Impact of TQM and Technology Management on Organizational Performance

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RECEIVED ON 22.04.2015 ACCEPTED ON 14.12.2015

ABSTRACT

In the growing business competitiveness TQM (Total Quality Management) and TM (Technology Management) practices have become important for organizational success. TQM fosters business excellence while TM helps to deal with process and product related technological challenges. However, in literature TM has received little consideration with TQM. This paper is a research study that attempts to identify any combined relationship of both concepts with OP (Organizational Performance) while taking into account different organizational contextual factors including ISO-9001 certification. Responses from 86 different organizations in Pakistan are collected through questionnaire survey and random sampling. Statistical analysis shows that OP is positively associated to TQM and TM. Results of this study indicate the significance of ISO-9001 certification for TQM but do not support it for OP. It is also observed that organizations of private sector are significantly better in TQM and TM practices, so in OP, in comparison to government or public sector organizations. The study contributes to explore and augment both practices for implementation to improve OP.

Key Words: Total Quality Management, Technology Management, Organizational Performance, ISO-9001.

1. INTRODUCTION

Benner and Tushman [1] have explained a wonderful premise that there is always need to balance between two dynamic capabilities of exploitation and exploration. The capability of 'exploitation' enhances productivity and efficiency through better use of available resources. The capability of 'exploration' enriches technological innovation and produces new resources and skills. The exploitation capability can be enhanced with TQM philosophy and practices while exploration capability can be managed with technology advancement and management. Sebastianelli and Tamimi [2] have argued that organization's ability to capitalize, integrate and balance the both capabilities simultaneously will ensure its competitiveness and performance over time.

Organizations are striving to excel in global competition with increased capabilities through various advanced

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strategies or techniques [3]. Among which TQM has been considered as one of the best business strategy. TQM aims to raise customer satisfaction by delivering quality products and services and to increase productivity by lowering costs [4]. Various studies provide key elements and factors of TQM. The most common elements of TQM are; top management commitment, process approach, customer focus, employee involvement, quality information and continuous improvement [5]. Business excellence frameworks are considered as TQM models and establish elements of leadership, strategic planning, process management, customer focus, workforce focus practices and information management.

Today the global competition has impacted the pace of organizational strategies and operations, so in attaining long term OP the organizations are needful to cope with technology challenges [6]. Literature suggests TQM is less concerned with technology and is considered as barely administrative or managerial function [7]. In fact, various studies have been carried out to observe any relationship or association of TQM practices and performance measures [8]. These include identification of success factors for TQM program, examination of barriers or obstacles in the implementation of TQM in an organization and determination of the impact of TQM on variety of performance factors [2]. But there is little in the literature that investigates the combined effect of TQM and TM on the performance. Rapidly changing markets constantly challenge for technological and innovative products in shorter development lifecycles [9]. Therefore, TM has become vital in the dimensions of product and process advancement. The study on the integration of TQM and TM becomes important in linkage to firm's performance [10].

This paper is a research study of the relationship of TQM, TM and OP. A research survey is conducted and questionnaire is administered to different fields of industries and sectors in Pakistan. The study also determines the effects of different organizational contextual factors and ISO 9001 certification on the OP. Previously a study has suggested that the nature of the customer base, size of firm and the ISO-9000 implementation are associated with perceived TQM and organizational success [11]. Results through statistical analysis show that TQM and TM practices positively associate OP. ISO-9001 certification found significantly important in case of TQM implementation however, results in this study did not support its significance for OP, as was also observed in the work by Aarts and Vos [12].

2. LITERATURE REVIEW

2.1 Total Quality Management

Quality management has been extended to a specialized field, as TQM, which covers both philosophical and applied aspects of quality. TQM has been defined in many ways. It has been defined as "a system approach to management that aims to enhance value to customers by designing and continually improving organizational processes and systems" [13]. It has been also said that "TQM seeks continuous improvement in the quality of all processes, people, products, and services of an organization". [14]. TQM is one such philosophy which can help organizations to achieve, maintain and improve customer satisfaction [15]. TQM encourages culture of employee involvement that aims for high quality and customer satisfaction to achieve long-term success to give benefit to all stakeholders.

TQM represents three main aspects; one is the meeting or exceeding customer satisfaction, the second is the continuous improvement of quality and the third training and involvement of all employees [16]. Continuous improvement, breakthrough and standardization using

TQM play a key role as impact procedure to increase competitiveness [17]. TQM as a CQI approach leads to organizational growth and competitiveness [18].

Although various theoretical and practical TQM frameworks have been developed by different researchers and authors yet there is no firm agreement on TQM factors [19]. Because of the diversity of the definition and approaches taken by different researchers different sets of TQM factors have been suggested and adopted in different studies [20]. Many researchers have used elements of quality award criteria and business excellence models as their preferred TQM factors in their studies in attempt to bridge these disparities. It has been presented that quality award models derive a model for TQM [21]. In recent years, researches have begun for an interdisciplinary approach to use the MBNQA (Malcolm Baldrige National Quality Award) criteria as one of the best TQM framework [22]. The award framework is an internationally recognized TQM model [23]. There are six elements or factors in MBNQA which are; leadership, strategic planning, process management, customer focus, workforce focus, and information & knowledge management. These six factors, as TQM model, have been adopted in the research work by various researchers [24]. This study also takes the same six factors as TQM model.

Several studies have underlined the significance of causal relations between quality management and different dimensions of performance. Many authors have observed a positive relationship between TQM and OP and others have not. Prajogo and Sohal [10] and Arumugam [24] linked quality performance to OP and established association between quality management practices and quality performance. It has been asserted that TQM signifies an approach to improve the performance of organizations and customer satisfaction through continuous improvement and involvement of all the personnel [25].

2.2 Technology Management

"Technology refers to the theoretical and practical knowledge, skills, and artifacts that can be used to develop products and services as well as their production and delivery systems" [26]. Adopting and applying new technologies indicates that there are wider issues that have to be considered and needed to recognize and address in order to circumvent the problems or challenges [27]. TM has been widely defined as "a process, which includes planning, directing, control and coordination of the development and implementation of technological capabilities to shape and accomplish the strategic and operational objectives of an organization" [28].

The strategic and organizational factors which make the organization more competitive in improving its performance can be successful implementation of TM [29]. Technology can be an organization's core competence in the form of product or process [30,31].

From literature two aspects of TM become important that are product technology and process technology [32,33]. As to develop and build technologically advanced products the organizations have to opt for sophisticated and advanced processes and operations. In same way the organizations with high-tech machines and processes are capable to produce superior products or design services with advanced features. The distinctive difference between process and product technology is that, process technologies are used to build and deliver products to customers, whereas, a product technology is the technological features embedded within the product [34].

There is increased use of interchangeable fashion of TM and innovation management is observed. Both concepts are becoming intertwined as practices [35]. Kim and Hwang

[36] deliberated two types of technological innovation – product and process. Product innovation is the capability to create new products or to upgrade existing products to achieve customer satisfaction or to attain competitive advantage. High performance organizations always strive to grasp new opportunities and make products of high quality in short product development time to meet the needs of the customers. Process innovation is referred as the capability to deploy efficient methods that create value in the supply chain from arrangement of raw materials to delivery of products. High performance organizations tend to acquire, enhance and utilize new knowledge and skills efficiently in operations to gain success. Becker and Egger [37] ascertained the influence of both modes of innovation to raise a firm's propensity to export.

IT (Information Technology) is another dimension of technology which has gained its importance in OP. Nair [38] affirmed the influence of IT on financial and non-financial performance of the organization. However, the current study takes only 2D (Two Dimensions) of technology; product and process technology. Since IT is an embedded aspect of process technology and TQM dimension of information management.

2.3 ISO-9000 Certification

The certification to ISO-9000 program has been widely spread in practice and discussion on its benefits and barriers has gained popularity in research too [39]. ISO-9000 focuses on conformance and internal process improvement in an organization [40]. Various scholars have been arguing on the significant impact of ISO-9001 on the OP. There is evidence which suggests that organizations can bring internal improvements, or that ISO-9001 certification is helpful in maintaining or increasing market share [41]. Some authors have recognized and confirmed that ISO-9001 certification is important in gaining market access [42]. Some has argued that the standard does not bring improvement as it is too generic. Aarts and Vos [12] did not find impact of ISO-9001 on OP.

Mangula [43] has highlighted various other benefits of ISO certification including expansion of business relations and entrance to new or international market due to increased chances to win new work contacts. These benefits give rise to induce promptness in operational methodologies to meet customer demands in less time. The author stressed that quality becomes an influential factor through ISO certification that positively affect performance, competitiveness and profitability.

2.4 Organization Performance

OP can be referred to the attainment of actual results by an organization against its intended targets. There could be various dimensions for indicating OP and number of studies has been carried out to investigate and discuss different indicators or parameters of OP. Barros, et. al. [8] has summarized the works of different authors and has suggested product quality, operational performance, employee satisfaction, customer satisfaction, market and financial performance as some of explicit OP indicators. Zakuan, et. al. [3] measured OP through two levels of satisfaction (customer satisfaction and employee satisfaction) and through business results (including productivity, profitability and cost performance).

In this study five dimensions of OP have been taken that include product quality, customer satisfaction, operational efficiency, employee performance and business results.

3. TQM, TM AND OP

TQM and technology are becoming ever growing essential features of organizational strategy for many leading organizations across the world. Many companies are adapting TQM and TM for sustaining competitiveness in the global market [44].

There are several studies which have been carried out to determine the linkages or predictive correlations between TQM elements or factors and performance measures [8]. The studies include research works to identify critical success factors for TQM implementation, to examine barriers or obstacles in path to TQM program and to identify the relationships and effects of TQM on performance measures [2]. But no much work in literature is available that examines the combined and interrelated effect of TQM and TM on the certain parameters or factors of OP.

Perera and Kuruppuarachchi [45] carried out a study, in Sri Lanka, to investigate the impact of TQM and TM practices on operations performance. Results showed significant relationship of TQM while insignificant relationship of TM to operations performance; however, strong interrelationship between TQM and TM was observed. Brah and Lim [44] examined the influence of TQM and technology on the performance of logistics companies and it was determined that high technology TQM firms perform significantly better than those to with low technology firms. Tasleem, et. al. [33] examined the integrated role of TM and TQM in the perspective of organizational sustainability. Prajogo and Sohal [10] explored the association between TQM, Technology/R&D (Research & Development) management and quality and innovation performance, and suggested the implication to augment TQM in harmony with TM to enhance OP.

4. METHODOLOGY

4.1 Research Framework

The study contains three constructs TQM, TM and OP and each construct contains multiple dimensions. 2D are 3D in TQM construct, 2D in TM construct and 5D in OP construct in this study. The basic research framework is developed as Fig. 1. The 6D of TQM are leadership, strategic planning, process management, customer focus, workforce focus, and information management. The 2D of TM are product technology and process technology, and the 5D of OP are product quality, customer satisfaction, operational efficiency, employee performance, and business results. Each dimension comprises different number of items.

4.2 Research Design

The research study was carried out through development and distribution of a questionnaire. The questionnaire contained four sections. The first section of the questionnaire included information regarding respondent's introduction and organizational profile. The major organizational contextual factors which were included were information about the organizational size, location, sector, nature of operation and ISO-9000 certification status. The second and third section included the information on the implementation of TQM and TM practices. While the fourth section contained information on the perceived organizational performance in 5D.

4.3 Research Survey

The research survey was conducted through selecting a random sample of 320 organizations in different provinces and cities of Pakistan. The survey was not specific to single kind of industry or sector but was spread across multiple industries and sectors including private, public, government, production, R&D, service, engineering, aerospace, defense, healthcare, textile, chemical etc. A set of questionnaire, supplemented with

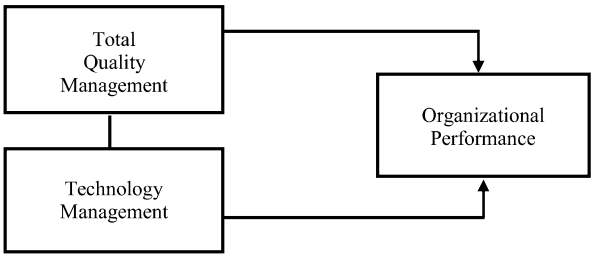

FIG. 1. RESEARCH FRAMEWORK

cover letter and self-addressed, stamp attached, envelope was mailed to management personnel who were relevant and familiar with the field. The survey participants were mainly from the operations departments including manufacturing, production planning, quality control, maintenance, human resource and sales and marketing. The promptness on the response was also alerted and requested through emails and telephone calls. After discarding ten incomplete survey forms and four for extreme outliers, the survey yielded 86 usable responses, or a 26.9% effective response rate. Such response rate is acceptable as greater than the suggested cut off of 20% [46]. The received responses were then categorized in percentages, in Table 1, according to type of industry, type of operation, size, location (province) and status of ISO-9001 certification.

Table 1 shows that the percentage response from engineering and manufacturing industry is 24.4%, from private sector is 52.3%, from large organizations is 47.7%, and from Punjab province is 48.8%. It can also be noticed that 73.9% of the respondent organizations are ISO-9001 certified.

5. RESULTS AND ANALYSIS

5.1 Descriptive Statistics

The received responses were statistically analyzed with multiple techniques and graphs by use of Minitab software and SPSS (Statistical Package for the Social Science). Table 2 depicts number of items for each dimension and shows some descriptive statistics including mean, SEM (Standard Error Mean), and SD (Standard Deviation). It

TABLE 1. PERCENTAGE OF RESPONSES AGAINST TYPE OF CONTEXTUAL FACTORS

Type	%	Type	%	Type	%
Industry					
Engg. & Manufacturing	24.4	Pharmaceutical	6.9	Civil & Construction	5.8
Aerospace & Defense	12.8	Food & Bevergaes	2.4	Oil, Gas & Power	2.4
IT & Software	12.8	Chemical	2.4	Service	13.9
Textile	8.2	Healthcare	6.9	Other	1.1
Sector					
Government	20.9	Public	19.8		
Private	52.3	Non-profit	7.0		
Nature of Operation					
Production	45.4	Service	41.8	R&D	12.8
Size					
Large	47.7	Medium	38.4	Small	13.9
Location					
Capital	24.4	Sind	15.1	Balochistan	2.3
Punjab	48.8	K.P.K	9.4		
Length of Establishment (Years)					
<5	7.0	11-15	20.9	26-50	19.8
6-10	10.4	16-25	23.3	>50	18.6
ISO-9001 Certification					
Yes	70.9	No	29.1		

can be observed that the highest mean value is obtained in case of leadership which is 3.99, and the lowest mean value is for product technology which is 3.65. SEM and SD values does not depict noticeable dispersion of data and indicates uniformity of the sample.

5.2 Analysis of Variance

The difference of means of different organizational contextual factors with respect to TQM, TM and OP are observed through ANOVA (Analysis of Variances) technique. Results pertaining to DoF (Degree of Freedom), F statistic, coefficient of determination R-sq, R-sq (adjusted) and observed p-value are presented in Table 3.

No organizational contextual factor determined as significant except ISO-9001 certification for TQM and type of 'sector' for each construct. The significance of the result pertaining to ISO-9001 certification and 'sector' on TQM is also evident from Fig. 2. The mean scores of TQM for ISO certified and private sector organizations are higher than to its counterparts. It can be stated that organizations employing ISO certifications are ahead in TQM implementation to those of non-certified. The finding showing the impact of ISO-9001 certification in TQM program does also support the literature. Therefore, organizations, in Pakistan too, are enjoying the benefit of ISO-9001 for the better implementation of TQM. However, the results did not show significant influence of ISO certification on OP, as also observed by Aarts and Vos [12]. TQM and TM practices, and the OP, have been observed significantly better in private sector organizations as compared to government or other sector organizations. This finding also supports the general perception of the working style of private and government sectors in Pakistan.

5.3 Reliability and Validity

Reliability is referred as the ability of an instrument to provide consistent results in repeated uses [47]. Cronbach's alpha is a statistic that is used to test reliability of questionnaire across various items [48]. The alpha value ranges from 0-1 where the higher value depicts higher level of internal consistency [49]. Value of 0.7 is a

TABLE 2. DESCRIPTIVE STATISTICS

Dimensions	No. of Items	Mean	Standard Error Mean	Standard Deviation
Leadership	6	3.94	0.0878	0.8144
Strategic Planning	5	3.90	0.0746	0.6915
Process Management	5	3.87	0.0812	0.7533
Customer Focus	6	3.99	0.0643	0.5964
Workforce Focus	6	3.64	0.0849	0.7876
Information Management	5	3.85	0.0862	0.7989
Product Technology	5	3.69	0.0938	0.8702
Process Technology	4	3.76	0.0906	0.8401
Product Quality	5	3.91	0.0786	0.7290
Customer Satisfaction	4	3.85	0.0865	0.8021
Operational Efficiency	5	3.81	0.0850	0.7879
Employee Performance	5	3.80	0.0949	0.8803
Business Results	4	3.70	0.0879	0.8155

common benchmark and can be used to imply that the items measure the same construct [50]. Table 3 depicts that all values are achieved greater than 0.7 thus ensures the consistency of items.

Validity identifies how well individual items measure the same scale [11]. The items of main dimensions were mainly derived from literature review and MBNQA criteria. The content validity of the questionnaire was assured through peer review and review feedback from the consultants and professionals of the field. Construct validity is assured by the application of factor analysis conducted separately on each dimension of main constructs. It is determined that the set of items in each factor are composing or forming a single factor within that factor with Eigen value greater than 1.

5.4 Factor Analysis

Factor analysis is conducted separately on each factor in order to find that a factor can only be valid if all the items of that factor form a single variable with Eigen value greater

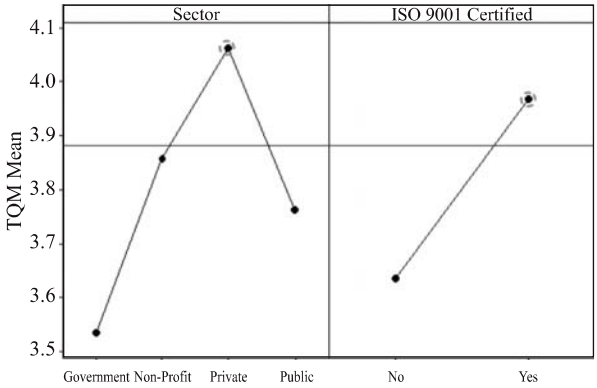

FIG. 2. MAIN EFFECT PLOT FOR TQM WITH RESPECT TO 'SECTOR TYPE' AND 'ISO CERTIFICATION'

TABLE 3. RESULTS OF ANOVA

Contextual Factors		DoF	F	S	R-sq	R-sq (adjusted)	p-value
Sector	TQM	3	3.10	0.6343	10.18	6.89	0.031*
	TM		3.91	0.7885	12.51	9.31	0.012*
	OP		3.36	0.6900	10.95	7.69	0.023*
Nature of Operation	TQM	2	0.50	0.6633	1.78	0.00	0.686
	TM		0.64	0.8333	2.27	0.00	0.594
	OP		0.60	0.7233	2.15	0.00	0.617
Location	TQM	4	0.34	0.6677	1.67	0.00	0.847
	TM		0.43	0.8394	2.06	0.00	0.789
	OP		0.82	0.7212	3.88	0.00	0.517
Length of Establishment	TQM	5	1.23	0.6529	7.14	1.34	0.303
	TM		1.16	0.8242	6.75	0.92	0.337
	OP		1.37	0.7105	7.88	2.13	0.245
Size	TQM	2	0.78	0.6616	4.66	0.00	0.566
	TM		1.02	0.8274	6.02	0.14	0.409
	OP		1.59	0.7060	9.04	3.35	0.172
ISO-9001 Certification	TQM	1	4.04	0.6459	4.59	3.46	0.048*
	TM		2.53	0.8206	2.93	1.77	0.115
	OP		2.28	0.7128	2.65	1.49	0.134
* Significant at $p<0.05$, n=86							

than 1 [51]. The corresponding 'Eigen values' and '% of variation' are measured and presented in Table 4. All Eigen values are observed greater than 1, while '% of variance' for each factor is observed satisfactory except for 'customer focus' which is less than 50% in this case. However the corresponding Cronbach's alpha and Eigen values are acceptable All KMO (Kaiser-Meyer-Oklin) values observed greater than 0.7 for each factor which describes that sampling adequacy is good. KMO value greater than 0.5 has been recommended as acceptable [52]. Chi-square (χ^2) values, as calculated from SPSS, attest the significance to achieve Bartlett's test of sphericity in the study.

6. RELATIONSHIP OF TQM, TM AND OP

6.1 Correlation Plot

The important aspect of the analysis was to determine the relationship of the dependant (OP) and independent variables (TQM and TM). All correlation values of the dimensions of main constructs were observed significant. Fig. 3 is a correlation plot that indicates positive trend of mean values of OP with increase in mean values of TQM and TM.

6.2 Regression Analysis

Regression Analysis generates an equation to describe the statistical relationship between one or more predictors and the response variable and to predict new observations. Regression results indicate the direction, size, and statistical significance of the relationship between a predictor and response. Linear regression is observed as a composite relationship among the three variables of the study.

Linear regression analysis of individual dimensions of TQM and TM is performed and it is determined that relationship of both independent variables is significant (p-values) with dependant variable (OP). However, relationship of two individual TQM dimensions; 'strategic planning' and 'information management', is insignificant while it is negative in case of 'information management'. Table 5 shows regression statistics of the individual dimensions of TQM, TM and of the composite model of both with OP.

TABLE 4. RELIABILITY, CONSTRUCT VALIDITY AND FACTOR ANALYSIS RESULTS

Dimensions	KMO	χ^2	Chronbach's Alpha	Eigen Values	Variance (%)
Leadership	0.818	389.628	0.91	4.616	65.93
Strategic Planning	0.839	216.010	0.85	3.572	59.53
Process Management	0.831	245.032	0.87	3.732	62.19
Customer Focus	0.774	205.264	0.81	3.387	48.38
Workforce Focus	0.885	291.599	0.88	4.204	60.05
Information Management	0.865	264.346	0.90	3.625	72.51
Product Technology	0.875	281.511	0.83	3.730	74.61
Process Technology	0.824	184.924	0.88	2.991	74.78
Product Quality	0.841	215.493	0.87	3.390	67.81
Customer Satisfaction	0.840	217.025	0.90	3.128	78.20
Operational Efficiency	0.868	229.069	0.89	3.501	70.03
Employee Performance	0.844	330.687	0.92	3.842	76.83
Business Results	0.800	184.761	0.88	2.950	73.76

6.3 Discussion

Important results and findings as observed through statistical analysis are discussed below;

(i) ISO certification is observed as contributing element for achieving higher TQM practices. Organizations that had attained ISO certification showed statistically significantly better results for TQM performance; however, its significance is not observed for OP and TM performance.

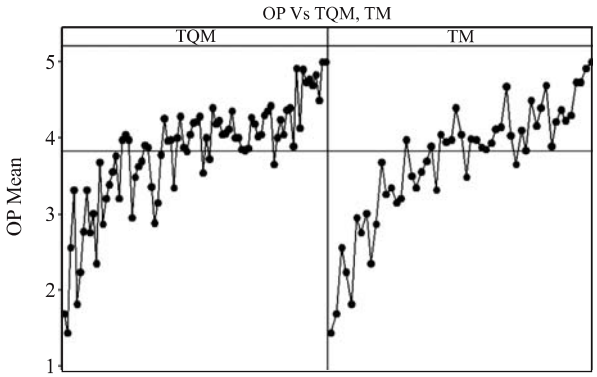

FIG. 3. CORRELATION PLOT OF 'OP' WITH TQM AND TM

(ii) Organizations belonging to private sector are excelling in terms of better performance in OP, TQM and TM. The study supports the general perception about the outstanding pace and performance trend of private business units in comparison to public or government sector.

(iii) No other contextual factor, for example size, location of the organization accounted for significant impact on any of the three variables.

(iv) Reliability and validity results found above acceptable benchmarks though '% of variance' for 'customer focus' dimension is below 50%. Similarly, values of KMO measure of sampling adequacy suggested good count of sample data.

TABLE 5. REGRESSION STATISTICS

Dimensions	Unstandardized Coefficients		Standardized Coefficients	t	Significant	R	Adj. R	F	p-values
TQM						0.898	0.792	55.043	0.000
(Constant)	0.000	0.252		.001	0.999				
Leadership	0.268	0.106	0.222	2.525	0.014				
Strategic Planning	0.033	0.094	0.032	.351	0.727				
Process Management	0.189	0.069	0.215	2.754	0.007				
Customer Focus	0.336	0.097	0.369	3.449	0.001				
Workforce Focus	0.265	0.101	0.278	2.612	0.011				
Information Management	-0.099	0.109	-0.110	-.909	0.366				
Technology Management						0.889	0.786	157.241	0.000
(Constant)	0.979	0.167		5.871	0.000				
Product Technology	0.505	0.085	0.612	5.918	0.000				
Process Technology	0.259	0.088	0.303	2.928	0.004				
Model									
(Constant)	0.307	0.195		1.573	0.120	0.914	0.832	211.632	0.000
TQM	0.501	0.099	0.459	5.044	0.000				
TM	0.422	0.079	0.486	5.347	0.000				
Dependant Variable: OP									

(v) There is positive and strong relationship observed between OP, TQM and TM through correlation plots and regression statistics.

(vi) Regression results (Table 5) shows that TQM, TM and OP are strongly associated and their combined link as a regression model predicts a good fit against observed statistics (R, adjusted R-square, F and P-values). The regression statistics for individual TQM and TM dimensions have been separately calculated which also show that both TQM and TM predict good regression model fit for OP. However, there is insignificant representation of two individual TQM dimensions, including 'strategic planning' and 'information management' with Sig. values as 0.727 and 0.366 respectively.

7. CONCLUSIONS

The quality management field has been extended as TQM and various studies revealed the importance of TQM for the success of the organizations. The main elements of TQM are continual improvement, employee involvement, leadership and customer satisfaction. Studies have been carried out to find the relationship of organizational contextual factors including ISO-9001 certification on TQM and OP. Product, customer, employee, financial and market results are indicators for OP. However, the organizations have to cope with the global pace of technology advancement. Therefore, MT particularly in product and process concerns has become vital to attain competitive performance.

This paper presented the results of research survey of 86 organizations, in Pakistan, of varied contextual factors and showed ISO-9001 is important in case of TQM implementation. However, its direct impact on OP is not observed significant. The results showed that organizations from private sector are significantly better in implementing TQM and TM practices and in OP in comparison to organizations from government and public sector. These results also support the general perception about the comparatively less performance and TQM approach of government and public sectors in Pakistan. The results showed that there is a positive association between TQM and TM practices and OP. The linear regression analysis predicted good model fits for TQM and TM, both as combined or separate, with OP.

The study exhibits important contribution to research literature since it draws attention to the integration of both management and technological aspects and attempts to explore and determines their impact on OP. The focused aspects and results of the study can augment management practitioners and academicians to explore and gain future course of implementation strategy in challenging business environment.

ACKNOWLEDGMENTS

Authors are extremely thankful to all who objectively reviewed and contributed to complete this research work. Authors also pay special gratitude to Dr. Asim Nisar, Centre of Excellence in Sciences & Applied Technologies, Islamabad, Pakistan, for providing valuable feedback and motivation for the study.

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