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Full Length Research Paper

Total quality management and knowledge management integrations in library and information centers: a study

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Abstract

Knowledge management (KM) is the name given to the set of organized and disciplined actions that an organization can take to obtain the furthermost value from the knowledge available to it. Knowledge management has received growing attention from 1990. For a few years, it was the next big thing after business process reengineering and Total Quality Management (TQM). This paper describes and compares concepts of KM and TQM. At the end, it concludes that KM and TQM are harmonizing and to be successful, it is necessary to take an integrated approach to management.

Keywords: Knowledge management and Total Quality Management.

INTRODUCTION

TQM is process-oriented, customer-centric and requires a cultural change (Kolarik, 1999). Precisely the same attributes can be assigned to KM. For more than two decades TQM has been the guiding principle for various organizations, both private and public, to produce high quality products (tangible and intangible) and attain high customer (internal and external) satisfaction (Crosby, 1979; Deming, 1986; Ishikawa, 1985; Juran, 1988; Taguchi, 1986). In the early 1980s the focus of TQM was to continuously improve processes by reducing variation and improving the mean of a quality characteristic (e.g., performance). Initially, manufacturing quality was the main aim. However, during 1990s, with the advent of global markets and digital economy, TQM priorities also shifted. TQM now focused mostly on services (rather than tangible/physical goods) and was utilized as a competitive weapon for product/service differentiation in the newly borderless markets where, for the most part, fierce competition made price and quality a non-differentiating factor. It is worth mentioning that during this e-Commerce era, the true spirit of TQM and its main slogan i.e., Customer is King/Queen was practiced. This was mainly due to fierce global competition among the firms as well as availability of various kinds of product related information to the customers.

Knowledge Management Concept and Definitions

Knowledge management has been defined in different ways and from different perspectives. It has been described as “a systematic process for capturing and communicating knowledge people can use.” Others have said it “understands what your knowledge assets are and how to profit from them.” Or the flip side of that: “to obsolete what you know before others obsolete it.” Perhaps the simplest definition of knowledge management is “sharing what we know with others.” In all of these definitions, the emphasis is on human know how and how it brings value to an organization; however, utilizing individual expertise to get maximum return for an organization is not as easy as it may sound.

Knowledge management is the name given to the set of systematic and disciplined actions that an organization can take to obtain the greatest value from the knowledge available to it. “Knowledge” in this context includes both the experience and understanding of the people in the organization and the information artifacts, such as documents and reports, available within the organization and in the world outside. Effective knowledge management typically requires an appropriate combination of organizational, social, and managerial initiatives along with, in many cases, deployment of appropriate technology.

Davenport et al., (1998) defined KM using a project-

based approach: “Knowledge management is concerned with the exploitation and development of the knowledge assets of an organization with a view to furthering the organization’s objectives. The knowledge to be managed includes both explicit, documented knowledge and tacit, subjective knowledge. Management entails all of those processes associated with the identification, sharing and creation of knowledge. This requires systems for the creation and maintenance of knowledge repositories, and to cultivate and facilitate the sharing of knowledge and organizational learning”**.**

Rowley’s definition was based on the four different types of perspectives on knowledge management identified by Thomas H. Davenport et al in their study of a number of knowledge management projects. From the analysis of the projects’ objectives, Davenport et al were able to categorize them into four broad types of perspectives:-

To create knowledge repositories

which store both knowledge and information, often in documentary form. These repositories can fall into three categories:

- Those which include external knowledge, such as competitive intelligence.
- Those that include structured internal knowledge, such as research reports and product oriented marketing materials, such as techniques and methods.
- Those that embrace informal, internal or tacit knowledge, such as discussion databases that store “know how”.

To improve knowledge access and transfer

Here the emphasis is on connectivity, access and transfer.

- Technologies such as video conferencing systems, document scanning and sharing tools and telecommunications networks are central.

To enhance the knowledge environment

so that the environment is conductive to more effective knowledge creation, transfer and use. This involves tackling organizational norms and values as they relate to knowledge.

- Increase awareness on sharing knowledge embedded in client relationship and engagements.
- Provide awards for contributions to the organization’s structured knowledge base.
- Implement decision audit programs in order to assess whether and how employees were applying knowledge in key decisions.
- Recognize that successful knowledge management is dependent upon structures and cultures.

To manage knowledge as an asset and to recognize the value of knowledge to an organization.

The Source Of Knowledge Management

Knowledge management has its origins in four different disciplines that were relatively independent until the late 1990’s. The broad discussion on the emerging knowledge society provided credibility for each of them, emphasizing the importance of the new rules of global, networked, and knowledge-intensive economy. Each of the four different disciplines gained momentum from the perceived ongoing transformation, indirectly amplifying each other.

There are four disciplines of knowledge management as organizational information processing, business intelligence, organizational cognition, and organizational development. The first had its starting point in computer technology, the second on information services, the third on research on organizational innovation, learning, and sense making, and the fourth on business strategy and human resource management.

It is obviously clear that the sources of knowledge management thinking, as mentioned above, had many overlaps. The empirical basis for clustering these different sources or “disciplines” of knowledge management can, however, be found by looking the different communities of practice that were involved. In the mid-1990s, conferences on organizational learning and cognition, business intelligence, and organizational information systems attracted quite different audiences. The concept of knowledge management was sometimes connected with databases, intranets and document management systems, corporate accounting, learning, business strategy, and management of product development processes. This reflects the reality: instead of one well-defined knowledge management discipline there were many. Instead of one “knowledge management”, we, therefore, need several characterizations, which all remain somewhat ambiguous, overlapping, and depend on the point of time which we use.

Characteristics of KM

The challenge of Knowledge Management is to determine what information within an organization qualifies as "valuable.” All information is not knowledge, and all knowledge is not valuable. The key is to find the worthwhile knowledge within a vast sea of information.

- Knowledge Management is about people.
- Knowledge Management is orderly and goal-directed.
- Knowledge Management is ever-changing.

- Knowledge Management is value-added.
- Knowledge Management is visionary.
- Knowledge Management is complementary

Meaning of TQM

The meaning of TQM is customer satisfaction through product or services. The customer in the library is user/reader/student. The primary purpose of library is to support the teaching, research and other academic programs of its parent organization. A library is a part of a service organization which delivers personally to the customers.

TQM is a step towards desired goals. The concept of TQM has come out through the meaning of quality. Therefore it is necessary to understand the meaning of quality.

Total - everyone in the organization is involved in creating and maintaining the quality of the services and products offered.

Quality - the organization through individual and collective actions focuses on meeting customer needs, recognizing that customer perception identifies quality.

Management - in managing the system, the emphasis lies on continuously improving the system in order to achieve the best results.

Definitions

Total Quality Management has been defined variedly in different contexts. There is wide range of definitions or approaches to quality, describing the relative nature of the concept in the context of Library and Information Centers. Some of the definitions are discussed here. “Quality is concerned with meeting the wants and need of customers.”

ISO defined TQM as “A management approach of an organization centered on quality, based on participation of all its members and aiming at long term benefits to all members of the organization and society”

A Brockman has defined that “TQM is a management philosophy, embracing all activities through which the need of customer, the community and the objectives of the organization are satisfied in the mast effective and potential of all employees in continuing drive for improvement.”

TQM is “a system of continuous improvement employing participative management and centered on the needs of customers” Quality is concerned with meeting the wants and needs of customers. One of the key and enduring definitions is that, “Quality is fitness for purpose.” According to the British Standard (4778 (1987) (= ISO 8402, 1986)), quality is defined as, “the totality of features and characteristics of a product of service that bear on its ability to satisfy stated or implied needs.”

According to British Standard BS 7850, TQM is defined as, “Management philosophy and company practices that aim to harness the human and material resources of an organization in the most effective way to achieve the objectives of the organization.”

Capezio and Morehouse defines TQM as follows: “TQM refers to a management process and set of disciplines that are coordinated to ensure that the organization consistently meets and exceeds customer requirements. TQM engages all divisions, departments and levels of the organization. Top management organizes all of its strategy and operations around customer needs and develops a culture with high employee participation. TQM companies are focused on the systematic management of data of all processes and practices to eliminate waste and pursue continuous improvement.”

In general, total quality management is defined as follows (Kanji):

“Quality – is to satisfy customer’s requirement continually

Total Quality – is to achieve quality at low cost

Total Quality Management – is to obtain total quality by involving everyone’s daily commitment”.

TQM is "a system of continuous improvement employing participative management and centered on the needs of customers" (Jurow and Barnard, 1993). Key components of TQM are employee involvement and training, problem-solving teams, statistical methods, long-term goals and thinking, and recognition that the system, not people, produces inefficiencies. Libraries can benefit from TQM in three ways: breaking down interdepartmental barriers; redefining the beneficiaries of library services as internal customers (staff) and external customers (patrons); and reaching a state of continuous improvement (Jurow and Barnard, 1993).

According to Muchlemann and Oakland defines “TQM covers all parts of the organization— for an organization to be truly effective every single part of it, each development, each activity, each person and each level must work properly together because every person and every activity affects and in turn is affected by others”.

Definitions and descriptions of TQM are often vague. It is therefore useful to provide a brief profile of TQM concepts by reviewing the vital principles:

- Customers include internal and external customers.
- Meeting and exceeding customer needs is a clearly stated aim.
- Leadership of TQM stems from the top management and enlists individual and team commitment throughout.
- The highest levels of integrity, honesty and trust and openness are essential ingredients of TQM.
- Mutual respect, mutual trust and mutual benefit of all stakeholders are important factors within the development of any Total Quality organization.
- Total Quality offers each individual the opportunity to participate, contribute and develop a sense of ownership.
- TQM involves continuous and measurable

improvement at all levels of an organization.

- TQM requires consistent and precise performance to high standards in all areas of the organization.

History of total quality management

Total Quality Management is an approach to the art of management that originated in Japanese industry in the 1950s and has become steadily more popular in the West since the early 1980's the field of quality has its roots in agriculture. Early last century in Britain. R.A Fisher conducted statistical research to assist farmers in understanding about plans and this work subsequently inspired Joseph M. Juran and Walter Shewart at Bell Laboratories, whose work motivated W. Edward Deming to devote his life to the teaching and improvement of quality methods.

Deming took the idea of statistical control and transformed it into a method of management, statistical quality control (SQC) which was only an engineering tool became an over archiving management style. Juran in 1954 raised the level of quality management from the factory to the total organization. He stressed the importance of system thinking that begins with product designs, prototype testing, proper equipment operations, and accurate process feedback. Juran provided the move from SQC to total quality control (TQC) in Japan. This included company-wide activities and education in quality control (QC), QC circles and audits, and promotion of quality management principles. Kaoru Ishikawa, one of the fathers of TQC in Japan, had outlined the elements of TQC management includes; Quality comes first, not short-term profits; customer comes first, not the producer; customers are the next process with no organizational barriers; decisions are based on facts and data; management is participatory and respectful of all employees and cross- functional committees covering product planning, product design, production planning, purchasing, manufacturing, sales, and distribution drive management.

During the course of time, Japanese products exceeded the quality of American products and by the 1970's and 1980's, the American car industry begin feeling the effect of Japanese quality products and thereby the entire industries of America were lost to Japan. Genechi Taguchi was instrumental to the Japanese quality drive and often stated, "The quality of a product is the economic loss passed to society once the product has been shipped". This;

- Expose your product to very bad usage conditions, which are closed to the unfriendly treatment of the product by its later customers;
- Vary its design parameters intentionally under these bad conditions; and
- From the information obtained identify and verify the best design.

Need and purpose of tqm in libraries

The need of TQM in libraries due to changing scenario, impact of information and communication technology, information thrust, standardization, user and employee satisfaction, long term planning, management support, quality awareness and quality assurance.

Changing scenario

In this quality era everyone has transformed through quality process. The whole world has turn towards quality. Libraries are also travels in same path. Working style of most of the libraries is changed they accept the challenges and proceed through continuous quality improvement process.

Impact of information and communication technology

Due to technological invention most of the libraries automated and digitized. Users become hi-tech and use library regularly. They visit library websites and portals to search information. A user requires quality services from library staff and that's why library staff engaged in qualitative and continuous improvement process.

Information thrust

User is an important factor of any library. The tremendous changes founds in traditional and modern users. Users are more computer literature and information literature. They use e-resources very promptly.

Standardization

The library products, equipment, and services are following the standards. Patent organization and the libraries transformed through quality standards such as ISO, NAAC and NBA.

User and employee satisfaction

User satisfaction is the key element in the TQM. User satisfaction and Employee satisfaction are directly related to each others; seeing the satisfaction on user faces employees feel happy.

Long-term Strategic Plan

TQM requires a basic reorientation from the users and

organization. Libraries are prepared long range planning for the quality process. For TQM in the libraries a result oriented approach is of very important not the input of resources.

Top Management Support

Management support is an important factor in the quality process. The librarian and subordinate staff receive more support in the from time, money and quality assistance from the top and middle management. Top management is involved in the quality process and designing the policies and audits the same with the help of library staff.

Quality conscious

Consciousness of users, staff and other members of library are intend to change overall functioning of library. This change environment transformed libraries towards TQM.

Quality Assurance

Quality Assurance refers to a program for the systematic monitoring and evaluation of the various aspects of a library projects, service, or facility to ensure that standards of quality are being met. It is important to realize also that quality is determined by the facilitator or program sponsor.

Quality and Total Quality Management

The success of quality management is based on several quality models. Much of perspective and popular literature on TQM subscribes that TQM is “universal” in its application ability. This appears on many levels the institutional, national and certification schemes.(e.g. European Quality Award, the Malcolm Aldridge National Quality award, QS 9000, IS 9000). The proposed TQM model can serve as a prototype for implementing quality improvement programs in manufacturing and service-sector settings.

Total Quality Management and knowledge Management

Similarities and differences

From the perspective of operational processes, KM consists of the basic input/output transformation process. At the input end, there is combination of knowledge of customer’s needs and expectations, knowledge of raw materials and resources to be used, knowledge of products and services to be delivered as well as data information or knowledge.

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. Fostering a knowledge environment that is conducive to knowledge development, use and transfer is vital in the knowledge conversion process.

As we have entered into an information and technological age, knowledge embedded in products and services, intellectual capital and an improved knowledge and understanding of customer needs are among the most important outputs of the knowledge conversion process. The process clearly indicates that knowledge management takes information, knowledge and people as its basic inputs, and applied knowledge and intellectual capital as its desired outputs. KM emphasizes knowledge creation, transfer and embedding to serve different organizational purposes. This may include the enrichment of knowledge of customers, the building of knowledge capital or developing enhanced access to knowledge (Armistead, 1999).

Definitions and descriptions of TQM are often vague. It is therefore useful to provide a brief profile of TQM concepts by reviewing the vital principles:

• Customers include internal and external customers.
• Meeting and exceeding customer needs is a clearly stated aim.
• Leadership of TQM stems from the top management and enlists individual and team commitment throughout.
• The highest levels of integrity, honesty and trust and openness are essential ingredients of TQM.
• Mutual respect, mutual trust and mutual benefit of all stakeholders are important factors within the development of any Total Quality organization.
• Total Quality offers each individual the opportunity to participate, contribute and develop a sense of ownership.
• TQM involves continuous and measurable improvement at all levels of an organization.
• TQM requires consistent and precise performance to high standards in all areas of the organization.
• An aim of TQM is to better use resources, to achieve effectiveness and efficiency (Hellard,1995).

In terms of the input-output process, like KM, TQM is also a process of transformation of a set of inputs including plant equipment and raw materials, procedures and methods, information and knowledge, and people

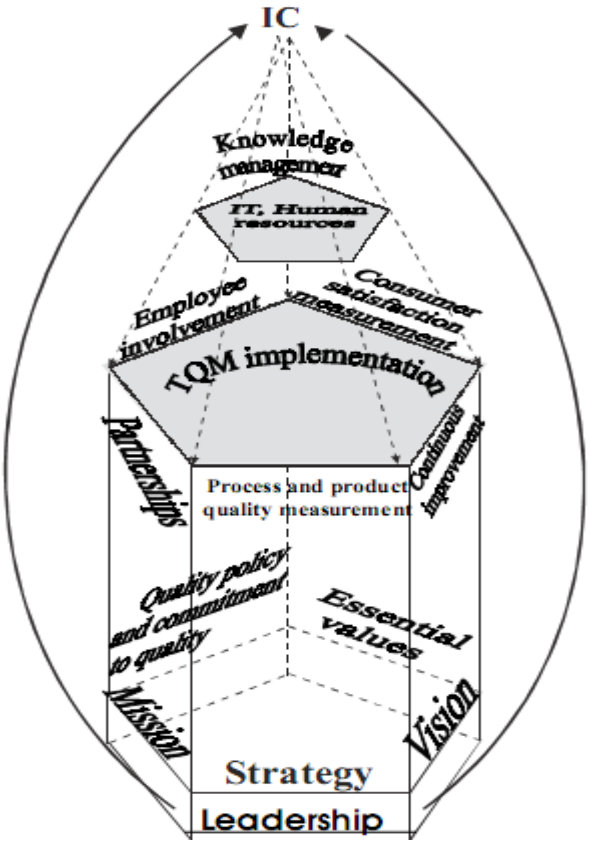

Figure 1. Model for the integration of TQM and knowledge management (IC – intellectual capital; IT – information technology)

and their skills. The outputs of the transformation are products, services, information/paperwork and any results that meet customer needs and expectations.

Both TQM and KM take information, knowledge and people as their basic inputs, and applied knowledge and intellectual capital (may be in the form of information and Paperwork in the case of TQM) as their desired outputs. However, focuses and strategies of both are quite different. KM regards knowledge as the source of competitive advantage. TQM relies on quality processes to achieve customer satisfaction

The integration of TQM and knowledge management

Based on the comparison above we can distinguish four fields of commonality in TQM and KM: similar aims; areas receiving particular attention; the position of the organization in regards to management; as well as issues concerning the financial benefit of implementing these systems. The author proposes the following model for the integration of knowledge management into TQM, which could be used in TQM training and when implementing total quality and knowledge management in an organization (Figure 1).

The model contains the main principles of TQM, which, raising several issues in themselves, can be resolved by KM. However, the least discussed field remains intellectual capital (IC), which is why it is incorporated into the model as a fundamental value within an organization. Human resources and IT are natural extensions of IC, so this is also reflected in the model. The effectiveness of a business reflected in its implementation of TQM principles, so this field is not shown separately in the model.

Intellectual capital is a common point of contact through which corresponding KM strategies could be applied to each TQM principle – depending on the essence and content, resolutions from the IT and/or human resources fields may also be applied. When analyzing the potential benefits and advantages of KM measures in total quality management it is important to note that it may be especially difficult to attain these goals if the actions undertaken by the leadership are not aligned in support of KM. Also important is the creation of strategies that would encourage the creation, storage and dispersal of knowledge in an organization. The sharing of knowledge should become one of the essential values within an organization, while business managers should regard employee training and passing knowledge on to

others as one of the most important priorities of an organization.

FINDINGS

TQM is shown to be an effective enabler of knowledge generation. TQM provides policies and tools (such as general involvement of all employees, teamwork, feedback mechanisms, and widespread communication) that are inherently useful as enablers of knowledge creation and dissemination.

CONCLUSION

A contemporary library and information center must not only effectively manage the quality of its product and practices but also master and implement quality measurement knowledge management. KM is an interdisciplinary concept covering the greater part of library and information center's activities. The main field of KM is the use and development of library and information center's knowledge resources in order to meet its goals. Explicit documented knowledge needs to be managed as much as tacit subjective knowledge. Library managers need to establish and determine all the processes related to the identification, creation, storage and dispersal of knowledge. For this to occur library and information center must implement a system that would train employees how to create, store, maintain, safeguard and share knowledge. Although the concepts of TQM and KM are markedly different there are four fields of commonality: goals; areas receiving particular attention; the position they hold in the library in terms of its general management; and issues regarding the financial benefits of implementing these systems. The author has devised a model that integrates knowledge management into TQM, which could be used in TQM training and while implementing TQM and knowledge management in library.

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