

**Knowledge Management: Toward Learning Organization for Improvement in Productivity**

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**ABSTRACT:**

The intellectual property of an organization provides a distinctive edge over the competitors. The new era is of information and communication technology based organizations and enterprises are driven by knowledge driven economy. The customer satisfaction is just not good enough in today's competitive world. The total quality management emphasizes on customer satisfaction through all the aspects of product, service and process quality improvement as also those relating to cost and productivity, whereas knowledge management is concerned with basic input/ output transformation processes. Knowledge of customers need, expectation, raw material and conversion process will lead to better product and better service to the customers which ultimately leads to the better profit margin of the organizations. The enterprises can take informed decisions and be in advantageous positions. The knowledge conversion process is actually a changing and/or improving process. It consists of preserving, embedding and enhancing knowledge of process, products and services. The knowledge conversion process can also be seen as one of knowledge creation, transferring and sharing, and a process of knowledge access improvement as well. The outputs of the transformation are products, services, results that meet customer needs and expectations.

**Keywords:** Knowledge management, Total Quality Management, Critical Success Factor

**1.0 INTRODUCTION:**

In modern days, Innovation is the key for success to any organizations. A number of studies have proved that innovation-based competition is the only way of sustained development in the post-industrial knowledge economy [1]. It is believed that the knowledge-based perspective, innovation should be viewed as a looking at alternative and possible solutions to the problem and implementing them in industrial situation to enhance value and ultimately profit of the organization [2]. The gradual shift from total quality management (TQM) to knowledge management (KM) is closely related since both of them have similar objectives in terms of organizational development [3]. Knowledge gained from the processes involves understanding of problems and accumulation of knowledge and it helps firms to create new knowledge-related capabilities. These capabilities are knowledge intensive, strategic and dynamics in nature [4]. Firms are encouraged to learn and acquire skills, products, technology and knowledge that are unique to the relationship through value creating activities [5]. At the same times, the collaborating firms are forced to preserve their knowledge assets safe and intact.

TQM promotes creating an environment that favours innovation, creativity and taking risks for the satisfaction of clients' needs by solving problems through the incorporation of managers, employees and clients, who make use of quality control within the organization in such a way that, within the KM environment we can find the TQM is characterized for being an operative area giving support to the KM processes and the creation of organizational knowledge, while greatly influencing the management thinking and practice inside public and private sectors. TQM represents an integral management philosophy that contributes to the continuous improvement in all organization's functions. On the other hand, the existence of elements such as 1.- The organization that learns; 2.- Re-engineering of processes in business; 3.- Shaping businesses processes; 4.- Quality administration; and 5.- Movements in

businesses' intelligence that represent the base through which, the KM allows building organizations based in knowledge

TQM evolved from the basic principles of quality assurance, total quality control and covers entire organization for quality control in all aspects of business. Total quality management leads to continuous improvement in product specification and reduce variability. The importance of quality in long-term sustainability and future competitiveness is a well established fact [6,7]. Aim of both TQM and KM is to improve the work-processes of firm and improve customer satisfaction. While former is achieved by quality improvement in all functional areas and at all levels in a firm, while later is applied for continuous performance improvement which embed learning processes [8]. KM is closely related through Deming's principle of TQM. The concept of "profound knowledge" as a cornerstone of quality; the realization that an organization's quality manual is the knowledge asset. The Deming Wheel, of PDCA cycle is nothing but continuous improvement and re-engineering programs. It is very useful for organization to integrate KM and TQM for the benefit of concept for operational improvement and effectiveness [9]. From the theoretical perspective, it is important to recognize the relationship between TQM and KM as it helps expand a broader use of explanatory models developed in a specific context [3].

TQM processes affect the way people create new knowledge and also determine efficiency within the organization. In the studies of the evaluation of quality improvement projects two things are observed: the first one makes reference to the role conceptual and operative learning play in the achievement of goals, the development of new technology knowledge and the change in personnel's attention; the second thing observed is that such process of combining both learning types makes coding and diffusion of this knowledge easier TQM helps on the creation and exchange of knowledge by means of establishing quality principles and methodologies, as these allow generating the necessary conditions for the development of a modern and successful company.

## **2.0 KEY PRACTICES OF TQM**

Several efforts have been done to prove the elements of TQM in the past decade. According to prior TQM research, the constructs of TQM has been categorized in a few ways, even though they complement each other. A complete assessment of TQM literature have shown that TQM practices could be secured in seven areas, being leadership, strategic planning, customer focus, information and analysis, human resource management (HRM), process management and supplier management [10]. A huge amount of previous literatures that confirms the practices of TQM theoretically and practically is mainly based on the criteria of Malcolm Baldrige National Quality Award [11, 12]. The constructs embedded in the TQM practices are leadership, strategy and planning, customer focus, information and analysis, people management and process management [13]. The Malcolm Baldrige National Quality Award (MBNQA) criteria has been acknowledged as representing

The MBNQA criteria enhances economic performance. Six dimensions of TQM practices were formed to signify the main TQM practices in this research comprises leadership, strategic planning, customer focus, process management, human resource management along with information & analysis. Reason behind using these six dimensions are (a) integrate the most well-recognized quality award criteria of leadership, customer and market focus, information and analysis, strategic planning, human resource and people management, (b) comprise the constructs that signify the soft and hard facets of TQM and (c) have been regarded as key practices of TQM implementation in both manufacturing and service industries.

## **2.1 QUALITY STANDARDS AND INITIATIVES**

We decided to focus our analysis on four well known and well accepted quality practices/tools. Quality Management Systems: ISO 9000:2000 standard family Total Quality Management Initiatives, Six Sigma and National Quality Awards (MBNQA & EQA Excellence Models)

**2.1.1 ISO 9000**

The ISO 9000 family of standards aim of ensuring that the organization can time and time again deliver the product or services that meet the client's quality requirements. These set of standardized requirements for a quality management system, regardless of what your organization does, its size, or whether it's in the private, or public sector. Total Quality Management is defined as a management approach that tries to achieve and sustain long-term organizational success by encouraging employee feedback and participation, satisfying customer needs and expectations, respecting societal values and beliefs, and obeying governmental statutes and regulations.

**2.1.2 Six Sigma (6σ)**

Six Sigma is a statistical analysis to measure and improve a company's operational performance by identifying and eliminating "defects" in manufacturing and service-related processes. Commonly defined as 3.4 defects per million opportunities, Six Sigma can be defined and understood at three distinct levels: metric, methodology and philosophy...

**2.1.3 National Quality Awards (NQAs)**

These principles bring a new management and leadership dimensions. When followed, these principles can help improve organizational performance and achieve success. TQM and Six Sigma have been accepted and recognized as critical criteria for organizations to remain competitive but their application has always been problematic. The application of ISO 9004:2000 should facilitate the transition to a full TQM program which requires a deeper organizational change. The main difference between TQM and Six Sigma resides in the word management. Six Sigma initiative is more likely to succeed if it is implemented in an open and quality friendly culture. ISO 9004:2000, if properly implemented should create such a culture where a strong, committed and supportive leadership is present and where employees are motivated. To reach this level of quality excellence organizations needs to have a robust quality system that covers all the aspects of the organization as well as a supportive organizational culture. That is the reason why we believe that the foundations required for attaining such level of excellence resides on successfully implementing the lower layers. Organizations will have to implement only one of the two disciplines presented in the layer three (TQM or Six Sigma). The intersection between ISO 9000 family of standards and TQM resides in the proper application of ISO 9004:2000. As mentioned earlier both of these standards add a quality management perspective to control quality and quality assurance.

TQM cannot be implemented without a serious reconsideration of the business processes of an organization. One of the goals of Six Sigma is to create new processes that will satisfy customer needs or to modify existing ones. The intersection of ISO 9000, TQM and BPR is Kaizen (a philosophy oriented toward continuous improvement). The intersection between Six Sigma and Knowledge Management directly relates to Communities of Practice (CoP). CoP can be defined as a group of individuals with a common working practice who do not, however, constitute a formal work team. Communities of practice generally cut across traditional organizational boundaries and enable individuals to acquire new knowledge otherwise unavailable or at a faster rate. Six Sigma teams can be considered as CoP, due to the fact that they regroup employees from different divisions and very often from different locations around similar activities and interests.

**2.2 THE CONCEPTUAL MODEL AND PROPOSITIONS DEVELOPMENT**

The hypothesized conceptual model is developed to simultaneously examine the relationship between TQM practices and organizational KM behaviours (that is, knowledge acquisition, knowledge dissemination and knowledge application). The link between TQM principles and organizational knowledge management behaviours

Shows that the TQM practices and knowledge management behaviours are independent and dependent variables respectively. The present study thus attempts to bridge the gap by providing a basis for a

thorough and insightful discernment of the influence of TQM practices on knowledge management behaviours. Although the causal relationships among the constructs seem to be straightforward, to our knowledge, the present study is the only one that holistically examines the associations between TQM practices and KM behaviours. In order to make practical statements about TQM multidimensionality and its associations with KM behaviours, the model require further analysis.

### **2.3 PROPOSITIONS BETWEEN TQM PRACTICES AND KM (BEHAVIOURS LEADERSHIP):**

Leadership is described as a link through which one individual have control over the performance and conduct of other individuals to attain a company's set objectives. In the context of TQM, leadership is not so much about power, authority and control, but more of empowerment, recognition, giving guidance and developing others. Hence, one of the most effectual methods for leaders to fuel the energy of a group is to be creative in allowing the group to innovate. Given the existing situation of firms, where its focal point are mainly knowledge based, TQM needs a change in the main organizational elements, in particularly the leadership styles. Management leadership could add tremendously to the core competencies improvement and skills in the course of their role being helpers of organizational learning in the workplace, in particularly by helping to cultivate a knowledge management behaviour environment in which employees are encouraged to apply their inferred and tacit knowledge to solve problems that arises.

Managers play an important role to control the rate of success for KM activities as well as enhancing the process of managing organizational process, furthermore, mission, motivation, systems and structures design for the various activities of a company that supply the means to trade knowledge should come from management leadership. The senior manager's role as a helper in supporting the practice of knowledge management in teams, namely knowledge acquisition, knowledge dissemination and knowledge sharing is vital for the development and enhancement of collective learning ability in organizations Management leadership should portray good examples by freely contributing their knowledge, made known the significance of KM to other workers and also to attempt to cultivate a culture that encourages the sharing and creation of knowledge. In other words, it is vital for management leadership to institute this situation for KM to be effective and leaders do have a vital role to play in creating and maintaining a favourable knowledge management environment. The support given by management leadership should be continuous and be conveyed in a practical manner and such support could then be converted into intensive efforts that would contribute to KM success.

### **3.0 DEFINITION OF KNOWLEDGE MANAGEMENT**

It is obvious that knowledge and innovations provide distinctive advantage in terms of competitive difference and encourages the success of a company [14]. The knowledge economy is found to be based on two premises: the intensive use of knowledge and the speed with which it becomes obsolete. Based on the previous knowledge and experience, individuals and organizations are forced to develop new never-ending learning abilities that allow them to face such challenges [15]. The learning is a valuable asset and a vital factor for production and it is therefore, defined as a mix of experience, values and information, which under a specific context, constitute a reference framework so as to evaluate and incorporate new experiences and information that can be expressed and content in data bases, documents, organizational routines, processes, practices and norms[16]. Knowledge has two categories, tacit knowledge and explicit knowledge. The first one makes reference to personal knowledge, which has the characteristics of being hard to articulate, communicate or reproduce and, it is often related to specific situations. Explicit knowledge instead, can be transmitted or communicated through formal or systematic language [17]. Nowadays, there has been a change from knowledge production based on the old scientific paradigm characterized by the predominance of theory, experimentation, disciplinary and autonomy of scientists and institutions to a more active generation of it by means of trans-disciplinary, specificity, accountability and their social distribution [18]. *It is found*

that knowledge creation model the following four ways of conversion: 1.- From tacit to tacit (socialization), understood as harmonized knowledge; 2.- From tacit to explicit (exteriorization), represented by conceptual knowledge; 3.- From explicit to explicit (combination), symbolized as systematic knowledge; and 4.- From explicit to tacit (internalization), carried out through operational knowledge [19].

This knowledge dynamic has become one of the basic principles in the understanding and correct operation of the KM. In that way, Knowledge Management is considered as a discipline that has the goal to generate, use and share the knowledge existing in spaces and organizations so as to fulfill the individuals' needs and the organizations and communities' development. Among the main benefits from implementing the KM, are generation of synergies among all the organization members, acceleration of the market's innovation and development, and it improves the quality of processes and reduces costs and risks involved in the organization's processes [20].

KM is a broad subject which encompasses a wide range of disciplines that include, but not limited to, cognitive science, communications, individual and organisational behaviour, psychology, finance, human resource management, strategic planning, systems thinking, process reengineering, systems engineering, computer technologies and software and library sciences [21]. The multi-disciplinary nature of KM have posed challenges in the attempts to define what is KM. Different perspectives or schools of KM can yield different dimensions and meaning [22], thus lead to different definitions of KM. As a result, the proposed CSFs are fragmented and diversified.

KM is a systematic, explicit and deliberate building, renewal and application of knowledge to maximise an enterprise's knowledge related effectiveness and returns from its knowledge assets. Specifically, KM deals with two activities: (1) maintaining and applying existing knowledge; and (2) creating new knowledge [23]. The existing knowledge consists of both tacit and explicit knowledge, while new knowledge is created through the interaction among people in the organisation. The implicit purpose of KM is to empower knowledgeable individuals with intellectual tasks and authority, thereby challenging them to obtain the desired behaviour for success [24]. KM is related to the wider discipline of management in the context of overlapping and synergistic relationships in such activities as learning and innovation, benchmarking and practices, strategy, culture and performance measurement [25]. KM as a process of leveraging knowledge as means of achieving innovation in process and products/services, effective decision-making, and organisational adaptation to the market for creating business value and generating a competitive advantage to organisations. Knowledge Management from the approach of its primary activities (the management of knowledge in terms of creation, gathering, organisation, store, diffusion, usage and exploitation of knowledge).

#### **4.0 KM CRITICAL SUCCESS FACTORS (CSF)**

CSFs can be viewed as those activities and practices that should be addressed in order to ensure successful implementation of KM [26]. These practices would either need to be nurtured if they are already in existence or developed if they are still not in place. The set of CSFs should be treated as internal environmental factors that can be controlled by the organisation, not the external environmental forces as organisations would have little control over them when implementing KM. Eleven CSFs to successful KM implementation have been identified,

##### **4.1 EMPLOYEE TRAINING**

Training enables KM implementation because it provides employees and managers an avenue to fulfil their responsibilities, and creates effective work behaviours to support KM principles. Two aspects of training are, firstly, employees have to be sent to attend training programmes related to KM. Secondly, training on issues related to organisational change is vital to support the transformation process in a company and its people. Training on leadership, managing change and company mission and values is equally important for a knowledge-based organisation. Above all, learning organisations



must see training as strategic investment rather than budgeted cost. One of the vital roles of human resource department in building a learning organisation is to teach the change of mindset required to implement KM through assisting employees in creating and using knowledge [27].

#### **4.2 EMPLOYEE INVOLVEMENT**

Employee involvement describes how employees can contribute effectively to meeting the organisation's objectives. It refers to the degree that employees share information, knowledge, rewards and power throughout the organisation [28]. To create a high involvement organisation, recognition must be given to how employees convert their tacit knowledge of the work process into continuous process innovation and improvement [29]. Another strategy is to allow employees to involve in their own job design and evaluation. Another strategy would be to provide an environment where k-workers of various disciplines can come together and create new knowledge [30].

#### **4.3 TEAM WORKING**

Teamwork is one of the CSFs for successful KM implementation. Team are the units that actually carry out the work in many knowledge-intensive organisations [31]. To achieve this, organisational leaders must act as catalysts in building team-oriented organisations [32]. Effective dialogue within a KM team is essential if knowledge is to be embodied and disseminated [33], because valuable knowledge is built from each member's ideas and strengths [34]. One of the organisation's most important tasks is to organise self-organising and cross-functional teams so that k-workers can come together to create new knowledge and present them in an easily accessible format. As such, organisations must create an environment of trust and meaningful relationships within the team in which technology alone cannot facilitate such a relationship [35,36]

#### **4.4 EMPLOYEE EMPOWERMENT**

Empowered employees are given autonomy – the freedom, independence and discretion – over their work activities, which have high levels of task significance – important to themselves and others. When employees are empowered, they will have a sense of ownership in the overall aim of the organisation's KM efforts and thus allows effective creation and sharing of knowledge. Through empowerment, employers can value their employees' expertise and thus help them to communicate their knowledge by creating ways to capture, organise and share knowledge [37]. Empowered employees will take extra responsibilities to solve organisational problems by learning new skills in their jobs [38], making them more competent and therefore contribute to the performance of the organisation [39]. Another aspect of empowerment is on how employees deal with customers. A significant amount of decision making authority must be given to employees when dealing with organisational customers.

#### **4.5 TOP MANAGEMENT LEADERSHIP AND COMMITMENT**

Top management leadership and commitment are the most critical factor for successful KM initiatives [40]. Top management have the greatest ability to enable KM implementation in their organisations. Organisational leaders must show commitment by charting the necessary direction of its KM activities by including KM as part of organisational vision and mission as well as developing a knowledge friendly culture. Top management must demonstrate their support to a KM programme by involving themselves in the knowledge sharing activities. Senior managers must buttress the development of programmes and policies to make it real [35,41].

#### **4.6 INFORMATION SYSTEMS INFRASTRUCTURE**

The effective and efficient implementation of KM is unthinkable without information systems infrastructure, which acts as catalyst improving and disseminating knowledge. While information systems infrastructure is critical to the success of KM implementation, organisations must recognise the role of information systems as enablers to KM. Successful deployment of KM requires an organisation to think in terms of applications and how people use applications; not systems and software [42]. It is not

only technology itself that induces knowledge sharing but rather a separate motivation to share knowledge [43].

#### **4.7 PERFORMANCE MEASUREMENT**

Performance measurement is related to the key areas of the organisation, such as expansion, innovation and productivity, which is critical to the development of prosperity of an organisation [44] and as such, it has been identified as a critical enabler of KM implementation. Since KM deals with intangible assets of an organisation, non-financial indicators are necessary to be developed to measure and capture the impact of KM [44, 45]. Organisations should measure its stock of intellectual capital (brain of its employees, their know-how, knowledge processes and customer knowledge) and capture the soft assets in their balance sheet [46].

#### **4.8 EGALITARIAN (KNOWLEDGE-FRIENDLY)**

knowledge-friendly culture must be present or nurtured in order to achieve KM implementation success. To create a knowledge-friendly culture, an organisation must consider the cultural environment of a company before implementing KM [47] as KM is people-based, not technological [48]. A culture of confidence and trust is required to encourage the application and development of knowledge within an organisation [49]. Top management sells the idea that “knowledge sharing is power”. KM must be included as part of an organisation’s vision and mission. Senior managers must educate its employees so that they could see how they benefit from KM implementation. Long-term rewards such as promotion and advancement opportunities must be provided to employees who openly share their knowledge.

#### **4.9 KNOWLEDGE STRUCTURE**

Knowledge structure has been identified as one of the critical enablers of KM implementation. Reliable, useful, up-to-date and timely knowledge can be captured and created by sharing knowledge with other members of work groups, suppliers and customers. Organisations must be able to recognise the value brought about by the knowledge of its customers and suppliers as important sources of their product and service innovation, thus contributing to their performance. Knowing the importance of customers and suppliers, there must be a well-established knowledge structure, which includes knowledge about internal and external customers, suppliers as well as organisational work groups in order to implement KM successfully [50]. The establishment of extranets that link an organisation with its customers and suppliers are also an important point to consider so that knowledge can be generated and shared between them. Interpersonal interaction and social relationships are more important than the technology itself in order for knowledge to be effectively generated and shared [51].

#### **4.10 BENCHMARKING**

Benchmarking is the systematic or ongoing process of searching for industry-wide best practices that lead to superior performance. Benchmarking as a significant, systematic technique for measuring the companies’ performance toward its strategic goals. Organisations must be aware that once it has benchmarked best practices, it is easier to develop knowledge strategy (capture, share and management of organisational knowledge) and apply the useful knowledge around the organisation [52,53]. Benchmarking is not limited just to process improvement or reuse, but it extends far beyond and promote the growth and acceptance of a learning culture throughout the organisation. Similarly, employees must be encouraged to search for information within the KM system first before they attempt to look for information outside the organisation.

#### 4.11 REMOVAL OF ORGANISATIONAL CONSTRAINTS

To be successful knowledge management organizations it must get rid of their constraints such as rigid regulations, hierarchical bureaucracy, close culture, lack of incentives to be creative, lack of funding to KM initiatives, top management's unwillingness to support KM efforts, improper use of information technology infrastructure may hinder the effort of effectively exploiting the knowledge of an organisation. Organisations must therefore strive to eliminate all the constraints mentioned above that impede KM implementation success. A knowledge-friendly culture must be built and integrated around the knowledge processes. Employees from different departments can be assigned to perform knowledge activities so as to sell the idea of KM to their respective departments. By doing this, the success of an organisation's KM effort is assured.

#### 5.0 CONCLUSION

Knowledge in the minds of enterprise members is the most valuable organisational resource which cannot be left unmanaged. Companies, regardless of small and medium or large, whether established or new, must not underestimate the power of KM. To become learning organisations, it is essential that organisations continuously update their organisational knowledge and create new ones in order for them to survive and grow. To do this, the presence of the proposed CSFs in supporting the organisation's knowledge-intensive processes are especially critical. Equal attention and emphasis must be given to all the CSFs if an organisation wants to compete in the marketplace successfully and to achieve business growth. The factors proposed here would provide organisations with better perspective of how their knowledge activities can be effectively managed in order to maximise their knowledge-related effectiveness and returns from knowledge assets. With effective management of knowledge, organisations will be able to reap benefits and become successful in today's competitive environment.

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