially, a
problem is identified and data is collected for a more detailed diagnosis. This is followed by a collective postulation of several possible solutions, from which a single plan of action emerges and is implemented. Data on the results of the intervention are collected and analyzed, and the findings are interpreted in light of how successful the action has been. At this point, the problem is re-assessed and the process begins another cycle. This process continues until the problem is resolved.

Figure 2 Detailed Action Research Model
(adapted from Susman, 1983)

**Principles of Action Research**
What gives action research its unique flavor is the set of principles that guide the research. Winter (1989) provides a comprehensive overview of six key principles:
1) Reflexive critique

An account of a situation, such as notes, transcripts or official documents, will make implicit claims to be authoritative, i.e., it implies that it is factual and true. Truth in a social setting, however, is relative to the teller. The principle of reflective critique ensures people reflect on issues and processes and make explicit the interpretations, biases, assumptions and concerns upon which judgments are made. In this way, practical accounts can give rise to theoretical considerations.

2) Dialectical critique

Reality, particularly social reality, is consensually validated, which is to say it is shared through language. Phenomena are conceptualized in dialogue, therefore a dialectical critique is required to understand the set of relationships both between the phenomenon and its context, and between the elements constituting the phenomenon. The key elements to focus attention on are those constituent elements that are unstable, or in opposition to one another. These are the ones that are most likely to create changes.

3) Collaborative Resource

Participants in an action research project are co-researchers. The principle of collaborative resource presupposes that each person’s ideas are equally significant as potential resources for creating interpretive categories of analysis, negotiated among the participants. It strives to avoid the skewing of credibility stemming from the prior status of an idea-holder. It especially makes possible the insights gleaned from noting the contradictions both between many viewpoints and within a single viewpoint.

4) Risk
The change process potentially threatens all previously established ways of doing things, thus creating psychic fears among the practitioners. One of the more prominent fears comes from the risk to ego stemming from open discussion of one’s interpretations, ideas, and judgments. Initiators of action research will use this principle to allay others’ fears and invite participation by pointing out that they, too, will be subject to the same process, and that whatever the outcome, learning will take place.

5) **Plural Structure**

The nature of the research embodies a multiplicity of views, commentaries and critiques, leading to multiple possible actions and interpretations. This plural structure of inquiry requires a plural text for reporting. This means that there will be many accounts made explicit, with commentaries on their contradictions, and a range of options for action presented. A report, therefore, acts as a support for ongoing discussion among collaborators, rather than a final conclusion of fact.

6) **Theory, Practice, Transformation**

For action researchers, theory informs practice, practice refines theory, in a continuous transformation. In any setting, people’s actions are based on implicitly held assumptions, theories and hypotheses, and with every observed result, theoretical knowledge is enhanced. The two are intertwined aspects of a single change process. It is up to the researchers to make explicit the theoretical justifications for the actions, and to question the bases of those justifications. The ensuing practical applications that follow are subjected to further analysis, in a transformative cycle that continuously alternates emphasis between theory and practice.
**When is Action Research used?**

Action research is used in real situations, rather than in contrived, experimental studies, since its primary focus is on solving real problems. It can, however, be used by social scientists for preliminary or pilot research, especially when the situation is too ambiguous to frame a precise research question. Mostly, though, in accordance with its principles, it is chosen when circumstances require flexibility, the involvement of the people in the research, or change must take place quickly or holistically.

It is often the case that those who apply this approach are practitioners who wish to improve understanding of their practice, social change activists trying to mount an action campaign, or, more likely, academics who have been invited into an organization (or other domain) by decision-makers aware of a problem requiring action research, but lacking the requisite methodological knowledge to deal with it.
Learning Organization:

The concept of learning organization was given by Mr. Peter M. Senge. He was named a ‘Strategist of the Century’ by the Journal of Business Strategy, one of 24 men and women who have ‘had the greatest impact on the way we conduct business today’. Harvard Business Review defines a leaning organization as "an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights." “A company that facilitates the learning of all of its members and that continuously transforms itself”. Those who work in a learning organization are “fully awakened” people (Gambhir, Ali et all, 2007). They are engaged in their work, striving to reach their potential, by sharing the vision of a worthy goal with team colleagues. They have mental models to guide them in the pursuit of personal mastery, and their personal goals are in alignment with the mission of the organization. Learning Organization is seen as a must in an increasingly unpredictable and dynamic business environment. While people have the capacity to learn, the structures in which they have to function are often not conducive to reflection and engagement. Learning organizational promotes out of the box thinking, questioning the traditional beliefs, policies and practices.

Characteristics of a Learning Organization:

- Systematic problem solving:
  - Thinking with systems theory
  - Insisting on data rather than assumptions
  - Using statistical tools
- Experimentation with new approaches
  - Ensure steady flow of new ideas
➢ Incentives for risk taking
➢ Demonstration projects
• Learning from their own experiences and past history
  ➢ Recognition of the value of productive failure instead of unproductive success

Why do we need Learning Organizations?

• Because we want superior performance and competitive advantage
• For customer relations
• To improve quality
• To understand risks and diversity more deeply
• For innovation
• For our personal and spiritual well being
• To increase our ability to manage change
• To expand boundaries
• For independence and liberty

Types of learning

*Single-loop learning*: This occurs when errors are detected and corrected and firms continue with their present policies and goals. It includes activities that add to the knowledge-base or firm-specific competencies without altering the fundamental nature of the organization's activities.
**Double-loop learning:** This occurs when, in addition to detection and correction of errors, the organization questions and modifies its existing norms, procedures, policies, and objectives. Double-loop learning involves changing the organization's knowledge-base or firm-specific competences.

This paper mentions 2 case studies in India on organizations which use real time learning:

**Learning organization in India – Eicher Group**
One such learning organization which we came across in India is, Eicher Group, a large manufacturing firm known for its production of tractors world over. In the 1980s the company was going through a bad patch, there was intense internal rivalry, no team culture, resistance to change and new ideas. All this made quality and productivity suffer. It was then that Eicher decided to turn into a Learning organization and a major overhaul followed.

Learning Laboratory: The first step in this journey was to replace an archaic operational review forum with a quarterly management conference committed to learning and dialoging-without specific decision. This conference consisted of about thirty senior managers. The purpose of dialogue is to go beyond any one individual's understanding. The group explores complex issues from many points of view; individuals suspend their assumptions yet communicate these assumptions freely. The Eicher group chooses its own topics for dialogue discussion in which simple rules prevail. Everyone has a choice, whoever comes are the right people. Whatever happens are the only things that matter, it starts and ends at the right time, people should honor the 'law of two feet' (leave when they wish). In those turbulent times dialogue enabled individuals to expand their view of reality, refining their perceptions and thinking patterns, deepening their level of inner
wisdom, and discovering their highest purpose. As a result, politically inconvenient issues began to surface as members begin examining their own and others' assumptions. Nothing was sacred, including the vision, mission, and core values. Authenticity of communication became a focal point.

The Soul Connection: In the 1980s one issue that was generating intense heat was the question of how to deal with surplus manpower in a company with which Eicher had a strategic alliance. In an organizational climate where logic is dominant, it would be easy for managers to conclude that, because the marketplace is changing, it is necessary to get rid of 'dead wood' to cut costs and remain competitive. But Eicher took a different approach, they had a dialogue and they asked themselves, is profit our main purpose? The answer was, in this company people are the purpose. Company was moving closer to true community—a sense of mutual commitment and a higher purpose than individual gain. The company began to organize structured programs for executives and their spouses in its desire for interpersonal connection. People began to realize that individuals operate from different mental models about life and destiny, and that these models affect the decision-making process, leadership styles, and interpersonal relationships. Acknowledging such deeper issues helps to clarify confusions and misunderstandings amongst employees, creating a sense of camaraderie and teamwork.

**Benefits of learning culture**

- Eicher's divisional management began listening to union members. Trust began to grow between unions and management
- Individual and collective monetary incentives traditionally used in setting target output levels, were abolished. The group felt that the high trust level
made the connection between output and money unnecessary. The fixed salary was adjusted by the average bonus amounts of the past twelve months (a one-time increase), so that there was no loss of income for the workers.

- A wider participation in the strategic planning process, initiated in the quarterly management conference, highlighted the lack of consensus regarding the corporate mission. Certain groups of executives wanted the firm to be known for engineering excellence, and preferred vertical integration focusing on the key technologies. Others wanted it to be a diversified business group, and preferred horizontal integration driven by core values. Dialogue on mission led to an understanding of the fundamental differences of assumption regarding the firm's core competencies, and finally resulted in further decentralization, which is more conducive to a diversified business.

Learning organization in US: Motorola

- In 1981 Motorola started its university for Motorola Training and Education Center. It was created to provide training needs and established itself as a corporate department. In addition, they set up corporate-wide training plans and training investment policies.

- Motorola's couldn't reach everybody. Therefore, they found creative ways to help new associates through initiatives like Multimedia Trainings. Multimedia training allows Motorola to

  - Provide training to all Motorola's worldwide, including emerging markets
  - Reduce training times and costs
Increase knowledge of the firm

Techniques practiced at Motorola

- Top-level commitment to learning
- Continuous learning, unlearning and relearning
- Utilize information technology as an enabling tool
- Encourage team learning
- Translate training and learning into practice
- Tie rewards to performance
Pilot study
A pilot study was conducted in 2007, in the eastern region consisting of Kolkata, Bhubaneswar and Ranchi cities. The total number of companies surveyed was 8 out of which 7 responded, the breakup of the respondents were Kolkata 4 companies, Bhubaneswar 2 companies and Ranchi 1 company.

The results from the pilot study were mixed, the general level of understanding and implementation of knowledge management were low, but some companies had utilized knowledge management especially for product development.

The companies which were using knowledge management found that it was very helpful especially in new product development and reducing time to market
Learning value extracted from the literature review – relevant to the objectives:

The learning values extracted from the literature review are:

- What is success in KM?
  - Determine tangible business goals using KM
  - The K-Audit is the key to successful and realistic KM quick-wins
  - Quality improvement as an outcome of KM intervention
  - KM reduces process cycle time

- What are the success factors for KM?
  - Top management buyin
  - KM infrastructure
  - Incentives for KM use by employees
  - Tangible business outputs of KM
The learning values extracted from the pilot study are:

- What is success in KM?
  
  ➢ Cost reduction during proposal preparation and submission (presales)
  ➢ Helpdesk, customer response time reduced
  ➢ Quality improvement, less of debugging in software
  ➢ KM reduces process cycle time

- What are the success factors for KM?
  
  ➢ Top management buyin
  ➢ KM infrastructure
  ➢ Incentives for KM use by employees
  ➢ Tangible business outputs of KM
  ➢ ‘Line of sight’ KM