

# Study of Effectiveness of Knowledge Management Practices in Electronic Industries

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**Abstract** - The recent interest in knowledge management and knowledge management systems, in our view, has been fueled by the transition into the information age and the theories of knowledge as the primary source of economic rent. Parallel to research and theoretical developments, organizational and managerial practice has lately become more knowledge-focused. For example, benchmarking, knowledge audits, best practice transfer, and employee development point to the realization of the importance of organizational knowledge and intangible assets in general (Grant, 1996; Spender, 1996). The emergent patterns of literature and research as well as practice in the field imply the central role of knowledge as the essence of the firm.

From the knowledge based perspective of the firm, the firm can be seen as a knowledge system engaged in knowledge creation, storage, transfer, and application. This perspective is consistent with the definition of organizational cognition as the ability to acquire, store, transform, and utilize knowledge. Note that in this definition, cognition is abstracted from the physical and biological system in which these abilities are supposed to be embedded (Schneider and Angleman, 1993). Study found that knowledge management is one of the key factors determining the success of any electronic organization and also contributes in higher productivity in organizations. Several studies in the area of KM reveal that several factors act as barriers and facilitators to KM are universal to all organization. The study is being done to determine various KM practices being used presently in the electronic industry of Indore. The study is exploratory in nature and focused on specific areas.

**Key Terms** - Knowledge Management, Tacit Knowledge, Shareability, Human element, Social Factor

## I. INTRODUCTION

Knowledge management is the key ingredient of Research and Development organizations and may contribute to enhance the productivity in organizations conducting research studies. Park and Kim (2005) in their study on the linkage between Knowledge management and R&D management found that although the two are intrinsically close, there exists virtually no linkage between KM and R&D has not attracted the desired attention of the researchers. Since past few decades, KM has been considered as one of the most emerging research areas. Knowledge creation and knowledge flow for R&D is still nascent and is a new and open field. More specifically, KM in universities and other research centers has more or less remained a little-explored domain.

Knowledge is the power/ capacity for effective action. The organized data are information. The processed information in the actionable form is referred to as knowledge. The knowledge becomes wisdom when it is used for a good cause of large number of people. Knowledge is the full utilization of information and data, coupled with the potential of people's skills, competencies, ideas, institutions, commitments and motivators (Grey, 1996).

In today's economy, knowledge is people, money, leverage, learning, flexibility, power, and competitive advantage. Knowledge is more relevant to sustained business than capital, labour or land. Nevertheless, it remains the most neglected asset. It is more than justified true belief and is essential for action, performance and adaptation. Knowledge

provides ability to respond to novel situations. A holistic view considers knowledge to be present in ideas, judgments, talents, root causes, relationships, perspectives and concepts. Knowledge is stored in the individual brain or encoded in organizational, processes, documents, products, services, facilities and systems.

Knowledge is the basis for, and the driver of, our post-industrial economy. Knowledge is the result of learning, which provides the only sustainable competitive advantage. Knowledge is the next paradigm shift in computing following data processing (1945-1965) and information management (1966-1995). Knowledge is action, focused innovation, pooled expertise, special relationships and alliances. Knowledge is value-added behavior and activities. For knowledge to be of value, it must be focused, current, tested and shared.

In practice, knowledge management often encompasses identifying and mapping intellectual assets within the organization, generating new knowledge for competitive advantage within the organization, making vast amounts of corporate information accessible, sharing of best practices, and technology that enables all of the above- including GroupWare and internets.

Knowledge Management is the collection of processes that governs the creation, dissemination and utilization of knowledge. In one form or another, knowledge management has been around for a very long time (Newman, 1990. knowledge management is not a, Technology thing” or a “computer thing”. If we accept the premise that knowledge management is concerned with the entire process of discovery and creation of knowledge, dissemination of knowledge, and the utilization of knowledge, then we are strongly driven to accept that knowledge management is much more than a “technology thing” and that elements of it exists in each of our job. First of all we need to understand the concept of knowledge. Knowledge management is an audit of “intellectual assets” that highlights unique sources, critical functions, and potential bottlenecks, which hinder knowledge flows to the point of use. It protects intellectual assets from decay, seeks opportunity to enhance decisions, services and products through adding

|  | <b>Definition of Knowledge</b>   | <b>Implications for Knowledge Management (KM)</b>   | <b>Implications for Knowledge Management Systems (KMS)</b>  |
|--|--|---|---|
| Knowledge vis a vis Data and Information | Data is facts, raw numbers<br>Information is processed interpreted data<br>Knowledge is personalized information | KM focuses on exposing individuals to potentially useful information and facilitating assimilation of information | KMS will not appear radically different from existing IS, but will be extended toward helping in user assimilation of information |
| State of Mind                            | Knowledge is the state of knowing and understanding  | KM focuses on exposing individuals to potentially useful information and facilitating assimilation of information | Impossible to mechanize state of knowing. Role of IT to provide sources of knowledge rather than knowledge itself.                |
| Object                                   | Knowledge are objects to be stored and manipulated   | Key KM issue is building and managing knowledge stocks  | Role of IT involves gathering, codifying, and storing knowledge   |
| Process                                  | Knowledge is a process of applying expertise   | KM focus is on knowledge flows and the process of creation, sharing, and distributing knowledge                   | Role of IT to provide link among sources of knowledge to create wider breadth and depth of knowledge flows                        |
| Access to Information                    | Knowledge is a condition of access to information  | KM focus is organized access to and retrieval of knowledge content  | Role of IT to provide effective search and retrieval mechanisms for locating relevant information                                 |
| Capability                               | Knowledge is the potential to influence action   | KM is about building core competencies and understanding strategic know-how                                       | Role of IT is to enhance intellectual capital by supporting development of individual and organizational competencies             |

intelligence, increasing value and providing flexibility (grey, 1996).

Knowledge management complements and enhances other organizational initiatives such as total quality management (TQM), business process Re-engineering (BPR) and organizational learning, providing a new urgent force to sustain competitive position.

## II. KNOWLEDGE DEFINITIONS AND THEIR IMPLICATIONS

### *2.1 Knowledge Application*

An important aspect of the knowledge-based theory of the firm is that the source of competitive advantage resides in the application of the knowledge rather than in the knowledge itself. Pentland (1995) argues that it is difficult to make an attribution of knowledge or competence to an organization that does not produce knowledgeable or competent performance. Knowledge, particularly tacit knowledge, is constructed by and is held within individuals. A major challenge in knowledge application in organizations is the absence of a collective mind and a central memory. Due to cognitive limitations, no single individual can be aware of all that is known to the organization as a whole, or can specify in advance what knowledge will be needed, when and where. Organizations are distributed knowledge systems and knowledge is continuously emerging from the organizational members' actions and interactions. Since knowledge is distributed among multiple agents and is dispersed in time and space, knowledge integration is a significant facet of knowledge application in organizational settings.

According to Grant (1996), the essence of organizational capability is the integration of individuals' specialized knowledge to create value through conversion of inputs to outputs in the form of organizational products and services. He further identifies three primary mechanisms for the integration of knowledge to create organizational capability: directives, organizational routines, and self-contained task teams. Directives refer to the specific set of rules, standards, procedures, and instructions developed through the conversion of specialists' tacit knowledge to explicit and integrated knowledge for efficient communication to non-specialists (Demsetz, 1991). Examples include directives for hazardous waste disposal, or airplane safety checks and maintenance. Organizational routines refer to development of task performance and coordination patterns, interaction protocols, and process specifications that allow individuals to apply and integrate their specialized knowledge without the need to articulate and communicate what they know to others. Routines may be relatively simple (e.g., organizing activities based on time-patterned sequences such as an assembly line), or highly complex (e.g., a cockpit crew flying a large passenger airplane). Another example is the use of routines in surgery teams (Grant, 1996) in which each team member performs a highly specialized task in context and sequence of pre-specified operating room procedures with minimal requirements for communicating with other specialists and no need for explicating his/her specialized knowledge. The third knowledge integration mechanism is the creation of self-contained task teams. In situations in which task uncertainty and complexity prevent the specification of directives and organizational routines, teams of individuals with prerequisite knowledge and specialty are formed for problem solving. Group problem solving requires intense communication, coordination, and collaborative processes, which are actualized in the form of frequent interactions and knowledge exchanges among the team members.

Technology can support knowledge application by embedding knowledge into organizational routines. Procedures that are culture-bound can be embedded into IT so that the systems themselves become examples of organizational norms. An example is Mrs. Field's use of systems designed to assist in every decision from hiring personnel to when to put free samples out on the table to transmit the norms and beliefs held by the head of the company to organizational members through systems (Bloodgood and Salisbury, 1999). Technology enforced knowledge application raises a concern that knowledge will continue to be applied after its real usefulness has declined. And, that the dominant logic may persist after the underlying assumptions have changed (Malhotra, 1998). This may lead to perceptual insensitivity of the organization to the changing environment. Organizations may find themselves doing "more of the same" better and better, with diminishing marginal returns (Malhotra, 1998). The

institutionalization of “best practices” by embedding them into IT might facilitate efficient handling of routine, ‘linear’, and predictable situations during stable or incrementally changing environments. However, when change is radical and discontinuous, there is a persistent need for continual renewal of the basic premises underlying the practices archived in the knowledge repositories (Malhotra, 1998). What this highlights is the need for organizational members to remain attuned to contextual factors and not to blindly apply knowledge without appropriate modification to the current environment. A second problem may be deciding what rules and routines to apply to a problem, given that over time, the organization has learned and codified a large number of rules and routines, so that choosing which rules to activate for a specific choice making scenario is itself problematic. Shared meanings and understandings about the nature and needs of a particular situation must be used to guide rule activation (Nolan Norton, 1998). Although there are challenges with applying existing knowledge as discussed, IT can have a positive influence on knowledge application. IT can play an important role in organizational knowledge integration. For example, IT can enhance the organizational knowledge integration and application by supporting teamwork and collaboration in problem solving and decision-making groups. As previously mentioned groupware can greatly enhance group problem solving and decision making through the support of alternative generation, analysis, prioritization and ranking as well as by the development of a group memory. By increasing the size of individuals’ internal networks and by increasing the amount of organizational memory available, information technologies allow for organizational knowledge to be applied across time and space. IT can also enhance the speed of knowledge integration and application by codifying and automating organizational routines. As mentioned in Section 3.4, organizational routines are created to integrate the individual knowledge bases needed for task performance while reducing the need for communicating specialized tacit knowledge held by individuals. Workflow automation systems are examples of IT applications that reduce the need for communication and coordination and enable more efficient use of organizational routines through timely and automatic routing of work-related documents, information, rules and activities. Rule based expert systems are another means of capturing and enforcing well specified organizational procedures. IT can enhance knowledge integration by facilitating the capture, updating and accessibility of organizational directives. For example, many organizations are enhancing the ease of access and maintenance of their directives (repair manuals, policies and standards) by making them available on corporate intranets. This increases the speed at which changes can be applied. Also, organizational units can follow a faster learning curve by assessing the knowledge of other units having gone through similar experiences. For example, a system at the US Army transfers new learning from one site to the next so that later sites traverse a learning curve faster with fewer problems and mistakes (Henderson and Sussman, 1997). The system includes tactical and operational observations structured and then posted on bulletin boards and sent via distribution lists. Formerly, data collection entailed massive amounts of raw data being collected that overloaded the capacity to effectively use the information. The new method involves a quality control element, with analysts indexing the observations and eliminating duplications.

### III. RESEARCH OBJECTIVES

The objectives of this research are to:

1. Studying the impact of knowledge management on company’s processes.
2. Examining the form of contribution - whether tangible or intangible -made by knowledge management to the business outcome.
3. Analyzing the results expected from knowledge management, by business executives, against actual results

### IV. SIGNIFICANCE OF THE STUDY

1. Clearing the uncertainty about knowledge management
2. Providing an insight into the practices needed to manage knowledge successfully
3. Providing empirical data regarding the actual role of knowledge management

## V. SCOPE OF STUDY

- The study is to perform a systematic empirical investigation and evaluations of knowledge management in a few selected well known local companies implementing knowledge management Furthermore, related data will also be gathered from people who have worked with knowledge management.
- Market-place is increasingly competitive and the rate of innovation is rising.
- Reduction in staffing creates a need to replace informal knowledge with formal methods.
- Competitive pressures reduce the size of the workforce that holds valuable business knowledge.
- The amount of time available to experience and acquire knowledge has diminished.
- Early retirements and increasing mobility of the workforce lead to loss of knowledge.
- There is a need to manage increasing complexity, as small operating companies are transnational sourcing operations.
- Change in strategic direction may result in the loss of knowledge in a specific area.

### 5.1 Research Limitations

1. Managing knowledge occurs within a complex structured social context, and it is difficult to cover every aspect of it.
2. Budget constraint can affect the extent of the research.
3. The availability of resource from which empirical data can be collected.

### 5.2 Type of Research

The research to be implemented is quantitative, which follows a deductive research process and involves the collection and analysis of quantitative (i.e., numerical) data to identify statistical relations of variables.

### 5.3 Research Design

The research was planned for gathering data pertaining to knowledge management, by conducting a medium-scale survey among business people working or had worked with knowledge management

### 5.4 Hypotheses

RQ1: On the relation between knowledge management and business performance.

H1: There is an observable contribution by knowledge management to the enhancement of business outcomes of organizations.

H0: There is no observable contribution by knowledge management to the enhancement of business outcomes of organizations.

RQ2: On the relation between the organizational culture and the success of knowledge management.

H1: The norms and disciplines of an organization play a pivotal role in the success of the knowledge management practices.

H0: The norms and disciplines of an organization have little to do with the success of the knowledge management practices.

RQ3: On the relation between the human factor and knowledge shareability.

H1: People's adequate comprehension and attitudes towards knowledge management, are sufficient enough for knowledge to be shared and reused effectively.

H0: People's adequate comprehension and attitudes towards knowledge management, are not sufficient enough for knowledge to be shared and reused effectively.

### 5.5 Population and Sampling Technique

The survey conducted for the research focuses only on employees of major local organizations, which have been around in the business for a long time but have recently implemented knowledge management. The survey uses systematic sampling that relies on arranging the target population according to some ordering scheme, in which the order starts with oldest organization and most recent knowledge management implementation.

### 5.6 Data Collection

Primary data are collected from the survey; a secondary set of supportive data is collected from literature review of the selected journals.

### 5.7 Size of Samples:

The sample size consists of 30 employees working in

- Nivo Controls Pvt. Ltd., Indore
- Scientific Mes-technik Pvt. Ltd., Indore
- Powertech Automation Pvt. Ltd., Indore.

The target respondents were of the same designation

### 5.8 Research Instruments

- Questionnaires are used in the research to collect data
- SPSS, a computer program, is used to analyze the collected data.

### 5.9 Type of Analysis

Three methods are used to analyze the respondent's answers to the Questionnaire questions - regarding the knowledge management contribution, organizational culture and knowledge share ability in respect to their gender, age group, education level and years of experience.

## VI. FINDINGS

- Knowledge management is something that could be beneficial for the organization.
- The Knowledge management practices are: Training, Rotational assignment, Coaching, Documentation, Exit interview, Retiree programs, Mentoring, In electronic industry Knowledge management practices are in growth Stage.
- Organizations recognize Knowledge as an essential part of their asset base.
- The problems related to Knowledge management are: Lack of Information, Information overload, reinventing the wheel, Loss of crucial knowledge due to a key employee leaving the organization, Poor sharing of knowledge in the organization.
- The existing policies and procedures of Knowledge management in the organization is quite important, relevant but not updated regularly.
- According to the employees it takes only a few hours to get relevant knowledge document in organizations. The following describe organization with respect to new knowledge creation-They view it as everyone's job and everybody contributes to it. Top management takes active interest in it and supports it continuously. It's part of our organizational philosophy & culture. It's the job of R&D department only.
- Senior management provides full support in respect to Knowledge management.
- The organizational culture is being described as: They think knowledge management is each and everybody's job and so everybody has the best of knowledge, Their basic values & purpose emphasis on sharing of knowledge, They have an open, encouraging & supportive culture, The prevailing notion is that the knowledge management is the task of a few designated ones and there is no need for knowledge sharing.
- The organization actively creates and supports Communities of practices.

- The cultural barriers in knowledge management are: Lack of participation, Knowledge sharing not a part of daily work, Not willing to share knowledge, Functional silos, Lack of rewards/ recognition for knowledge sharing, Lack of trust, Lack of training.
- The mostly used technologies in organizations are internet & intranet.
- The problems faced in using IT for knowledge management are: Every day use did not integrate into normal working practice, Lack of training, Lack of identifying the proper IT tool, Unsuccessful due to technical problems, Lack of time to learn, System too much complicated, Lack of user uptake due to insufficient communication.
- The Knowledge management is significant in employee development, faster response to key business issues and improving delivery.
- The biggest hurdle in effective implementation of knowledge management: Changing people's behavior from knowledge hoarding to knowledge sharing, Lack of understanding of KM and its benefits, determining what kind of knowledge to be managed & making it available.
- The knowledge provided by government institutions is relevant knowledge.
- The factors influencing knowledge retention in organizations are: Employees leaving for a better job elsewhere, Relocation, Retirement, Promotion, Downsizing and external factors.

#### VII. HYPOTHESIS TESTING:

The hypothesis for the research is: Effective Knowledge Management practices are being used in electronics industry. Majority of the respondents says that, the top management actively takes part in Knowledge Management practices. There are various practices being adopted for its effective implementation. Measures are being taken to decrease the existing barriers. Effective technologies are also being installed in the infrastructure of the organization. Thus the hypothesis for the research is accepted. There is a significant relationship between barriers & facilitator in effective implementation of knowledge management in the organizations of electronic industry. Calculated value of data on SPSS for RQ1, RQ2, and RQ3 are accepted at significance level. There H1 for RQ1: There is an observable contribution by knowledge management to the enhancement of business outcomes of organizations, H1 for RQ2 is The norms and disciplines of an organization play a pivotal role in the success of the knowledge management practices and H1 for RQ3 is People's adequate comprehension and attitudes towards knowledge management, are sufficient enough for knowledge to be shared and reused effectively are accepted at 5% significance level.

#### VIII. CONCLUSION

Knowledge management is one of the key factors determining the success of any electronic organization and also contributes in higher productivity in organizations. Several studies in the area of KM reveal that several factors act as barriers and facilitators to KM are universal to all organization. The study is being done to determine various KM practices being used presently in the electronic industry of Indore. The study is exploratory in nature and focused on specific areas. Knowledge management is beneficial for the organization and is presently in a growth stage. It acts as an essential part of their asset base while facing various problems like improper Lack of Information, Information overload & improper updating of the existing policies and procedures. There are various factors influencing knowledge retention in organizations like relocation, retirement, promotion, downsizing and external factors; while the methods for knowledge management are, training, rotational assignment, coaching, documentation, exit interview, retiree programs and mentoring. By this research we can conclude that Knowledge Management is essential for everyone & everybody should actively take part in it. It has also been seen that senior management provide full support in respect to Knowledge management.

It is fairly evident from the analysis results that; there is an observable contribution by knowledge management to the enhancement of business outcomes of organizations, and that contribution is influenced heavily by the norms and disciplines of an organization. Furthermore, the extent to which knowledge is shared and reused is influenced by the social properties and characteristics of humans, which are partially shaped by the organization culture. For instance, from the findings, we can conclude that the existence of proper organizational guidelines for sharing information leads to an improved level of share ability and communication between employees from the same

department, and also between organizational departments. Thereby, the implementation of knowledge management can be more integral to the business processes, which leads to an observable contribution by knowledge management.

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