Review of Literature

2.1 Introduction

This chapter covers the literature review of the foundation concepts and subjects required to build the model for the intended study. The concepts and subjects covered are related to Organizational Culture, knowledge management, and Research & Development (R&D) and Indian R&D organizations.

2.2 Knowledge Management

The social nature of knowledge and knowledge management has been explained in the literature. It is explained that knowledge is poles apart from information and data. Furthermore, knowledge is not one and the same as information. According to the social nature of knowledge, it will always have un-coded knowledge content and knowledge management continuously identifies such barriers to overcome them (Lang, 2011).

Knowledge management’s mission is to connect people to people for making it possible for them to share what knowledge and expertise they have at the moment, knowing knowledge is always changing. Further it is stated that the knowledge management is not to try to warehouse knowledge. The objective of knowledge management is to connect questions to answers, or else, to people who can be facilitated to find answers. In addition, it is proposed that technological and Organizational initiatives can support knowledge management processes efficiently to enable competencies in communication in the Organizations and encourage knowledge sharing and job learning equally.

It is argued that the acquirement of external knowledge and its successful institutionalization and dissemination throughout the Organization is made possible by dedicated change agents or knowledge managers referred to as knowledge...
champions. They work on the basis of accepted theoretical perspectives and practical implications. Organizations invest in these knowledge champions as human channels of knowledge acquisition and dissemination process human (Jones et al., 2003).

Knowledge champions are dedicated innovators holding expert knowledge in both knowledge management and in the domain knowledge related to the firm and the industry they are working for. The expertise of the knowledge champions bestows to the Organizations the mislaid link to effective and thriving external knowledge acquisition.

On exploring the process of codification of new knowledge from external sources and recommending that knowledge champions perform the vital function by working with opinion leaders in the intricate task of transforming innovative, and tailoring the new tacit knowledge to fit the on hand knowledge experience of the firm's associates. Further, interpersonal channels of communication can be used by the opinion leaders for persuading and affecting the use of this new knowledge. In addition they can highlight the criticality of recency, relevancy and accessibility for knowledge champions who are experts in their domain in managing data, information and knowledge.

Literature has explored different sources of knowledge that can be identified, described and clearly defined as Organizational intangible knowledge assets. These knowledge assets are termed knowledge capabilities, which are explained in terms of their knowledge life-cycle, tacit, implicit or explicit nature of knowledge, technological and Organizational processes and also firm's human capital identified as knowledge workers. The Performance of the firm can be enhanced by leveraging these assets using knowledge management. The five knowledge capabilities identified are expertise, lessons learned, policies and procedures, data and knowledge
documents. It has been claimed that knowledge assets can be measured and enhanced in order to study the causal relationships through identified measures of performance (Freeze and Kulkarni, 2007).

Various academicians and practitioners have examined the patterns of social management of knowledge in a knowledge society that influence various social processes at work. The multiple interactive social structures are essentially the knowledge communities ranging from such knowledge communities localized in space to emergent cross-boundary knowledge communities working in social spaces at micro, meso and macro levels. Knowledge management in different contexts such as social groups, Organizations, virtual communities and other communities are primarily social in nature and new knowledge becomes apparent through social interactions (Raza et al., 2007).

Knowledge codification in the context of knowledge management has been explored in the literature. Findings from research based on the processes of knowledge codification occurring in a KM project in the UK post office, showed that the knowledge transfer between the knowledgeable happen through codified text ‘captured’ in an interview situation. Drawing upon the lead findings about the nature and process of codification in the above research study and learning lessons from the drawbacks of that study, Hall proposed a new approach which emphasises the importance of the de-codification process in the mission of knowledge transfer (Hall, 2004).

Knowledge management concepts have been explored in project environments by studying the capability to transfer knowledge across different project teams. The data collected from companies of different sizes working in the manufacturing, construction and service sectors showed that there has been a difference between
generic project knowledge (kernel knowledge) and specific project knowledge (ephemeral knowledge). For each type of knowledge, knowledge management points of reference have been explained and discussed (Leseure and Brooks, 2004).

The dimensions of secure knowledge with focus on knowledge security and development of future knowledge management systems have been explored. There is a general lack of attention on security in the knowledge management structure equally in research concerns and in practical applications. Also known knowledge is dissimilar from information and data; needs exclusive consideration in the Organizations.

Emphasis has been made on different levels of security for different types of knowledge in the Organizations while creating knowledge management systems. The futuristic development in securing the knowledge has to address safeguarding the knowledge of the corporation as the most indispensable asset (Randerce, 2006).

A cognitive model of knowledge processing has been proposed with the intention to enhance the cognitive awareness of knowledge processing and present a cognitive knowledge modeling procedure in product design. The internal human behavior is studied to devise a knowledge management research with a human perspective for effecting a natural integration of knowledge centered systems into the design process. The research that focuses on evolving a Cognitive knowledge modeling will integrate knowledge-based processing systems into the design process (Qiu et al., 2008).

The field of knowledge management research has been slow in framing a universally acknowledged methodology. Various Knowledge management methodologies have been reviewed to present a detailed and comprehensive methodology to overcome the shortcomings. It is believed that researchers in the olden days offered methodologies
and structure for implementing knowledge management which had inadequate details for implementing knowledge management initiatives, and do not satisfactorily deal with all of the requirements needed for effective knowledge management (Monano et al., 2001).

Attempts have been made to clarify terms used in knowledge management i.e. explicit knowledge, implicit knowledge, declarative knowledge and procedural knowledge and how they connect to one another. Nichols's study explains the defined ways of acquiring declarative and procedural knowledge how the tacit knowledge that is acquired cannot be summarized in words but can be connoted through other means than the verbal descriptions. This study also proposes that if knowledge management is to have any meaning there must some traces of a standard language of different terms, and the study aims to achieve the same (Nichols, 2001).

Researchers have supported different strategies for knowledge management and accordingly distinguished and described knowledge management technologies. A study by Saito engaged an ontology development technique to illustrate the interconnection between technology, knowledge management and strategy, and to classify the available knowledge management technologies according to their relations. The two sub-domains of the knowledge management field that were particularly focused on in this study are: knowledge management strategies and knowledge management technologies. The study revealed that knowledge management strategy has three approaches in the literature: approach to knowledge management, knowledge strategy, and knowledge management implementation strategy. Furthermore, based on particular knowledge strategies and approaches to knowledge management, knowledge management technologies support strategy via knowledge management initiatives. The study differentiates three types of knowledge
management technologies: knowledge management applications, component technologies, and business applications. These can be illustrated in terms of "creation" and "transfer" knowledge strategies, and "personalization" and "codification" approaches to knowledge management. The resulting framework suggests in the context of knowledge management initiatives that knowledge management technologies can be studied better than in the regular approach associating them with knowledge processes. Knowledge management initiatives provide the background and contextual elements required to describe the required technology adoption and its benefits. Saito et al further analyzes the role of technology in knowledge management, focusing on the importance of strategy. Their analysis contributes to filling up the fissure, amalgamates diverse contributions through a clearer definition of concepts and a visual representation of their relationships. This study is an uncommon use of ontology as a method, instead of an artifact in the literature (Saito et al., 2007).

A study by Choy et al. attempted to comprehensively examine the criteria for measuring knowledge management performance outcomes in Organizations. Up till now, no research has offered a set of commonly acknowledged measurement criteria coupled with knowledge management efforts. Therefore the study aims to fill up the gap. Methodological evaluation of literature has been carried out on knowledge management performance outcomes. Case studies were carried out in respect of two Organizations identified to have a proper knowledge management program in place. The results of the study outlined a set of performances grouped into five key dimensions. The finding from the case studies undertaken indicates that this proposition is relevant. This study is probably one of the first to comprehensively explain the criteria for measuring knowledge management efforts in Organizations. It is desired that the results of this study will support Organizations to practice
knowledge management from a proper perspective in order to reap the outcomes from knowledge management initiatives (Choy et al., 2006).

A study provides the representation and prioritization of critical performance indicators necessary for success in direct selling in a dynamic market on a woman-to-woman basis. The critical success factors are extracted by the means of repertory grid (repgrid) method. The repgrid method allows for extraction and the exploration of constructing indices, such as, frame integration, frame complexity, frame differentiation and construct centrality. The analytic hierarchic process is used to prioritize the Critical Success Factors and concepts. The benefit of obtaining individual mental constructs about critical knowledge, using the recommended two-stage methodology, is a meaningful representation of those constructs, and the representation of repositories of knowledge of various entities from corner to corner and within Organizations (Preiss, 2000).

Researchers have investigated the characteristics of building sustainable knowledge for communities and cities, with special focus on the social process of knowledge mobilization. The study delineates the concept of knowledge use and its re-use by (1) presenting a new model of information and knowledge in harmony with neuroscience (2) using the model as equivalence to investigate the social context of knowledge mobilization along with its process of collaborative entanglement, and (3) looking at the notion of knowledge robustness and sustainability from the point of view of individuals and group of people. Knowledge mobilization is drafted subsequent to the associative networking of neuronal firings in the human brain. The collaborative entanglement amongst the stakeholders and experts helps to provide specific solutions to the present issues, also seeds the ground for incessant community enhancement, cooperation, and sustainability (Bennet, 2008).
Literature provides a summary of the major trends in the evolution of knowledge management technologies. Massive literature survey has been carried using the exploratory technique Tsui. With the practical knowledge from the field, this survey sums up three major trends of evolution of knowledge management technologies and their advantage for the workplace and individual human resources. The results of the study are as follows. First, pertinent technologies are steadily being associated to crutch process-based knowledge management activities and knowledge management is becoming further more process-centric. Second, personal networks and applications have started emerging. Third, knowledge sharing and capturing are happening instantaneously (i.e., on-demand and just-in-time). This study provides a concise and clear synopsis of the progression of knowledge management technologies from the perspective of profit and practicality (Tsui, 2005).

A study by Karaszewski analyzed the empirical material obtained from Fortune Global 500 corporations, to study the effect of critical knowledge elements on structuring a company's international competitiveness. That knowledge management influence companies' international competitiveness is the finding of the research carried out amongst the world's business leaders representing these corporations. However, the study brings out that not all knowledge resources are important for attainment of the purpose. It became visible from the study that the key to success is the talent of channelizing activities to those knowledge resources which are decisive for the Organization's economic functioning, apart from the proficient management of endless knowledge. It also explored the effect of basic knowledge elements on building a competitive advantage potential for an Organization and the impact of the conditions of management on competitiveness (Karaszewski 2008).
There have been international studies of knowledge management and Organizational learning. The approach adopted in these studies is the analysis of literature on knowledge management and of the Organizational learning research that focuses on a business or businesses located outside western economies. The results disclose that the need of the hour is to intensify researches that analyze knowledge management and organizational learning present in various countries and Multinational Companies. Cultural issues need to be incorporated in knowledge management and organizational learning research. In order to intensify the use of knowledge management and organizational learning research world-wide, the variables of nationwide culture and geopolitical pressures need to be accounted for in knowledge management and organizational learning models and measurement instruments (Walczak 2008).

Gao et al., 2002 analyses that in the area of the growth and survival of the knowledge era, knowledge management is increasingly becoming important as a key determinant of success of a firm, industry or country. Varieties of fields have contributed towards knowledge and knowledge management. This study focuses on one or more precise subject to know which phase of knowledge processes and knowledge management should be focused on more fundamentally. From the viewpoint of different systems of knowledge management science knowledge-related matters were inspected. By means of soft systems thinking, critical systems thinking etc., a new found systematic perspective on knowledge was projected, intended to provide a new way of thinking and a useful toolbox on different levels and phases of knowledge management for practical knowledge users (Gao et al., 2002).

Some literature provide a broad understanding of knowledge management and how to successfully implement knowledge management using a wide range of technical, business and knowledge management-specific sources. The value and importance of
knowledge management and the relative simplicity of the concept has been explained. Dean's study is divided into segments; presents the definition of knowledge management, shows how knowledge management relates to technology, gives an overview of double-loop learning, and explains six steps to successful knowledge management (plus one) with successful knowledge management examples. The findings of the study present a detailed synopsis of knowledge management and its building-blocks. The study presents a distinctive view of knowledge management victory by maintaining a completely atheist approach and focusing on principles that will provide success despite of technology or budget (Dean, 2005).

There is a constant pressure for the managers in most companies, for cost reduction and productivity enhancement. There are studies which give a practitioner's perspective on some of the challenges on enhancing workers productivity and proffer some promising technical solutions that support an activity-centric approach for managing the work. In various studies, the authors have opened arguments for classifying a large range of valuable and artful business processes. In the processes which are not sufficiently supported by means of traditional enterprise applications, there is a need for these processes to be strongly formalized. To improve the artful processes, enterprises must have a substitute approach that offers business people superior control over process definitions and make possible for them to knit together vital network services when needed. This is called as democratization of business processes. The emergence of loosely knotted information systems and convincing online services on the worldwide web has given rise to expectations concerning information sharing, new methods of finding and routing information and working together with service contributors and new ways of establishing trust. These systems are totally decentralized, though extremely interconnected. With the emergence of such capabilities, the companies are enabled to revamp and reconstruct their business
processes in a more accommodating way. An activity-centric approach assures the capacity to put in order artful effort effectively while conserving user choice over the services engaged (Hill 2006).

Practitioners have studied the influence of organizational environment on the selection of knowledge management strategies. The study by Greiner et al concentrates on the association between business and knowledge management strategies and the success of the knowledge management initiatives, particularly in eleven German and Swiss companies. The knowledge management initiatives were classified by six norms, namely objectives, processes, knowledge type, problems, content, strategy, and their match with the respective business strategy of the organizational division was assessed. The study indicates an association between the achievement of knowledge management and alignment of knowledge management in business strategy. An organization whose business strategy entails process competence must rely first and foremost on a codification strategy. An organization whose business strategy calls for product/process modernism must rely predominantly on a personalization strategy. The majority of knowledge management assignments were motivated by a sturdy business necessity plus the aim to add value to the organizational unit operations. The manager should decide on the knowledge management strategy and goal in harmony with the business strategy and also be aware of the objectives and business processes of the each and every organizational unit (Greiner et al., 2007).

In the light of complexity theory, it has been attempted to improve traditional knowledge management models. Faucher et al tries to rationally comprehend existing models by adopting a convolution-based viewpoint to recommend a new model. The traditional knowledge pyramid shows the transformation of data to wisdom. The new
E2E model (end-to-end model) draws attention to the non-linear associations between existence, data, information, knowledge, wisdom, and enlightenment plus the nature of understanding the process, so as to define the differences among these constructs. The new model includes the expansion on both ends of the pyramid namely the existence and the enlightenment end. The study emphasized the importance of moving out from the hierarchical arrangement of data, information, knowledge and wisdom.

The new model is established from insights from the convolution theory it underlined, the non-linear and general base of the cognitive system of knowledge. Complexity theory conceptualizes the meaning of knowledge management and the concept of knowledge. As a final point, knowledge management has been reconstituted around the Meta's (meta-data, -information, -knowledge, and -wisdom). The Meta’s offers an influential new understanding of the conception of knowledge management. The Meta is the understanding of the adaptation processes among data, information, knowledge and wisdom (Faucher et al., 2008).

There are studies explaining the various knowledge management types that exist in most organizations and these studies explain why they exist and how they can be effectively facilitated and managed. More and more organizations are looking for assistance in understanding knowledge management, and therefore the intention of these studies is to try to offer them with an analysis of few of the challenges they will meet head-on in understanding knowledge management and how they can resolve such challenges. The study by Sinclair, (2008) in this area suggests new alternatives on traditional knowledge management such as Social Networks and Stealth. With the emergence of the personal knowledge management, several organizations are puzzled as to what they must or have to add in their knowledge management initiatives in order to make certain that they are as successful as possible. The study examines which type of knowledge management is appropriate for most organizations, which
drivers and objectives are linked with each type of knowledge management, how the numerous categories of knowledge meet, or else don’t from a corporate outlook and what organizations can do to make sure the victory of each type of knowledge management and encourage an overall organizational strategy for knowledge management (Sinclair, 2008).

A study by Curseu et al., (2008) throws light on what is known as information processing in virtual teams. It also delves into the consequences of these findings for the management of virtual teams. This study is a methodical analysis of the literature on information processing in virtual teams, based on all-purpose information processing model for teams. The review is based on existing literature on virtual teams and it offers a glimpse into the forthcoming research routes opened up by the conceptualization of virtual teams as information processing systems. An overview of pertinent aspects that influence the efficacy of virtual teams is presented. The aspects that can enhance the efficacy of information processing in virtual teams have been explained. The general information-processing model for teams facilitates a systematic amalgamation of the disjointed literature on virtual teams (Curseu et al., 2008).

There have also been studies that delve into the association among knowledge management and quality management with a precise focus on the role of quality culture. The crucial advantage of understanding the link among the two is that the organization is able to dispense high-class product and/or service to their customers. The study focuses on the assumption that as knowledge management attains its mellowness in terms of its recognition as an important part of doing business in the modern world, excellence in knowledge management will once more happen to be the mantra of winning companies. In this study, a total of 1,000 quality managers from
Australian Organizations were enquired if their perception on the present and forthcoming knowledge management and quality management approaches. The questionnaire was designed with the objective of both quantitative and qualitative data collection. The questionnaire contained three segments: respondent profile, current knowledge management and quality management practices, and future predictions for both knowledge management and quality management. The findings suggest that the organizations would have to support a quality culture as an essential element in executing knowledge management in order to conduct them effectively in a modern dynamic business milieu. The answers from the assessment assist in discovering the connection between the knowledge and quality management and its importance for the future of both the knowledge and quality management. The study was based upon the hypothesis that quality is resurging. It has recognized quality culture as the momentous linkage between knowledge management and quality management that directs to organizations unbeaten competitive advantage. Organizations are insisted upon to realize knowledge management as a means of expression for success and not as a stand-alone process. The findings convey knowledge management to be more than just data. The process by which data are turned into meaningful and useful information is called knowledge management. And, the benefit of successful knowledge management is quality management. It is clearly demonstrated equally that knowledge management and quality management influence to a great extent an organization's competitive advantage with the upbeat existence of quality culture as the link (Waddell et al., 2008).

Byosiere et al., (2008) in their study have posited as to how various domains of knowledge (basic, experiential, emotional and innovative knowledge) connect to knowledge conversion processes (socialization, externalization, combination and internalization) in an organization. The study carried out prime component
investigations on knowledge domain and knowledge conversion variables. Path analyses based on step-wise multiple regressions were performed in order to ascertain the supremacy and directionality of the interaction among the four processes of knowledge conversion and the four knowledge domains. The findings of the study point to the fact that knowledge based on experience influences the conversion of implicit knowledge inside an organization into innovative knowledge which leads to competitive advantage. Emotive knowledge influences the knowledge conversion process in the same way. Only basic knowledge influences the precise components of combination. The findings suggest the need to investing in basic training of employees and managers in order to reach a basal level of knowledge that can act as an originator and promoter of other types of knowledge conversion in addition to the innovative and experiential knowledge domains. The preceding research has not explored how the domains of knowledge (the content) are linked to the conversion of knowledge. Petite research was carried on in the area of knowledge conversion taken place in a European setting. This study tried to fill the gap in this area (Byosiere et al., 2008).

A new promising view of knowledge management has been generated from the perspectives of context, continuum, and complexity of knowledge and the importance of knowledge management. The information, knowledge, and wisdom are more than basically assortments, to be employed in some context to make meaningful relation. There needs to be a clear understanding of the pattern and major principles responsible for the prototype representing knowledge. The sequence "data→information→knowledge→wisdom" corresponds to an evolving continuum and one move forward along the continuum as ones' understanding develops. The whole thing is relative, and one can possess limited understanding of the relations that correspond to information, limited understanding of the patterns that represent
knowledge, and fractional understanding of the principles which are the base of
wisdom. The extent of complexity is centered on the extent to which something is
concurrently distinguished and incorporated. What is more exceedingly distinguished
and incorporated is more complex. In this way wisdom can be perceived as and it's
concluded with a perception that wisdom is class of simplified complexity.

Knowledge management is crucial to the degree that improves an organization's
capability and capacity to interact with today's circumstances and successfully predict
and define their future (Bellinger (2004).

The widespread use of the electronic group collaboration tools in support of team
work has fuelled interest in the knowledge management methodologies. Academicians have focused on various techniques of conserving knowledge which
can be utilized by others to trim down their cost and stream-line their business.
Traditionally knowledge management has constantly been with us in the sense that
organization have always desired to sum up and keep a record of the process, for the
purposes of quality, automation, and to generate documented methodologies. The
computer-mediated method for team knowledge management is rooted on
encapsulating as much as work as could be completed by the team who does it. As per
the understanding of the projects a working-by-wire program has been developed. In
this program, workers work together with users online, making it easier for them to
migrate to online work. Assistance has been provided for them to outline their online
work processes and the online workspace. Working-by-wire gives rise to the
environment and competencies for effectual distributed team work. Working-by-wire
has its own issues of knowledge management, which can provide sound designs and
operational bases for synchronized and later use of knowledge (Gundry et al., 1996).
Major progress has been witnessed in the formalization of work into manageable business processes. Business processes reengineering has a number of unquestionable track record of successes, but it has also an even-handed share of failures. The limits provided hard lessons, which individual can efficiently codify, or formulate explicit and implicit knowledge of skilled practitioners. For business processes to be efficiently set out, they must be enclosed by a healthy dosage of business practice. A two-cycle model of interaction between process and practice is illustrated. An interior cycle demonstrated how a common understanding among process designers and process performers could be attained all through their socialization, normally during informal communities of practice. The exterior cycle illustrated the main role of communities of practice which are played in progressing thoughts for process modernism and enhancement. Furthermore, a logical framework has been presented to assist in attaining an appropriate process/practice sense of balance for maximum organizational advantage (Lee, 2005).

Literature has aimed to bring clarity in the concept of social capital in the value creation in Organizations from the knowledge management perspective. Literature recognizes different categories of knowledge which contribute distinguishable logic of value creation and social capital. The social network arrangement for explicit knowledge is centralized and maintained by evidently distinct rules, beliefs in high quality and reliance in organizational hierarchy. The social network structure for implicit knowledge is disseminated and maintained by the rules of reciprocity, beliefs in all-time erudition and an incremental trust. By evolving social network structure, potential knowledge is spread out and maintained by liberal rules, beliefs in ground-breaking and an enabling type of trust. Hence, the function of social capital and its connections between different types of knowledge and their equivalent type of social characteristics is vital for value creation of enterprises (Smedlund, 2008).
Effective knowledge management and organizational learning, facilitated by a
technology-driven organizational memory, is undoubtedly an essential part of
organizational strategy. A model has been proposed by Jones, et al., (2003) that
integrates components of theories approved by foremost theorists while shifting the
model to integrate elements from the diffusion of innovations arena. The model
proposes that a vital link in the acquirement of critical peripheral knowledge and its
successful institutionalization and dispersion all through the firm is made possible by
committed knowledge champions. The next theoretical stage delves into the issue of
how to codify or institutionalize new knowledge from external sources. It is proposed
that knowledge champions perform crucial functions by working with opinion leaders
in the complex task of changing innovative, new implicit knowledge to suit the
existing knowledge experience of the firm's workers. Committed management of that
knowledge is extremely important. If users find knowledge in the centers to be out of
date or inappropriate to their needs, they will most likely cease accessing the system,
hindering effective knowledge sharing. Further it is proposed that knowledge
champions, who are skilled in their field, manage data, information and knowledge
keeping in view their recency, appropriateness, and accessibility (Jones, et al., 2003).

It has been posited in a study by Smith (2008) as to how a grocery retail business may
grow on the internet making use of knowledge-management system i.e. KnowAsis.
The knowledge-based system make the most of interactive capabilities and makes an
attempt to normalize valuable knowledge in a correctly gathered format in order to
make it accessible to those employees that would profit the most. The benefits of this
knowledge-management system for data mining and encouragement for the front-end
personnel could be particularly enumerated. The key for the future success can be
attained by concentrating on scalability of the system and technologies involved.
Knowledge-based system will aid to enhance the monetary competitiveness, effectiveness of operation, and market share of the organization (Smith, 2008).

There have been attempts in literature to sharpen the concepts of “implicit” and “explicit” knowledge by associating them to findings from cognitive psychology and memory science and consequently finding a standard for measuring non-explicit knowledge. As per Schindler’s dimensional model of knowledge categorization, explicit knowledge is declarative and highly codifiable, non-explicit knowledge is non-declarative (skills procedural knowledge, cognitive component of non-explicit knowledge and tacit knowledge) and less or non codifiable. The main advantage of this dimensional model is the promising psychometric approach in increasing of non-declarative knowledge of individuals which will be in real value to the world of knowledge (Meyer and Kozo, 2007).

The concepts of “implicit” knowledge have been used in executing construction projects. Implicit knowledge, which is developed in the course of experience, has been employed by Thai construction managers to carry out their tasks and enhance project performance. Four important factors were revealed during on-site observations of work practice and interviews conducted by construction companies: accommodating and adaptable philosophy due to motivated products and processes in the construction project; problem-solving and heuristics that assist a novelistic, re-permutation of knowledge; knowledge networks amongst individuals that assist in transmitting non-codified knowledge; and management conditions beneficial to knowledge creation which are intrinsically entrenched in Thai construction management practices for creativeness and competitiveness. Knowledge management in the context of realistic happenings will therefore assist to enhance new practices (Teerajatgul and Chareonngam, 2008).
A complete review of literature on strategy is of assistance to develop the strategic structure which makes an attempt to deal with all foremost strategy topics and combine different schools of brain waves straddling the spectrum of strategy dimensions, tensions, and paradoxes. The two basic dimensions of the "strategy frame" takes into account how organizational capacity is linked to business opportunities and how this relationship is carried forward over time that result in four "E"s of strategy drivers. The four "E"s of strategy include: "Exerting and leveraging" current organizational competence to take advantage of existing business prospects; "Expanding and revamping" organizational capacity to be equipped for grabbing promising opportunities; "Exploiting" realized business opportunities; and "Exploring" new possible business opportunities. The "strategy frame" helps strategists take a panoramic view to identify decisive strategic issues and deal with them in the proper context of their organization's capacity in connection with its environment (Khalifa, 2008).

Gerpott et al (2008) shows that, in a digital network-based market and culture the diffusion of intangible related information is no longer bounded to written media such as annual or quarterly reports. To a certain extent, such information could also be disseminated via a company's web existence. The abstract academic literature emphasizes that web-based (intangible) value coverage can benefit from the advantages of Interactivity, Recency, Reach and Efficiency. Academicians have focused to look into Intangible Disclosure Quality (IDQ) of Telecommunications Network Operators (TNOs). Their observations show that annual report and website IDQ levels of TNOs were moderately low. Intangible disclosures were over and over again restricted to small pieces of qualitative information. Annual report and website IDQ are considerably interconnected. And IDQ differs extensively among the countries. The study helps TNOs get insights on IDQ of their industry. Regulators and
standard setting accounting institutions encounter industry-specific intangible characteristics by industry-focused intangible measurement policy in adding together an overall intangible reporting framework. It will assist to create a web based knowledge management system (Gerpott et al., 2008).

It has been said that knowledge management and critical success factors (CSFs) are important issues in today's Organizational world. Knowledge is implicit as one of the critical driving forces for business success and competitiveness. Literature points to a number of success factors which are vital and influence knowledge management in all organizations. However, the acceptance of issue which is not fitting can hinder the attainment of the desired performance. Many Organizations have accepted the intrinsic worth of knowledge management, as a foundation for enhancing performance and competitiveness. A study by Al-Mabrouk (2006) has prioritized a set of CSFs affecting knowledge management adoption from literature review, pre-arranged in order of importance. The study is also supportive of added research on knowledge management-related concerns since it contributes to enhanced identification and establishment of CSFs affecting knowledge management adoption.

Roberts (2008) has offered a generalized methodology for knowledge auditing. In this study, a framework of information and knowledge outlook is provided and knowledge auditing is located in an evolving context of information research and practice. A 15-element catalog developed in this study takes its blueprint from business strategy and process and associated it to the simplified cycle of information and communication activity. The elements are methodically estimated in terms of a general outlook, a normal explanation and a limit to indicate the type of practical uses and data representation connected with each element. The model is extensively adjustable to distinct settings as a means for business enterprises, organizations in different sectors.
and for the use in communities of practice and learning/knowledge settings. This is an area of application where a highly standard framework method for information and knowledge auditing would be advantageous (Roberts, 2008).

Academicians and practitioners have sought to produce a general Balanced Scorecard (BSC) model that is designed and enclosed for managing research and development (R&D) activities. Valderrama et al. (2005) employ a technique based on the soundness of content of an instrument of measurement, inside the logical framework of the validation of scales or constructs. The BSC model for R&D developed in this study has been subjected to analysis with established experts in management and in R&D. It has facilitated a suggestion to be put forward in respect of those statistics that best describe the factors linked to organizational efficiency in the attainment of the strategic goal set by companies, and to inter-connect them and categorize them into five extensive perspectives of the BSC. The result is the design of a scale of measurement that arranges the empirical indicators under the perspectives of the BSC for the measurement of results. This instrument will offer unique values that group all the prior indicators into single scale of measurement. The limitation of the methodology used is the complexity of producing the scale and of finding the most representative sample of companies and the excessive cost of working out and dispensing the instrument (Valderrama et al. 2005).

Levett and Guenov’s, work (2000) is an attempt that looks for affording the automotive industry with a practical methodology that converts the conceptual ideas of knowledge management not a working programme with defined objectives, using industry terminology. This study has developed an analysis methodology that makes possible an effective analysis of the influences on employee activities when building and giving out valuable corporate knowledge that extends over technical and cultural
boundaries. This analysis recognizes the factors that influence definite knowledge management metrics. The analysis also identifies key influencing factors inside the working atmosphere. The outcome is perfection of ground-level drivers of knowledge management actions through links to suitable knowledge management strategy. Knowledge management strategy may highlight organizational cultural variation or information technology changes or both in an attempt to enhance innovation, trim down business costs and lessen the time required for marketing of new products.

The role of knowledge management in putting forward corporate sustainability in the context of construction industry was studied by Robinson et al. (2006). The study plans a maturity roadmap STEPS — to make possible the implementation of a knowledge management strategy. The steps followed were “start-up” stage — “take-off” stage — “expansion” stage — “progressive” stage — “sustainability” stage. Two research methods used for the purpose — postal questionnaire and case study interviews. The study found that knowledge management is inextricably connected to corporate sustainability, but a methodical attempt is necessary for triumphant knowledge management execution. With this in mind, the STEPS maturity roadmap was built up to provide a planned attempt for putting into operation and benchmarking knowledge management efforts. This will let the companies to realize where they are placed within the STEPS maturity roadmap and to work out strategy to attain higher levels of knowledge management maturity (Robinson et al. 2006).

Wickes et al. (2003) aimed at devising and maintaining a programme management tool by the means of knowledge pass on capabilities, which intend to observe and enhance the Organizational processes and performance of large and complex portfolios to change. This case study by Wickes et al. (2003) concluded at a FTSE
100 corporation where poster size tools have been developed to manuscript and distribute performance knowledge.

Nonaka and Takeuchi's model (1995) suggests that socially constructed information can prevail over complexity in sharing knowledge. In their study, open communications have made noticeable the performance of other projects to a broad range of workforce. The ease of the presentation and its graphical spirit has generated interest in the information provided in the study, making it an instant and simple to read work.

Studies have probed the gap in the existence of Critical Success Factors (CSFs) for Small and Medium enterprises (SMEs), as these were available only for large companies' only. Till date, CSFs for implementing knowledge management in SMEs have not been methodically explored. On-hand studies on CSFs were reviewed and their limitations identified for the purpose of the research by Wong (2008). By amalgamating the insights drawn from these reviews and adding some more factors, a set of 11 CSFs were drawn up which were supposedly to be more appropriate for SMEs. These CSFs were expected to facilitate necessary issues and aspects to be addressed throughout the implementation of knowledge management in SMEs. At a later stage, it can also offer a base for them to assess their knowledge management practices. This study is probably the pioneer to bestow an integrative perspective of CSFs for implementing knowledge management in the SMEs sector. It furnishes priceless information, which optimistically will assist this business segment to achieve knowledge management (Wong, 2008).

A nation is more and more reliant nowadays on the competitiveness of its enterprises. Knowledge Management Portal (KMP) has become the most recent strategy for augmenting the competitiveness of enterprises. Each organization has distinctive
necessities for hindrances in the adoption of knowledge management. Knowledge Management is one of the “Critical Success Factors” (CSFs). Spotting the needs inside the organization, and then planning for the actions to meet the needs is of utmost importance. Knowledge is the crucial influential drive in the present day world. In numerous ways, technology has made knowledge-sharing a necessity. Importance for knowledge creation inside the organizations is increasing at an amazing rate. Organizations gather enormous quantity of information in daily routine which they have to collect, classify, interpret, and disseminate effectively (Egan, 1998). The distribution of knowledge has an immense impact on the establishment of a competitive advantage. Research has been carried out to understand the impact of an organization’s knowledge management on competitiveness and the finding arrived at is that knowledge management itself has a long way to traverse from where it is now. A key to success in knowledge management is focusing on all of the four focus areas namely, the people, processes, technology and content, in the beginning stages of deployment.

2.3 Research and Development (R&D)

Implicit knowledge has been explained as a crucial element for the success of government-led R&D project selection, where quick and precise decision-making ought to be made often under the circumstances of lack of information. A study by Kim, (2005) investigated ways to make the most of the tacit knowledge of experts taking part in a Korean government’s R&D project selection process. One of the key policy suggestions emerged from this study was that a wide approach that considers strategy, organizational structure, culture, behavior, and management process together have to be taken on board. Despite the fact that this study is only a simple outlining of tacit knowledge based R&D project selection, nevertheless it might serve to encourage to investigation and further discussion. Choices of R&D projects selection
from among those extensive scaled models that would be suggested will become invaluable for the long term prosperity of the Korean and similar economies.

Stevens and Swogger (2009) in their study proposed a new approach for selecting, training and coaching people assigned to enhance the efficiency of new business development at Dow Chemical's Polyolefins and Elastomers Business. It was suggested that performance of weak businesses can be made more efficient by using five rejuvenating approaches - 1) measuring and increasing the Creativity Index of the R&D leadership culture, which is genetic to a surprising degree; 2) increasing the fit of leaders in specific jobs (Starters and Finishers); 3) identifying, training and coaching creative Rainmakers as Business Opportunity Analysts, who routinely "morph" starting ideas into winners using a non-linear New Business Development (NBD) process; 4) ensuring enough Finishers are present in the working groups to complete the projects; 5) making sure management implements the positive findings. The five steps also put forward five new forward looking R&D metrics that offer a obvious and achievable game plan to craft a succeeding R&D culture with 84%-95% success rate vis-a-vis the 11% rate that are typical after completing the early stages of new business development (Stevens and Swogger, 2009).

Knowledge management governance configuration of a knowledge-intensive research organization and the impact of this configuration on the organizational knowledge management have been studied in detail. The result by Schroeder et al. (2009) illustrates the importance of the structure of the knowledge management function, the communication and coordination processes that have been put in place and the provision of leadership for the knowledge management approach. The study concludes that the knowledge management governance configuration illustrates a trade-off between generating synergies among the various support functions and
putting together the knowledge management initiatives with many other business operations. Research into knowledge management governance and the ways in which knowledge management is ordered and synchronized in organizations is still comparatively new. Though a large number of organizations have recognized Knowledge management as important and have therefore engaged in initiatives in this area, in order to be able to simplify the initial findings from the viewpoint of putting them into practice, extra studies have got to be carried out to discover additional knowledge management governance configurations that will positively impact on the manner knowledge management is approached in various organizations (Schroeder et al., 2009).

An overview of the revolution that has taken place, in the area of innovation management in large companies, has brought out that innovation management has progressed towards a contextual approach. This study by Ortt and Duin (2008) attempted a review of the existing literature regarding the trends in innovation management and research and development (R&D) management generations, and observed data about concrete approaches to innovation. The study suggested the idea of a sole mainstream innovation approach which, however, is not in tune with the successful approaches companies have been in agreement with. What is necessary is a contextual approach. However, research with regard to such an approach is disintegrated. The study also suggested that an integrated approach is required to encourage intuitive decisions Managers customize their innovation approach to the type of innovation, organization(s), industry and country/culture (Ortt and Duin, 2008).

Suh et al., (2004) in their study suggested a knowledge management model for Research & Development (R&D) organizations. The study discussed how
organizations can make the most of this model for their innovation. After discussing the generic elements for effective knowledge management implementation through literature review, the efficacy of the suggested model was discussed with the help of the findings from the Samsung Advanced Institute of Technology (SAIT) case study. Generic characteristics must be well thought of while designing KM activities to successfully attain knowledge management based innovation in an R&D Organization. The SAIT study suggested the following critical success factors:— KM measurement metrics to promote a solid relationship among KM activities and the organization’s competitiveness; knowledge templates to allow uniform management of core knowledge; numerous information group activities to generate meaningful new ideas; and IT systems and rules to convince researchers’ about the benefits for their individual self-development. The authors finally suggested that the proposed R&D knowledge management model evolved from the analysis of the real-life knowledge management experience of SAIT may be used as an important benchmark for other R&D Organizations (Suh et al., 2004)

Though global economy continuously sends mixed signals, two surveys prove that many companies are still looking to increase their expenditure on R&D and innovation to facilitate growth. According to the US Industrial Research Institute’s R&D Trends Forecast for 2008, 38 percent of large US companies were expected to increase R&D spending by at least five percent in 2008. The analysis conducted by Battelle researchers and the editors of R&D Magazine on the conduct of research and development in the US reveals that total US funding for research and development (R&D) is expected to increase, but by just 3.3 percent in 2008. According to the Per I Nilsson, Director of Arthur D. Little’s Technology & Innovation Management Practice, the company’s research has revealed that winning innovators reached more or less two-and-a-half times higher sales of new products and reached ten times
higher profits on their R&D and innovation investment than the under-performers. Observation connotes, innovation is not about how much you spend, but why and how you spend it.

A study by Rognes (2002) analyses the dispersing and contracting forces in the R&D activities and how an achievable controversy is handled have been investigated. This was done by studying how the level of dispersion or contraction has come to be and what actions or decisions have contributed to the dispersion or contraction of R&D. The study demonstrates that the two kinds of geographical movement in R&D, one dispersing and one contracting, are moderately working at separate organizational levels. The study explores R&D activities in multinational companies with quite a lot of production sites and markets of different countries bring together what motives are stated in relation to the geographical spread of the R&D activities. The study finds that the dispersing forces are more dominant at strategic levels, while the contracting forces are prominent at the operational levels. From these findings the study concludes that many organizations are increasing the global presence with the help of focused R&D efforts (Rognes, 2002).

A study by Yawson and Sutherland (2010) takes into account the fact that in an era in which accountability, cost effectiveness and impact orientation are at a premium, Research and Technological Organizations are stressed not only to enhance their performance but to advertise their enhance performance. The study recognised that the developmental effect of research is hard to evaluate and therefore it has to be predicated on the belief that statistics of organizational uptake can present consistent proxies, or reliable indicators of development effect. The study tests for a novel approach to performance management within three agricultural research and development agencies and found that balanced scorecards can facilitate a collective
understanding of the performance enhancement approach amongst management and staff, enhancing motivation and ownership. It supports a sound view of performance, internalizing the areas so far neglected. It also helps to manage the flow of information vital for strategic management. Further, it offers a framework and learning from lessons which are very important from the viewpoint of any management activity.

Park (2007) has proposed another framework for designing knowledge management system (KMS) for R&D organizations. In this framework KMS design has two principal modules i.e. a process management module to manage knowledge activities to generate and use knowledge; and a contents management module to deal with knowledge contents, i.e., inputs and outputs in the knowledge activities. These two modules are materialized through two operational systems: workflow management system (WFMS) for R&D processes and R&D knowledge management system (RKMS) for R&D contents. A workflow-based knowledge map has been suggested as a link to integrate the two systems.

Farsi (2009) has discussed the issue of commercialization in universities and proposed a model of knowledge management that enables universities to be effective in exploiting them. The universities must build up their entrepreneurial capabilities by supporting and refining a knowledge-sharing culture amongst its affiliates so as to facilitate and sustain the exchange of implicit knowledge between individuals and groups/teams. Further a university's supportive knowledge-sharing culture will facilitate its members to share information and knowledge explicitly, to learn from one another and the past, to act as mentors and to grow up professionally. In addition, the model emphasized support for and allowance of sufficient resources, appropriate
Organizational structures, and for accommodating human resources systems as vital factors for commercialization effectiveness.

Literature has identified functionalities that are relatively important for knowledge processes based on the specific team and the team's task characteristics. The author Lee (2008) has used a field survey for collecting and gathering of information with 142 researchers from government-sponsored research Organizations in Korea and the researchers identified communication, collaboration, and connection functionalities as being crucial if the team size is too huge or if the team affiliates are dispersed. The coordination functionality is very important if the research type link up to commercialization projects than if the team is involved in basic level research projects. Thus the research makes an attempt to make inferences that can be used to designing and execution of knowledge processes for R&D teams (Lee, 2008).

Schroeder and Pauleen (2007) have made an attempt to find out and estimate the influence of the knowledge management governance on an organization. The study employed a case research methodology using data chief personnel concerned with the knowledge management of the enterprises. The findings of the study show the actual importance of the centralised arrangement of the KM function for the formation of synergies among the different KM aspects; and the significance of leadership, communication and incorporation of other relevant functions in the generalisation of KM aspects in the organization.

Based on existing literature Olsen et al. (2008) proposed a framework for factors inducing the creation and victory of product development alliances, and links exclusive to the food industry. From the findings of their case study of a product development association in the Danish food industry, with four allies, the authors disclose the nature of the differences between the developed structures for product
development coalition in the food industry and the theory on alliances in general, without a doubt appears to rest in the chosen specific context. Companies in the food industry are not compelled by outside conditions to go into product development alliances. For that reason, in contrast to other industries, enthusiasm need to be higher, or else the chances are not that bright for them to form such inter-organizational associations. On the other hand, once formed, consequences signify that success factors are somewhat universal across industries and types of alliances.

The relationship between the knowledge and quality management has been studied extensively. The spirit of knowledge management in a research and development (R&D) setting and its implications for quality systems is the subject of a study by Jayawarna and Holt (2009). This study points out that knowledge investigation in an R&D context is localized, interim, intervened and realistic. On analyzing the experiences of seven technology-centered UK R&D organizations, the study brings out how the use of quality systems promotes and/or discourages the exploration and exploitation of R&D knowledge. We disagree that the knowledge-demanding nature of R&D activity together with the continuously re-constructed character of the knowledge, prevents the use of general frameworks or finest-practice rules. The study asserts that the use of quality systems in an R&D setting is most effective when they provide an organizational background or frame inside which personnel are encouraged to take on inquiries that are incorporated with the firm's strategic matters without these matters being at all fixed. Such systems have little effectiveness when on the exterior they enforce procedures as unmovable and unchallengeable “blueprints”.

Malhotra, (1993) uses Competitive Intelligence Program for explaining the crucial role of measurement in organizational research. An abstract model of Competitive
Intelligence Program is made based on the existing practitioner literature. Main aspects of this model are then employed for defining the 'critical ingredients' of measurement in organizational research. These main aspects are constructs soundness, and consistency, as well as their interconnection.

The share of business research and development (R&D) expenses in the services sector has been growing rapidly in many, (though not all) OECD countries, as per the official statistics. Surveys suggest that the services contribution to R&D is less than what is required given their huge share of employment and output in national economies. Though the imperfection of R&D surveys may have underestimated the R&D activity, in the service sector, this is unlikely to account for the huge gap in their performance. Statistical data and interviews and workshops involving managerial personnel in the service sector have revealed the impediments for operationalising R&D in the service sector. The way the questionnaires are proposed for R&D survey in the service sector seems to be more concentrated on technological R&D, disconnecting social science R&D. This can be one other reason for the under reporting of R&D by service firms. But beyond this, the R&D model adopted by the service sector itself may have posed challenges when it comes to documenting R&D innovation in service firms. This issue was explored through a programme of discussions and workshops involving service firms. The programme brought out deficient familiarity with the R&D concept and R&D management practices in the service sector. R&D performance and innovation activities vary across services of various sorts, despite the fact that most service subsectors appear to be low R&D investors. It is essential to investigate services' innovation patterns and processes, to determine which types of R&D activity are being employed in these subsectors. While a few amendments in R&D measurement are considered necessary to capture services' R&D activities, attempts to identify non-R&D factors of innovation in the
service sector are also essential for the management and policy decisions given that the governments are seeking to create R&D incentives and targets for services and other sectors.

There are justifications for look forward (a) services' share of business R&D to continue to nurture; (b) this share to remain to be well below what would be projected from the prevalence of services in economic activity, and (c) for lots of services' innovation to remain to rely heavily on sources that are not openly coupled with R&D.

Studies show that there have been considerable differences in the manner in which the Research and Development (R&D) has been handled over the recent years, with much influence from the outside environment. Debate discussions in various publications on R&D are mostly centered on the progress from the so-called first to the fifth generation models of R&D management. What are less debated are the implications of the recent and future trends in R&D management for the performance of organizations. Drawing such implications from both the on hand literature on performance measurement (PM) in R&D and specific research into organizations which have preferred to shift towards a more profit centered approach to the management of their technical resources. Nixon et al 2000 finds that although there are common features, some differences requiring careful thought by management, can be recognized in the change from a cost to a profit centered approach.

R&D confronts challenges when serving multiple businesses and markets, each requiring peculiar solutions within an overall corporate strategy. To function in these circumstances, organizations have created a cooperative, cross-functional arrangement within the enterprises that engage in R&D, manufacturing, supply, and other supporting functions. Business integration teams are the pioneers to conceive
the idea of cross-functional linkages. A process for setting and organizing portfolio priorities has also been put into action, and emphasis is placed on the importance of open and practical contacts both within & outside the Organization and industry. The resultant staff engagement and project ownership in many functions inside the business have made possible a dynamic, real-time management of the R&D portfolio. By this way and with successful guidance of the corporate innovation portfolio, significant performance returns have been achieved by organizations.

Perks & Wong (2003) indicate that successful new product and service development relies more and more on the capability to accept an international outlook throughout the development process, and by aiming international or global markets, rather than just serving local customers. In spite of that there exists an extraordinary body of research on new product development, research regard to global level new product development practices and management is by and large in its formative years, and is at best disintegrated. Perks & Wong (2003) reviews a number of articles and presents an outline of the key research streams in this latter field of international new product development, and also stress on major fissures in the present knowledge and understanding and proceeds to discuss current knowledge in this field with the objective of kindling further discussions & analysis. They also examine whether international diversity is optimistically connected with new product development performance. The role that the national culture plays in inspiring consumers to accept new products (technology) of a firm and its global new product development approach and also the role of technology transmission as an exceptional case of new technology are also examined with the help of the articles reviewed.

Andrew (2006) notes that time appearance of a form of innovation is a characteristic of the evolutionary origins of intelligence. In this outlook of intelligence in processing
of a stream of variables is taken to be more primal than concept-based processing. It has been revealed that continuous-variable system represents self-organization by automated term selection can model aspects of biological learning, but only in the cases of one specific task. Furthermore, it is also suggested that, confronted with distinctive tasks, a versatile-learning system needs to possess a means of classifying situations, and then associating the knowledge gained from the continuous-variable processing with the suitable situation class. Such classification of situations can be seen as the commencement of concept-based thought as well as of innovation (Andrew, 2006).

Ženko and Marn (2006) employ a few system theories in the complex problems involved in intellectual property management to offer insights into some pertinent current issues concerning standards and possibilities of computer software protection. Systemic approach to success in software business is examined from the point of innovations adopted in standards and software. The study discusses the concepts of "public accessible standards", and "public exclusionary patents", in the area of software development and software patenting and comment upon controversies arising from the claims of these competing concepts. The study finds that Patents are legalized monopolies, and the monopolists' exact higher prices than the free market enterprises. The findings also stress the need for balancing the public for free access to technological information and demands of the interests of monopolies.

2.4 Organizational Culture

Goh (2005) presents an understanding of the management of knowledge innovation (KI). Starting from the premise that knowledge management is going to emerge as a source of competitive advantage, Goh explains why innovation management is not independent from knowledge management. Therefore, concepts on how to harness
knowledge management practices should be involved in innovation management processes. The study describes how various types of knowledge-based assets are absorbed, incorporated, shared and employed for innovation during the transition from "information revolution" to "knowledge revolution". The paper takes the case of Siemens, a highly successful company in integrating knowledge management and innovation management as an example. Knowledge creation and knowledge capital have played an important role in innovation. The study recommends an integrated structure for managing knowledge innovation in relation to perspectives on knowledge-centered principles, knowledge-sharing infrastructures and knowledge-based initiatives. This study also discusses, the future challenges for organizations to take advantage of the full benefits of knowledge innovation (KI).

The probable relationship between organizational learning and organizational design is discussed by Curado (2006) based on a review of wide-ranging literature. The organizational learning theory has been applied to identify several organizational phenomena like resources and competencies, and implicit knowledge or the role of memory in the organization. Conversely, it is complicated to make out fits and subsequent misfits among Organizational learning and the Organizational design. Since it is a theoretical study, there are possible drawbacks on the subject of practical support. The study offers a foundation for further development and practical testing of the relations besides a number of recommendations concerning the organizational design to promote organizational learning.

Ruppel and Harrington (2001) makes an attempt has been made to discover the factors influencing the execution of intranets, a technology upon which most knowledge management systems depend for knowledge sharing among employees. The study posits that Organizational Culture have some bearing on intranet
implementation. The intranet implementation is made possible by a culture that puts emphasis on an atmosphere of trust and concern for other people (ethical culture), flexibility and innovation (developmental culture), and policies, procedures, and information management (hierarchical culture). Management must make certain that proper values are in place to optimize intranet implementation and offer knowledge sharing (Ruppel and Harrington, 2001).

Pauleen (2007) offers a theoretical model for a breakthrough in the development of organizational knowledge, predominantly knowledge that comes into being when people work with new technologies. The model is based on two broadly acknowledged research techniques — action learning and grounded theory — and is illustrated using a case study of virtual team leadership, which investigated how virtual team leaders developed relationships with their virtual team members. The study demonstrates how action learning and grounded theory — two widely accepted research methods — can be used to discover and articulate new organizational knowledge. The model lets organizations to increase practical and highly current experiential knowledge from employees working in different situations, together with those using new organizational processes and technologies. Such knowledge can offer competitive advantage. Immense contributions to the area of knowledge management especially organizational learning can be made possible by making available a method that guides how organizations can learn from different situations involving people and technology.

Schein (1990) envisages the grounds for failure of organizational innovations to stay alive and flourish in an Organization. He points out that every organization develops three particular subcultures, namely "operator culture", "engineering culture" and "executive culture". The latter two subcultures have their roots outside the
organization and they are rigidly entrenched in their particular assumptions. The lack of alignment among the three subcultures causes organizational learning to fail. This study concludes that the key to organizational learning in the 21st century lies in the hands of executive and engineering communities who must start their own learning process.

The study by Forrest et al (2008) investigates the connection between Organizational learning culture and intellectual capital performance. It also examines the association of the dimensions with systems-level learning and transformation, explaining the value-added organizational performance through management strategies that create values. The study posits that organizational learning culture leads to intellectual capital performance by creating value added outputs for continuous learning and transformation.

The expenses in the new information technology (NIT) over the last 2-3 decades have left a deep consciousness on the existence of organizations' that goes further than just altering degree of automation. The generalization of NIT investment has not resulted in short and medium term effects on financial and organizational performance. However, NIT investment has continued to increase, the reason being the preoccupation with the development and the implementation of new technologies. The apparent connection between NIT investment and performance is reflected in the celebrated "productivity paradox" which in other words is to suppose that the computer age is ubiquitous, the large scale utilization of computers will not necessarily drastically and directly impact productivity. Preceding research has shown that even if technology is one of the important factors that influence productivity and although, at least in theory, all countries have equal access to technological innovation, in actual fact, productivity is influenced by several other factors such as
acquiring physical and human capital, infrastructure, the structure of the market, demographic evolutions, the degree of competition etc. NIT has drastically altered the business environment and as a result, the Organizational Culture. This change however cannot denote increased efficiency or increased welfare.

Kim et al (2009) suggests a model for management decision makers to select intellectual capital (IC) indicators for measurement and disclosure of intellectual capital. This paper aims to evaluate the role of intellectual capital in the success of e-business. The effectiveness of the model is established through a case study of a public sector research and development organization. The study utilizes the Analytic Hierarchy process (AHP) to prioritise intellectual capital indicators in the organization and identifies each indicator’s weight through an evaluation if two-steps experts’ surveys. The study contributes to the literature and practices in several ways. The study provided practical and operational rules on how to engage in IC management efficiently. Second, it aimed to integrate IC management into traditional management tools (e.g. quality management) by making use of the concept of an operational feedback process and three screening processes. The study also probes the possibilities of using the Delphi approach in prioritizing IC indicators.

In the current post-industrial society, knowledge has become a major resource. Nevertheless, organizations confront infinite challenges in fostering and managing knowledge. In contrast to manufacturing activities, knowledge activities are difficult to monitor and control, because only a fraction of the knowledge generated is internalized by the organization, the other part is internalized by the individuals. This duality between individual knowledge and Organizational knowledge demands different sets of management approach in knowledge management. Bhatt (2002) offers a framework to differentiate between individual knowledge and organizational
knowledge, and recommend a set of management strategies for knowledge management. The study suggests the means by which an Organization can change individual knowledge into organizational knowledge.

Jung et al. (2009) investigated the connection among competitive strategy, total quality management (TQM), and constant improvement of international project management (CIIPM). On the basis of literature review and a theoretical model, five hypotheses were developed. A cross-sectional data set gathered from 268 international project managers based in four countries were used to analyze the theoretical model. The research findings from the statistical analysis propose that competitive strategy does not directly influence the CIIPM performance but it influences through the intervention of TQM practices. They also postulate that "human resource-based" TQM elements have greater effect on CIIPM performance than "technology-based" TQM elements. The study used four TQM variables, derived from the MBNQA (1995) framework. The four variables are strong and they satisfactorily represent the TQM practice dimensions'. The study utilized a single variable of CIIPM in considering international project management performance. As future TQM and international project management systems go through evolutions, extra elements may be integrated into the three-domain contingency model. The outcome of the study suggests that the TQM elements completely mediate the relationship between competitive strategy and CIIPM. This means that an innovative management strategy, such as the TQM practice, is a pre-requisite for attaining competitive edge in international project management performance. It is the soft TQM elements i.e. leadership at top management's level, compensation, training and empowerment that influence the CIIPM more considerably. Even though many classical studies have in various contexts discussed competitive strategy, TQM
practice and project management performance, few studies are focused on the inter-
connection among these three domains.

Conserving and promoting knowledge is the main interest of a network-like virtual
organization. The geographically dispersed and scattered organizational framework
holds back knowledge flow. The special conditions of knowledge management in
virtual organizations are discussed through the medium of a pragmatic study
conducted in a service company by Lemken et al., (2000). The study evaluated how
technical and organizational features affect knowledge-sharing and transfer. Special
importance is placed on encouraging knowledge transfer. It suggests the need for the
existing knowledge distribution practice to be expanded and points out the limitations
in technology application. For doing this, a web-based knowledge base was
introduced to enhance the knowledge flow inside the organization studied. This
became the first move in the process of externalizing implicit knowledge which
established a new way of knowledge transfer to the Organizational Culture. Such flow
of knowledge help virtual organizations to create and maintain an organizational
memory that is adaptable to and accommodating changing necessities, the pre-
requisite for which a sturdy Organizational Culture that promotes knowledge-sharing
by means of various communication channels.

2.4.1 Role of knowledge management

Knowledge management has a key role to play in organizational innovations that help
to combat the hindrances. The drivers for employing knowledge management in the
area of innovation have been identified in a study by Plessis (2007). The study
describes the nature of the role of knowledge management in innovation and its value
addition proposition. The methodology used in the study was literature research and
several personal interviews, understanding and explanation. In the rapidly changing
business world of today, modernism has become the foundation for organizations to succeed. The characteristics of global economic growth has been altered by the momentum of innovations which has been made possible by the rapidly evolving technology, shortened product lifecycles and an elevated rate of new product development. The intricacy of innovation has been amplified by the growth in the amount of knowledge that could be availed by organizations. Since innovation is exceptionally reliant on the availability of knowledge, the intricacy shaped by the richness and accessibility of knowledge has to be accepted and managed to make sure winning innovations (Plessis, 2007).

Huang et al. (2007) proposed a model for elucidating knowledge dissemination phenomenon in the community of practice. The prototype developed by them to demonstrate the procedure of knowledge distribution among knowledge workers, and factor the coefficients of distance, readiness, driving force, and ability of comprehension and expression. Further, two types of knowledge diffusion are explained and recommended, i.e. the knowledge sharing and the knowledge discussion. A change of knowledge worker will affect the knowledge diffusion inside community of practice. The knowledge level of knowledge workers will be better than before if more members connect to the community of practice and vice versa. The model developed can measure the knowledge distribution inside the community of practice. The improvement of knowledge workers will be controlled by the factors such as budget allocated and time available. Accordingly, a firm can prepare, predict and enhance the knowledge management practices. The present study goes a step ahead of earlier studies, which were mostly illustrative in nature and too theoretical to be tangibly understood, by introducing research in the framework of a mathematical model (Huang et al., 2007).
Dow et al. (2006) discuss the initiatives undertaken at the European Space Operations Centre (ESOC), to introduce a knowledge management system and suggest that the experience in the ESOC could provide solutions for organizations trying to keep up with a world where technology and innovative processes are swiftly varying. The study explores the challenges of executing a corporate knowledge management system in ESOC where presently the knowledge is administered in numerous ways. The driver of the knowledge management initiative at ESOC was the expediency of making a system able to locate intellectual capital and technical expertise. The study found the following factors as contributing to the increased level of KM:—a consistent set of documentation, maintained under configuration control and regularly updated to reflect actual status; formation of cross-support functional teams; usage of a Centralized ESTRACK Status and Diagnostic System (CESADS) as a supervisory/diagnostic tool for the ground operations; and need for knowledge management evolution. The advantages of the above factors have been acknowledged at ESOC to guarantee consistent and well-organised execution of the KM responsibilities of the Centre. The points raised in the study are expected to be of interest to space industry planners, executives and researchers (Dow et al., 2006).

Alas, et al, (2006) points out those Estonian companies have been in an unremitting state of change for the past 15 years and there is quite a lot to be made to attain welfare levels for their employees comparable with the developed countries in the European Union. The critical question has been identified as how to attain employee commitment to organizational change. The goal of the research is to highlight employee outlook towards organizational change and how Organizational Culture can affect these attitudes in a rapidly changing environment. A model showing the relations among Organizational Culture and employee attitudes in the organizational change process has been developed as a hypothetical conceptual frame. The
A study by Oltra (2005) has attempted to define the intangible but feasible link between the human resource management (HRM) and knowledge management. The paper analyses knowledge management-related social and cultural issues through an
extensive but realistic HRM perspective. It helps to enhance our understanding of the reasons for the success or breakdown of knowledge management efforts which would be helpful to both academics looking for theory frames and practitioners searching for useful practical insights. The study employed qualitative techniques for data collection and analysis in three knowledge-intensive Spanish business units of multinational companies. The findings report the evidence for systemic patterns of influence of vital knowledge management characteristics and knowledge management-related human resource practices on knowledge management efficiency. The study also proposes a framework a structure, involving a number of specific variables, propositions and its useful replication in other cultural contexts with appropriate modification.

A study by Edvardsson (2008), also probes the connection between the human resource management (HRM) and knowledge management systems. The study sets out firstly, to incorporate human resource (HR) strategies into knowledge management systems; secondly, to scrutinize the type of HR strategies to be pursued and thirdly, it looks at the possible performance consequences of such a strategy in the creation, maintenance and sharing of knowledge. The research findings state that the HRM strategy and the general strategy of enterprises make up the general knowledge management strategies. Two strategies were identified: exploitative strategy and explorative strategy. Both strategies have their impact on the KM process. The former strategy emphasize on knowledge storage, technical skills, as well as disseminating explicit knowledge through IT solutions. The risk for enterprises implementing such a strategy will be getting locked into past design and being incapable of making use of future applications. Explorative strategy, on the other hand, depend more on knowledge creation, in addition to using the human interface to transmit implicit knowledge and employ knowledge to increase
innovation and new learning. Enterprises adopting such strategy are likely to lack structure and processes to put innovations into competitive advantages.

Svetlik and Costea (2007) offer an extremely beneficial source of information and a feasible recommendation on how the relation between the disciplines of human resource management (HRM) and knowledge management (KM) can improve organizational functioning. The advantages of adopting an integrative approach towards HRM and knowledge management, where one strengthens and supports the other in improving organizational efficiency and performance emphasized. The study establishes the case for enlarging and enriching research base on the relationship between HRM and KM.

Groenewald’s (2004) case study provides an example of what can go wrong with the execution of an electronic document management system. The study outlines knowledge promptness and knowledge as capital in the backdrop of the information society and knowledge economy. The study reviews existing literature to bring out the importance of electronic document management and control and the influence of human resource management on knowledge promptness, also making references to the ‘learning organization’ and ‘complexity’ theory. The interference methodology, encompassing three phases, is also discussed. The results of the three phases are presented. The study points out that if an organization introduces an Electronic Document Management system (EDMS) without doing the required groundwork, EDMS alone cannot rescue the corporate memory. Thus implies a review of HRM policies and procedures in order to create a KM culture.

Holden (2007) in his book focuses on the way people develop at work, the skills that are encouraged, the way they are controlled and the implications these have for the people who possess and exercise them. The book covers a broad range of research
methods used in studying an array of organizational practices, from managing culture and emotional labor to job design and qualifications, and amply take into account the suggestions from these to the people at work who are the subjects of his study in this book.

Malhotra (2005) affords executives and scholars with realistic insights into integrating knowledge management strategy and technologies in business processes for winning performance. The study proposes a 'strategy-pull' model of knowledge management. An elaborate review of the concept, research, and practices on knowledge management is undertaken to suggest a framework to distinguish the existing technology-push models from strategy-pull models, the superiority of which is ascertained. The framework points out "critical gaps" between technology inputs, related knowledge processes, and business performance results and suggest ways of bridging the two types of models. The case studies of real-time enterprise (RTE) business model designs for both productive and unproductive companies are used as examples to give real world insight into the proposed framework. The study claims that the proposed framework is based on real world evidence about companies most popularized for real time technologies by some technology analysts. The analysts' asserts that the proposed framework would be helpful in understanding the significance of 'strategic execution' in the selection of specific technologies. The study claims that it is one of the first comprehensive analyses that relate knowledge management to its integration into enterprise business and that it provides critical knowledge for firms which depend on information and communication technologies for increasing strategic agility and adaptability.