

Relationship between Total Quality Management, Knowledge Management and Organizational Performance in IT organization.

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Abstract: The purpose of this paper is to examine the relationship between Total Quality Management, Knowledge Management and Organizational Performance among the employees of IT organization. A sample of 250 employees was drawn from the population of 900 employees using a structured questionnaire working in leading IT services organization of Particular district. The result of the analysis revealed that Leadership Commitment, Strategic Planning, Recognition and Reward, Involvement of Employee and Quality training were the significant predictors of Knowledge Management. The analysis also revealed that Knowledge Identification, Knowledge Acquisition, Knowledge Storage and Knowledge Sharing were the significant predictors of Organizational Performance. It also revealed that Leadership Commitment, Strategic Planning, Continuous Improvement, Recognition and Reward, Involvement of Employee and Quality Training were the significant predictors of Organizational Performance. So, it was concluded that the Total Quality Management core elements and principles are significantly influenced the Knowledge Management, which in turn influenced by the Organizational Performance.

Keywords: knowledge Management, Organizational Performance, Total Quality Management

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I. INTRODUCTION

One of the most important issues that businesses have focused on in the last 20 to 30 years has been Quality. Quality management is a part of management aimed at achieving quality goals through planning, monitoring, assuring and improving quality. In modern conditions, quality management becomes a business function as well as any other function, involving people of all profiles and from all the departments of the organization.

Quality must be consciously managed in order to satisfy quality demands. quality management is "an integral part of management, whose role is to reach quality objectives, which are reflected not just in providing but also in improving quality. This is achieved by managing the activities derived from the established quality policies and plans, and is carried out within the quality system, using, among other things, the appropriate quality monitoring plan." Total Quality Management can be viewed as a strategic attempt of a firm's management directed towards the harmonization and continuous improvement in all functional aspects of an organization with the aim of satisfying customer's need(Oakland,2014)

Total Quality Management is defined both a philosophy and a set of guiding principles that represent the foundation of a continuously improving organization. Total quality Management integrates fundamental management techniques, technical tools and existing improvements in a disciplined manner.TQM is the art of managing the whole to achieve excellence. TQM is not a programme for a specific period, but it is the way of life focused towards continuous improvement of an organization.

Total Quality Management means that the organization's culture is defined by and supports the constant attainment of customer satisfaction through an integrated system of tools, techniques and training. This involves the continuous improvement of organizational processes resulting in high quality products and services.

Total Quality Management is a philosophy of management that leans heavily on the works of the legendary quality gurus like Shewhart, Deming, Juran, Feigenbaum, Ishikawa, Crosby, and Taguchi. The writings of these individuals as well as the application of their philosophy of Total Quality Management into actual practice on the war-devasted factory floors of Japanese companies and later on in some American companies, helped in blooming the nascent bud of Total Quality Management into a modern day all powerful management tool This helped us in identifying some characteristics of Total Quality Management.

The three aspects of Total Quality Management are:-

- Counting - Tools, techniques and training in their use for analysing, understanding and solving quality problems.
- Customers -Quality for the customer as a driving force and central Concern.
- Culture - Shared values and beliefs, expressed by leaders, that define support quality.

1.1 Knowledge Management

Knowledge management has without any drought become one of the most interesting research topics in the last couple of years. Although much has been researched and published in knowledge management, still many questions remain unanswered. Knowledge management is a conscious effort to get the right knowledge to the right people at the right time so that it can be shared and put into action. (Mathis and Jackson, 2010).

Effective knowledge management is most successful where systems are sufficiently open and flexible to allow creativity to flourish, whilst also possessing the necessary formality and discipline to ensure the production of tangible outcomes (Graham and Pizzo, 1996). Bureaucracy and formal communication tend to inhibit the spontaneity, experimentation and freedom of expression necessary to provide innovative responses to environmental change; however they do capture, control and connect knowledge. On the one hand, individuals must be free to interpret information and encouraged to seek knowledge, be innovative and creative but can only do this to best advantage in an organised systemic context (Bennett and Gabriel, 1999).

1.2 Technology

In principle, ICTs would appear to offer individuals and organisations faster, cheaper, broader sources of data and enable information exchange and the capturing, generating, sharing and storage of knowledge (Walsham, 2001). The availability of a range of new technologies and tools has been a major catalyst to knowledge management initiatives (Davenport and Prusak, 2000; Alavi and Leidner, 2001; Barret et al., 2004; Alavi and Tiwana, 2005) and some, such as e-mail, video-conferencing and virtual teaching and learning for a, provide valuable learning support (Barret et al., 2004). However, the importance of face-to-face contact cannot be overlooked, particularly in the dissemination of tacit knowledge (McKinlay, 2002), both in terms of one-to-one and one-to-many interaction. Such behavior is vital to develop and foster trust relationships between people (Maznevski and Chudoba, 2000; Barret et al., 2004). Further, research by Alavi and Tiwana (2005) demonstrated that perceptions of knowledge management technology are shaped by individual embedded values, which in turn lead to different patterns of technology use. Different features of knowledge management technologies may be more or less important depending on their intended purpose. Finally, one must consider the issue of cost effectiveness on which ICTs depend (Barret et al., 2004) and the balancing of benefits, such as superior technical performance and quality, with deficits, such as poor infrastructure, outdated systems and high maintenance budgets. For some, the decision to implement tools is based on the assumption that technology can be the panacea for knowledge problems, however, as McDermott (1999) points out, most organizations which have engaged with ICTs soon find the leveraging of knowledge through the use of technology difficult to achieve.

1.3 Culture

Studies have claimed that in fact technology contributes only 20 per cent of the entire success of knowledge management, compared to people and culture (Davenport and Grover, 2001). Though this figure may well be arbitrary, the point remains that technology may play a marginal role in the overall success. Whilst technology is by no means unnecessary, it must be employed in a culture that promotes knowledge sharing (Fahey and Prusak, 1998; Liebowitz, 1999). Janz and Prasarnphanich (2003) believed organizational culture to be the most significant and effective input to knowledge management and organizational learning. Further, McDermott and O'Dell (2000) claim that, no matter how strong the commitment and approach to knowledge management, the organisational culture has a much stronger impact. De Long and Fahey (2000) demonstrated that values such as trust and collaboration lead to greater willingness to share insights and expertise, whilst values that emphasize individual power and competition lead to knowledge hoarding. Lee and Choi (2003) found a positive relationship between organizational cultures, such as collaboration, trust and learning, and the knowledge creation process. The importance of trust for collaborative knowledge sharing, learning and innovation has been identified in many multi-disciplinary research networks (Brown and Duguid, 1991; Dodgson, 1993; Jones and George, 1998; Newell and Swan, 2000). Additionally, a learning culture and a learning climate are closely related and have a significant impact on the individual, the team and the organisation as a whole, either encouraging or impeding learning and knowledge sharing.

The emergence of a globalised world in a frame work of competitions together with the pressure of an exploding knowledge base has given rise to new challenging roles for the employees. Therefore, the present study reveals the active status of Employee Total Quality management, knowledge management and organizational performance among employees in leading IT company in particular district.

1.4 Objective of the Study

- To Study the Demographic Profile of Employees working in Selected IT Company.
- To examine the impact of total quality management on knowledge management
- To examine the impact of knowledge management on organizational performance
- To examine the impact of total quality management on knowledge management
- To examine the impact of total quality management on organizational performance
- To validate the research model

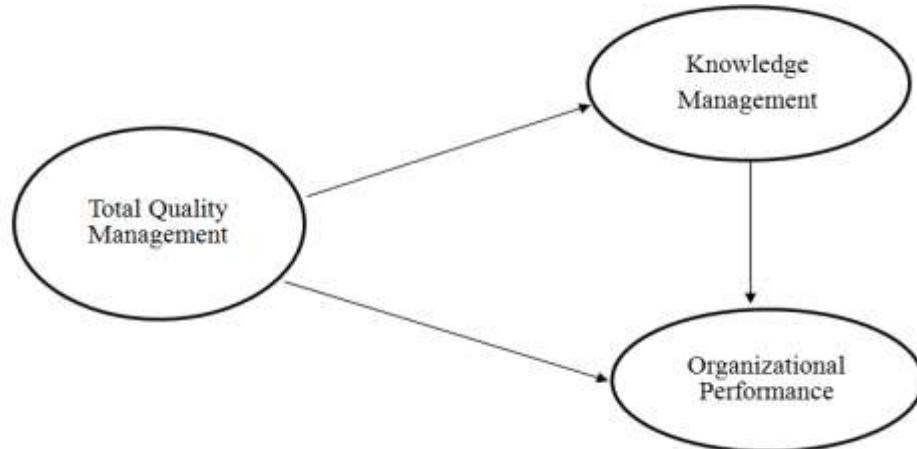


Fig. Conceptual Research Model

II. II. REVIEW OF LITERATURE

D. Ardit and H. Hurat (2000) published a paper in which they dealt with a Total Quality Management programme in the construction process. This research explains the main elements of total quality management in construction industry. The main elements of TQM that are still applicable and essential to the implementation of a successful quality system in construction organizations are leadership and management commitment, training, communication, teamwork, customer satisfaction, continuous improvement, process improvement, supplier involvement, focus on employee. Raji Al-Ani and Firas I. Al-Adhmawi (2012) stated that reviewing literature pertinent to quality management concepts and its application in construction industry has formulated the definition of "Quality Management" as meeting the owner's requirements or compliance with the set standards and specifications. This definition can be realized through the application of quality management concepts which are represented by "Total Quality Management" TQM as a higher management level which has been achieved by quality management works.. In turn, such management can be attained by a specialized management field named "Quality Management". The researchers have recommended a proposed Quality Management System for Construction Site aiming: firstly to raise the quality level of works in construction projects, and secondly to improve the construction staff consciousness, in different managerial levels, about quality management concepts and its importance for improving the quality of construction works. The researchers have come out with certain conclusions, above all is that this proposed quality management system for construction site will improve conducting quality management concepts in achieving construction works by construction companies.

Tarak Elghramrawy Tomoya Shibayama (2008) The study recognizes TQM as a successful philosophy which can be implemented in the construction Industries in Egypt. A comparison of management system is made between a Japanese company working in Egypt with the Egyptian company, to demonstrate how TQM can be implemented effectively in the Egyptian construction industry. Based on the research, the paper presents the following: i. The Characteristics of the Egyptian Construction industries. ii. Issues in Application of TQM in Construction industries. iii. Some features of the Japanese construction industry which could be applied in the Egypt. iv. Proposed a new model for TQM implementation which is suitable to Egyptian construction industries. New Model proposed to implement TQM through the following steps: 1.) Commitment by Top Management 2.) Orientation 3.)Planning of the Program 4). Training on the TQM 5.) Conducting the Quality Projects 6.) Improving Job site quality Ang Chooi-Leng,Davies,Mark,Finlay, paul(2001) revealed that The importance of information technology (IT) in (TQM) has been described widely in the literature. However, empirical evidence for such a claim is still not well established. This paper has empirically explored the use of IT to support TQM processes in the Malaysian public sector. The findings reveal that the level of IT usage varies among the nine dimensions of TQM. Important innovations and information and analysis exhibit high levels of IT usage whereas quality results and supplier quality assurance are associated with significantly lower level.

Sánchez-Rodríguez, Cristóbal; Martínez-Lorente, Angel Rafael(2011) revealed that the present study aims to draw on operations management and information technology literature to examine the effect of three information technology resources (electronic data interchange (EDI), computer-aided design and manufacturing (CAD/CAM), and enterprise resource planning (ERP) systems) and three related quality management capabilities (customer and supplier relations, product and process management, and quality data and workforce management) and their effect on a firm's quality performance. Hypotheses derived from the key features of quality management and information technology presented by previous authors are tested using structural equation modeling through field research on a sample of 229 manufacturing companies in Spain. Findings from this study indicate that there is significant evidence to support the hypothesized model in which information technology resources (EDI, ERP systems, and CAD/CAM systems) have a direct impact on related quality management capabilities (customer and supplier relations, product and process management, and quality data and workforce management) as well as an indirect impact on quality performance mediated through quality management capabilities. The discrepant findings in the literature suggest the need to identify contingencies that may govern the IT-performance relationship. This study focuses on the interplay between information technology, quality management, and quality performance. Meenu Dave, Mikku Dave and Y.S. Shishodia (2012) had undertaken a study titled on Emerging Trends and Technologies in Knowledge Management: A Holistic Vision. The economies have been continuously evolving over the past sixty years and that even at a rapid pace in the last two decades. Intellectuals, scholars and think-tanks from disciplines as diverse as Economics, Information Technology and Management Science generally agree that knowledge has been the pivot of this transformation. Acknowledging the Importance of knowledge management and the complexity of its nature, it will be very advantageous to try to comprehend the upcoming trends & technologies concerning knowledge and knowledge management. In an attempt to address this issue, this paper throws light on such interesting issues and views them closely. The aim of this paper is to investigate the current understanding of such emerging and existing knowledge management technologies William R. King (2009) had undertaken a study titled on Knowledge Management and Organizational Learning. For centuries, scientists, philosophers and intelligent laymen have been concerned about creating, acquiring, and communicating knowledge and improving the re-utilization of knowledge. However, it is only in the last 15–20 years or so that a distinct field called "knowledge management"(KM) has emerged.KM is based on the premise that, just as human beings are unable to draw on the full potential of their brains, organizations are generally not able to fully utilize the knowledge that they possess. Through KM, organizations seek to acquire or create potentially useful knowledge and to make it available to those who can use it at a time and place that is appropriate for them to achieve maximum effective usage in order to positively influence organizational performance. It is generally believed that if an organization can increase its effective knowledge utilization by only a small percentage, great benefits will result. Organizational learning (OL) is complementary to KM. An early view of OL was "...encoding inferences from history into routines that guide behavior" So, OL has to do with embedding what has been learned into the fabric of the organization. Kotter et al., (1992) also believe that values have been associated with the organization performance over a long period of time. A particular culture existing in an organization is evident from the style and the manner in which an organization performs its function. Employees, being the important organ, adopt perception of the organization and perform their role accordingly. Employees working in an organization since long either become part of the system or remain instrumental in the development of the prevalent culture. However, new employees adopt the culture and develop their capability accordingly. Moreover, high performing organizations would tend to induct newcomers with demanding skills and expect them to excel in their portfolio. Thompson and Strickland, (2001) two very distinct types of performance yardstick from companywide perspective are those relating to financial and strategic performance. Achieving acceptable level of financial results is crucial. The argument is that without adequate profitability, a company's pursuit of its vision as well as its long term health and ultimate survival is jeopardized. Besides, neither shareholders nor creditors will continue to sink additional funds into an enterprise that can't deliver satisfactory financial results. Even so, the achievement of financial performance by itself is not enough. Managers must also pay attention to the company's strategic well being- its competitiveness and overall long term business position. Unless a company's performance reflects improving competitive strength and stronger long term market position, its progress is less than inspiring and its ability to continue delivering good financial performance is suspect. The central issue associated with organizational culture is its linkage with organizational performance (Denison and Fey, 2003).Geeta Rana and Alok Goel(2012) Knowledge management is a managerial activity which develops, transfers, transmits stores and applies knowledge, as well as providing the members of the organization with real information to make the right decisions, in order to attain the organization's goals. Organizations operate in all areas through people and it is their contribution which determines success and it is their skills and knowledge which need to be cultivated and then leveraged to create competitive advantage. This paper examined the relationship between knowledge management (KM) and human resource management practices and help organizations as they embark on their KM journey.

2.1 Research Gap

It is clear from the literature review that there are few studies for the existence of the studies which linked the total quality management, knowledge management and organizational performance together. This research gap can be filled by studying the predecessor and successor relationship between the exogenous variable under consideration and link them to above said constructs.

III. RESEARCH METHODOLOGY

This is basically an empirical study and as the name suggests it relies on experience or observation alone, and it can even be without due regard for system and theory (Kothari, 2004). This is basically a data-based research, which can give conclusions based on observation. As far as the approach is concerned, it is both qualitative as well as quantitative in nature. Literature pertaining to Total Quality Management, knowledge Management and Organizational Performance have been studied to understand the relevance of each one of them and also to study their antecedents and consequences of the same and used in the formulation of the working hypothesis.

3.1 Respondents

The respondents are employees who are working in a leading IT company in a particular district of Tamil Nadu. The workforce comprises over 900 employees. The sample size of the study is 250 employees. Simple random sampling was adopted. Pilot study was undertaken with a sample of 60 random employees so that necessary modifications can be incorporated to enhance the quality of survey instrument. The reliability and convergent validity of the instrument have been verified. Finally, the metric in the form of a self-administered questionnaire with 5-point Likert scale was distributed to 900 employees and 250 completed questionnaires were taken for the study as sample size.

3.2 Questionnaire

The questionnaire was classified into two parts. Part I consists of questions seeking information about demographics (such as Name, age, gender, Marital Status, educational qualifications, experience, department, designation and Annual Income.). The part II consists of the conceptual factors such as Leadership Commitment with 9 questions, Strategic Planning with 8 questions, Continuous Improvement with 5 questions, Recognition and Reward with 4 questions, Involvement of Employee with 5 questions, Quality Training with 6 questions, Knowledge identification with 3 questions, Knowledge Acquisition with 3 questions, Knowledge Storage with 3 questions, Knowledge Sharing with 3 questions, Collaboration around improvement Strategy with 4 questions, Employee Involvement in Instructional Decisions with 3 questions, Shared Understanding of effective Practice with 3 questions. The scaling values are 1- Strongly Agree; 2- Agree; 3- Neutral; 4- Disagree; 5- Strongly Disagree.

3.3 Demographic Profile

Out of 250 respondents, 61 percent of the employees are Males. 29 percent of the employees are between the age group of 20-25 years. 67 percent of the employees are married. 43 percent of employees are having experience of 5 – 10 years, 53 percent of employees are UG degree holders. About 48 percent of employees were in cadre of Software Engineers. 35 percent of employees are working in development department. About 39 percent of employees were drawing a yearly salary ranging from 2, 00,000 to 4, 00,000 per annum.

3.4 Reliability and validity

The questionnaires were administered personally and the contents explained to some staff who requested to be guided. A total of two hundred and fifty (250) responses were obtained from the employees of IT services organization. The table 1 revealed that all the constructs namely Demography , Leadership Commitment , Strategic Planning , Continuous Improvement , Recognition and Reward , Involvement of Employee , Quality Training , Knowledge Identification , Knowledge Acquisition , Knowledge Storage , Knowledge Sharing , Collaboration around improvement Strategy , Employee Involvement in Instructional Decisions , Shared Understanding of effective Practice values 0.88,0.89, 0.82, 0.80, 0.97 , 0.84,0.98 , 0.80, 0.98 , 0.81, 0.90 , 0.85 , 0.94 respectively which is greater than an alpha value of 0.60 (Nunnally, J.C.,& Berstein, I.H.1994).

Table 1. Reliability and validity

Constructs	Number of items	Alpha value	AVE Value
Leadership Commitment (LC)	09	0.88	0.88
Strategic Planning (STP)	08	0.89	0.86
Continuous Improvement (CI)	05	0.82	0.88
Recognition and Reward (RR)	04	0.80	0.81

Involvement of Employee (IE)	05	0.97	0.85
Quality Training (QT)	06	0.84	0.85
Knowledge Identification (KI)	03	0.98	0.90
Knowledge Acquisition (KA)	03	0.80	0.82
Knowledge Storage (KS)	03	0.98	0.89
Knowledge Sharing (KSH)	03	0.81	0.82
Collaboration around improvement Strategy (CS)	04	0.90	0.83
Employee Involvement in Instructional Decisions (ED)	03	0.85	0.88
Shared Understanding of effective Practice (SP)	03	0.94	0.82

Convergent validity of all the constructs was examined using the measure of Average Variance Extracted (AVE) that is the average variance shared between a construct and its items (Fornell & Larcker, 1981). A construct with an AVE of over 0.5 is expected to have adequate convergent validity. In some cases, values up to 0.40 of AVE are also considered to be acceptable if they are central to the model. (Chin et al 1999 & 2003). The AVE of each of the study constructs is presented in Table 1.

IV. ANALYSIS AND RESULTS

4.1 Validation of Model through PLS-PM – Model I

The construct level correlation has been presented in table 2. It exhibits that there exists a positive correlation among the variables of Total Quality Management and Knowledge Management.

Table 2. Construct Level Correlation of Model I

Hypothesis	Independent Variables	Dependent Variable	Pearson Correlation	Sig. (I tailed)
H ₁	LC	KM	0.808	0.00
H ₂	STP		0.832	0.00
H ₃	CI		0.803	0.00
H ₄	RR		0.536	0.00
H ₅	IE		0.840	0.00
H ₆	QT		0.753	0.00

** Correlation is significant at the 0.01 level (I-tailed)

The table 2 reveals that the hypotheses presented (H₁ to H₆) were tested using PLS, which provides beta coefficients that can be interpreted in the same manner as the OLS regression coefficients. Using PLS, the study hypotheses were tested by examining the direction, size and significance of the paths from independent variables to dependent variables. Significance of the paths was examined using Bootstrapping technique. The hypothesized model I Explained that a variance of 80% in the variables of Total Quality Management on Knowledge Management. The construct correlation has been presented in table 2. It exhibits that there exists a positive correlation between LC and KM ($r= 0.808$), STP and KM ($r=0.832$), CI and KM ($r=0.803$), RR and KM ($r= 0.536$), IE and KM ($r= 0.840$), QT and KM ($r=0.753$) and from this all the correlation coefficient between LC and KM, CI and KM, RR and KM, IE and KM, QT and KM positively significant at 0.01 level.

Table 3. Bootstrap Summary of Structural Equation Modeling and Hypothesis Results of Model I

Hypothesis	Dimensions	Entire sample estimate	Mean of sub samples	Standard error	T- Statistic	R Square value	Results
H ₁	LC->KM	0.159	0.1524	0.0782	2.034	0.800	Significant
H ₂	STP->KM	0.245	0.256	0.0678	3.611		Significant
H ₃	CI->KM	0.100	0.1034	0.0711	1.406		Insignificant
H ₄	RR->KM	-0.089	-0.0899	0.043	-2.081		Significant
H ₅	IE->KM	0.364	0.3641	0.063	5.739		Significant
H ₆	QT->KM	0.170	0.1672	0.061	2.788		Significant

The result shown in Table 3 revealed that Leadership Commitment has significant influence on Knowledge Management(Beta= 0.159, t value=2.0342). Strategic Planning has significant influence on Knowledge Management(Beta= 0.245, t value=3.6144) . Continuous Improvement has insignificant influence on Knowledge Management (Beta= 0.1, t value=1.4066).Recognition and Reward has significant influence on Knowledge Management(Beta= -0.089, t value=-2.0818). Involvement of Employee has significant influence on Knowledge Management (Beta0.364, t value=3.6144). Quality Training has significant influence on Knowledge Management (Beta= 0.17, t value=2.7875).

4.2 Validation of Model through PLS-PM – Model II

The construct level correlation has been presented in table 4. It exhibits that there exists a positive correlation among the variables of Knowledge Management and Organizational Performance.

Table 4. Construct Level Correlation of Model II

Hypothesis	Independent Variables	Dependent Variable	Pearson Correlation	Sig. (I tailed)
H_7	KI	OP	0.788	0.00
H_8	KA		0.816	0.00
H_9	KS		0.757	0.00
H_{10}	KSH		0.757	0.00

** Correlation is significant at the 0.01 level (I-tailed)

The table 4 reveals that the hypotheses presented (H_7 to H_{10}) were tested using PLS, which provides beta coefficients that can be interpreted in the same manner as the OLS regression coefficients. Using PLS, the study hypotheses were tested by examining the direction, size and significance of the paths from independent variables to dependent variables. Significance of the paths was examined using Bootstrapping technique.

The hypothesized model II Explained that a variance of 75.7% in the variables of Knowledge Management on Organizational Performance. The construct correlation has been presented in table 4. It exhibits that there exists a positive correlation between KI and OP ($r= 0.788$), KA and OP ($r=0.816$), KS and OP ($r=0.757$), KSH and OP ($r= 0.757$) and from this all the correlation coefficient between KI and OP, KA and OP, KS and OP and KSH and OP are positively significant at 0.01 level.

Table 5. Bootstrap Summary of Structural Equation Modeling and Hypothesis Results of Model II

Hypothesis	Dimensions	Entire sample estimate	Mean of sub samples	Standard error	T- Statistic	R Square value	Results
H_7	KI->OP	0.255	0.2531	0.0609	4.1849	0.757	Significant
H_8	KA->OP	0.294	0.3001	0.0609	4.8264		Significant
H_9	KS->OP	0.167	0.1714	0.0411	4.0631		Significant
H_{10}	KSH->OP	0.25	0.2448	0.0494	5.0574		Significant

The result shown in Table 5 revealed that Knowledge identification has significant influence on Organizational Performance (Beta= 0.255, t value=4.1849). Knowledge Acquisition has significant influence on Organizational Performance (Beta= 0.255, t value=4.1849).Knowledge Storage has significant influence on Organizational Performance (Beta= 0.617, t value=4.0631). Knowledge Sharing has significant influence on Organizational Performance (Beta= 0.25, t value= 5.0574).

4.3 Validation of Model through PLS-PM – Model III

The construct level correlation has been presented in table 6. It exhibits that there exists a positive correlation among the variables of Total Quality Management and Organizational Performance.

Table 6. Construct Level Correlation of Model III

Hypothesis	Independent Variables	Dependent Variable	Pearson Correlation	Sig. (I tailed)
H_{11}	LC	OP	0.799	0.00
H_{12}	STP		0.822	0.00
H_{13}	CI		0.783	0.00
H_{14}	RR		0.622	0.00
H_{15}	IE		0.786	0.00
H_{16}	QT		0.805	0.00

** Correlation is significant at the 0.01 level (I-tailed)

The table 6 reveals that the hypotheses presented (H_{11} to H_{16}) were tested using PLS, which provides beta coefficients that can be interpreted in the same manner as the OLS regression coefficients. Using PLS, the study hypotheses were tested by examining the direction, size and significance of the paths from independent variables to dependent variables. Significance of the paths was examined using Bootstrapping technique. The hypothesized model III Explained that a variance of 77.1% in the variables of Total Quality Management on Organizational Performance. The construct correlation has been presented in table 6. It exhibits that there exists a positive correlation between LC and OP ($r= 0.799$), STP and OP ($r=0.822$), CI and OP ($r=0.783$), RR and OP ($r= 0.622$), IE and OP ($r= 0.786$), QT and OP ($r=0.805$) and from this all the correlation coefficient between LC and OP, CI and OP, RR and OP, IE and OP, QT and OP positively significant at 0.01 level.

Table 7. Bootstrap Summary of Structural Equation Modeling and Hypothesis Results of Model III

Hypothesis	Dimensions	Entire sample estimate	Mean of sub samples	Standard error	T- Statistic	R Square value	Results
H_{11}	LC->OP	0.343	0.3411	0.019	18.0526	0.771	Significant
H_{12}	STP->OP	0.097	0.0974	0.0035	27.7143		Significant
H_{13}	CI->OP	0.075	0.0748	0.002	37.5		Significant
H_{14}	RR->OP	0.006	0.0062	0.002	3		Significant
H_{15}	IE->OP	0.15	0.151	0.01	15		Significant
H_{16}	QT->OP	0.309	0.31	0.0096	32.1875		Significant

The result shown in Table 7 Leadership Commitment has significant influence on Organizational Performance(Beta=0.343, t value=18.0526).Strategic Planning has significant influence on Organizational Performance(Beta=0.097,tvalue= 27.714).Continuous Improvement has significant influence on Organizational Performance (Beta= 0.075, t value=37.5), Recognition and Reward has significant influence on Organizational Performance (Beta= 0.006, t value=3).Involvement of Employee has significant influence on Organizational Performance (Beta= 0.15, t value=15). Quality Training has significant influence on Organizational Performance (Beta= 0.309, t value=32.1875).

4.4 Validation of Model through PLS-PM – Model IV

The construct level correlation has been presented in table 8. It exhibits that there exists a positive correlation among the variables of Total Quality Management, Knowledge Management and Organizational Performance.

Table 8. Construct Level Correlation of Model IV

Hypothesis	Independent Variables	Dependent Variable	Pearson Correlation	Sig. (I tailed)
H ₁₇	TQM	KM	0.874	0.00
H ₁₈	TQM	OP	0.878	0.00
H ₁₉	KM	OP	0.868	0.00

** Correlation is significant at the 0.01 level (I-tailed)

The table 8 reveals that the hypotheses presented (H₁₇ to H₁₉) were tested using PLS, which provides beta coefficients that can be interpreted in the same manner as the OLS regression coefficients. Using PLS, the study hypotheses were tested by examining the direction, size and significance of the paths from independent variables to dependent variables. Significance of the paths was examined using Bootstrapping technique. From the model IV it is understood that Total Quality Management explained that a variance of 76% in Knowledge Management where as Total Quality Management and Knowledge Management put together and explained a variance of 81% in the Organization Performance. The construct correlation has been presented in table 8. It exhibits that there exists a positive correlation between TQM and KM ($r= 0.874$), TQM and OP ($r= 0.878$), KM and OP ($r=0.868$) and from this all the correlation coefficient between TQM and KM, TQM and OP, KM and positively significant at 0.01 level.

Table 9. Bootstrap Summary of Structural Equation Modeling and Hypothesis Results of Model IV

Hypothesis	Dimensions	Entire sample estimate	Mean of sub samples	Standard error	T- Statistic	R Square value	Results
H ₁₇	TQM->KM	0.874	0.871	0.021	42.673	0.764	Significant
H ₁₈	TQM->OP	0.508	0.513	0.069	7.368	0.814	Significant
H ₁₉	KM->OP	0.423	0.419	0.068	6.195		Significant

The result shown in Table 9 revealed that Total Quality Management has significant influence on Knowledge Management (Beta=0.874, t value=42.673). Total Quality Management has significant influence on Organizational Performance (Beta= 0.508, t value=7.368). Knowledge Management has significant influence on Organizational Performance (Beta= 0.423, t value=6.195).

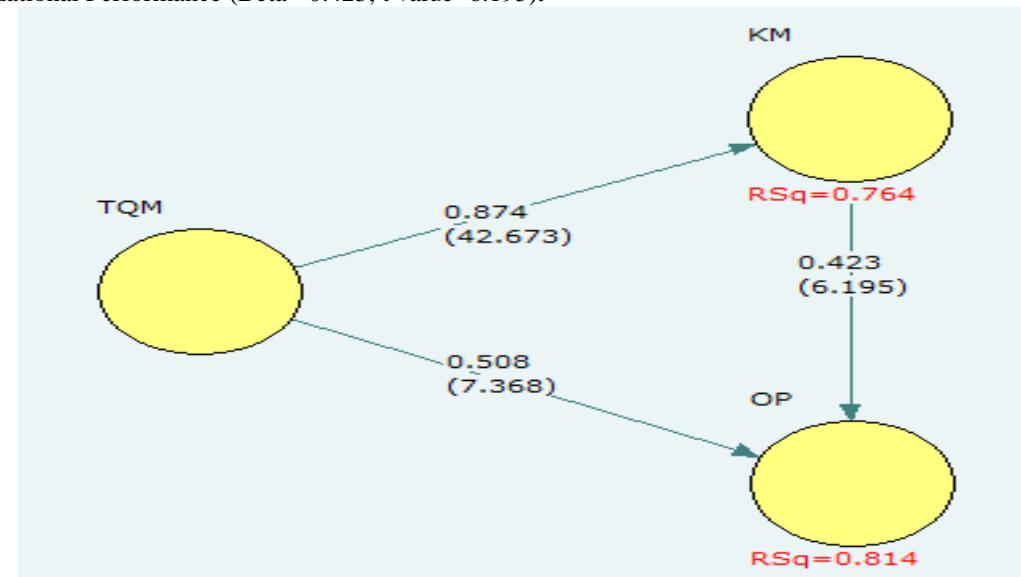


Fig 2. Relationship between Total Quality Management, Knowledge Management and Organizational Performance

V. DISCUSSIONS

5.1 Relationship between types of Total Quality Management and Knowledge Management

It is found that Knowledge Management is being influenced by most type of Total Quality Management viz., Leadership Commitment, Strategic Planning, Recognition and Reward, Involvement of Employee and Quality Training. On other hand, it can be said that Leadership Commitment influences the Knowledge Management of employees. It shows that organization are involved in quality improvement activities of employee from that there has been clear direction was given by the management in the practice of TQM Principles.

From the analysis, it is also observed that Strategic Planning influences the Knowledge Management. It shows that organization may collect and utilize the data on service quality for the employee satisfaction to the development and improvement plans, it is also understood that positive relationship with staffs and management are maintaining through strategic planning.

From the analysis, it is also observed that Recognition and Reward is being determined by Knowledge Management. It highlights that knowledge management may ensure practiced in the organization by giving appropriate reward and recognition.

From the analysis, it determined that Involvement of Employee influences Knowledge Management. It implies that the organization can be successful in knowledge management implementation only when there is total involvement of employee. It is also observed that with the help of knowledge management, employee involved themselves in giving suggestions to enhance good working environment in organization.

From the analysis, it determined that Quality Training influences Knowledge Management. It reveals that organization may provide special training to the employee in practices order to facilitate them in knowledge management practices. it also formed that management organize training programme on total quality management and encourage them to practice and participate knowledge management.

On the other side, knowledge management is not influenced by Continuous Improvement. It implies that management can give more importance to knowledge management on continuous improvement of the employee that enhances the employee's performance which facilitates the organization to achieve target effectively.

5.2 Relationship between types of Knowledge Management and Organizational Performance

From the analysis, it is revealed that Organizational Performance is being determined by all types of Knowledge Identification, Knowledge Acquisition, Knowledge Storage, Knowledge Sharing. It shows that Knowledge Identification influences Organizational Performance. It implies that it is important to identify the knowledge for enhancing the organizational performance. From the analysis, it is revealed that Knowledge Acquisition has effect on Organizational Performance. It implies that knowledge management is the important parameter to achieve excellence in company performance. From the analysis, it is observed that Knowledge Storage does have impact on Organizational Performance. It implies that it is vital to store knowledge of employee that has been acquired for enhancing performance of firm, in terms of collaborating employee involvement and shared understanding. From the analysis, it is observed that Knowledge sharing influences on Organizational Performance. It is determined that knowledge sharing is recognized as important activity, so that the organization wished to provide better service quality to the employee. Now a day's knowledge management is not power whereas knowledge sharing is power.

5.3 Relationship between types of Total Quality Management and Organizational Performance

It is also observed that Organizational Performance is being influenced by all type of Total Quality Management viz., Leadership Commitment, Strategic Planning, Continuous Improvement, Recognition and Reward, Involvement of Employee and Quality Training. On other hand, it can be said that Leadership Commitment influences the Organizational Performance. It highlights that leadership commitment plays a vital role in organizational performance. It shows that management is in a position to communicate their views and opinions on quality value. From the analysis, it reveals that the organization performance is influenced by the strategy planning. It shows that the management has got clear plan about the quality of strategies to be applied in organization. From the analysis, it is observed that Continuous Improvement is influenced on Organizational Performance. It implies that continuous improvement is mandatory if the company wish to sustain their performance. It can be ensured that the achievement of the employee which are the above the benchmark fixed by the management. From the analysis, it is observed that Recognition and Reward is being determined on Organizational Performance. It shows that excellence in performance can be achieved through employee performance. The employee performance can be attained through proper reward and recognition. From the analysis, it is observed that Involvement of Employee has an effect on Organizational Performance. It implies that the employee can improve involvement towards the success of the concern. It means that the organization performance can be enhanced through coordination, cooperation and collaboration of employee.

From the analysis, it is observed that Quality Training has impact on Organizational Performance. It is undoubtedly accepted that the quality shown in training programme has got positive reflection on the performance of company.

5.4 Relationship between Total Quality Management and Knowledge Management

From the analysis, it is observed that Total Quality Management is being influenced on Knowledge Management. It is found that all the dimensions of the total quality management namely except continuous improvement influence us the knowledge management practices in the organization. So it is understood that both total quality management and knowledge management are complementary to each other.

5.5 Relationship between Total Quality Management and Organizational Performance

From the analysis, it is observed that Total Quality Management is being determined on Organizational Performance. It implies that performance of the company is greatly influenced by all the total quality management principles practiced in the organization.

5.6 Relationship between Knowledge Management and Organizational Performance

From the analysis, it is observed that Knowledge Management is being influence on Organizational Performance. It implies that knowledge management is the key to enhance organization performance. It is also found that all the dimensions of knowledge management have got significant impact on organizational performance.

VI. RECOMMENDATIONS

It is found that Leadership Commitment has significant influence on Knowledge Management so, it's recommended that the organization should enhance the TQM which improve the knowledge of the employee to give better performance. It is observed that Continuous Improvement has no significant effect on Knowledge Management. It is suggested that continuous improvement plays a vital role of the organization which could sustain the Global Economy. So, employee should update the knowledge continuously which may result in constant development of the company.

It is found that Knowledge Storage has significant influence on Organizational Performance. It is suggested that knowledge Storage is very important of the organization which facilitate the employee to not disturb the performance that may show the growth of the organization. It is found that Recognition and Reward has significant influence on Organizational Performance. It is recommended that employee get continuously recognized and rewarded if they show the quality result means it should create positive attitude among the employee that may become team performance which enhance the organization performance.

CONCLUSION

The study had been under taken to examine the association between Total Quality Management, Knowledge Management and Organizational Performance. To achieve the above objectives a model is developed and questionnaire was prepared to get responses from 250 employees working in IT services organization. The result of the analysis revealed that Leadership Commitment, Strategic Planning, Recognition and Reward, Involvement of Employee and Quality training were the significant predictors of Knowledge Management. The analysis also revealed that Knowledge Identification, Knowledge Acquisition, Knowledge Storage and Knowledge Sharing were the significant predictors of Organizational Performance. It also revealed that Leadership Commitment, Strategic Planning, Continuous Improvement, Recognition and Reward, Involvement of the Employee and Quality Training were the significant predictors of Organizational Performance. So, it was concluded that the Total Quality Management core elements and principles are significantly influenced the Knowledge Management, which in turn influenced by the Organizational Performance.

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