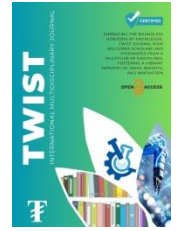




TWIST

Journal homepage: www.twistjournal.net

The Mediated Moderated Role of Organizational Culture and Employee Involvement in the Relationship between Total Quality Management and Sustainable Organizational Performance

Dr. Nafiza Islam*

Associate Professor,

Department of Management Studies, Faculty of Business Studies,
Jahangirnagar University, Dhaka, Bangladesh

[*Corresponding author]

Dr. Mohammad Thoufiqul Islam

Professor,

Department of Management,
University of Dhaka, Dhaka, Bangladesh

Abstract

This study aims to examine the relationship between total quality management (TQM) and sustainable organizational performance (SOP), focusing on the mediating effect of organizational culture (OC) and the moderating effect of employee involvement (EI) in the banking industry of Bangladesh. Based on these insights, a questionnaire was developed, and academicians, research scholars, and field experts of this sector checked it for reliability. The results were summarized and analyzed through Partial Least Squares Structural Equation Modeling 4.0. According to the analysis, the findings reveal the positive direct effect of TQM on OC and SOP. The results also indicate the positive indirect effect of OC while strengthening the relationship between TQM and SOP. The outcome also demonstrates the positive impact of EI in moderating the relationship between TQM and SOP. TQM programs, to be successful and achieve SOP, require EI through empowerment, creativity, capacity building, organizational vision, mission, participation in management, and a supportive OC of innovation and learning. From the contextual perspective, the paper adds value in its originality through its exploration of the relationships, both direct and indirect, of CSFs of TQM in the banking sector of Bangladesh, gaining a deeper understanding of how effective TQM practices increase the likelihood of SOP, and paying attention to how the factors of OC and EI would strengthen the relationship.

Keywords

total quality management, sustainable organizational performance, organizational culture, employee involvement, banking industry

INTRODUCTION

The current environment, characterized by rapid changes in technology, consumer demands and preferences, governmental regulations, social structure, and ideology, urges us to raise the bar for excellence, adopt new ways of thinking, and embrace comprehensive methods to survive in this highly competitive business world. In the current complex business environment, companies are compelled to confront and address numerous challenges, including shifting macroeconomic factors (e.g., demographics, inflation rates, and deflation rates, as well as local versus external products), competitors' innovations, and evolving trends in consumer expectations (Ababneh, 2021). Due to the current global competitive environment, organizations are compelled to enhance their performance by applying innovative thoughts and strategies to secure a market position (Al-Dhaafri et al., 2016). The era of globalization, with increasing competition and advances in communication and information technology, is the indicator of the contemporary economy, which requires companies to adopt approaches to total quality management (TQM) over traditional management dogmas, in combination with sustainable organizational performance (SOP), because the significance of sustainability is growing for all sorts of

organizations (Sancha et al., 2016). TQM, which started in the manufacturing sector, gradually evolved into a management philosophy and spread to the service sector, where implementation became more challenging compared to the manufacturing sector (Salhieh & Abu-Doleh, 2015). Undeniably, the success of service organizations, such as banks, is based on providing the best service. The financial sector of Bangladesh is small and underdeveloped, comprising the banking sector and the emerging capital market, which is still in its developing phase. This industry is confronting organizational efficiency challenges, stiff competition, the complex demands of real-time and digital customers, the shift from high in-house costs to more responsive and manageable services, changes in government regulations, difficulty in keeping up with central bank regulations, and customers' changing demands for technology-friendly services. In this highly competitive era, quality has been recognized as a deliberate tool for measuring business performance. The effect of globalization addresses organizational performance by ensuring a sustainable market presence. The term quality management, in relation to sustainable performance, defines a new approach, specifically the process of change (Stanciu et al., 2014).

Because banks are the cornerstones of a modern economy, quality service from banks is highly required. In this regard, careful consideration should be given to the quality of the service, which significantly influences customer loyalty in the banking sector. In response to the challenges of globalization, along with the rapid advancement in information technology, companies have not only intensified competition in the business sector but also adopted various strategic approaches to gain competitive advantages. As a result, quality management is becoming a substantial aspect, especially in a competitive sector like global banking. The concept of TQM in banking has developed over the years with a new and strong focus on customer relationships (Talib et al., 2012). According to Venkateshwarlu et al. (2011), TQM is a management attitude that engenders the intention to uphold the standard in procuring inventories for raw materials, enables maintenance of the standard quality of goods, allows the practice of standard qualities in manufacturing processes and logistics and distribution processes, and engages the satisfaction of traders and end purchasers with the first-rate performance of products and services. Globalization, industry growth, technological advancements, and intense competition in the banking sector continually enhance the role and importance of TQM implementation, focusing on the realignment of operational strategies to manage internal and external environments with changing levels of dynamism and complexity. TQM integrates all organizational and managerial functions with the goal of meeting customer needs, thereby improving organizational performance. The adoption of TQM principles is becoming increasingly essential for both service and manufacturing organizations, given the growing concern among customers about quality expectations (Acquah et al., 2023). This aligns with the growing focus on organizational sustainability, whereby business establishments aim to achieve sustainable performance by enhancing their core capacities (Adebisi & Bakare, 2019; Ljunghom, 2016). Presently, business organizations are considering leveraging quality tools to innovate products, which safeguard sustainable development, with the highest priority. The ascendance of TQM, considered a predominant management philosophy, plays a leading role among competitive strategic clusters.

To date, banks have received less attention in studies on TQM. In Bangladesh, the issue of TQM is new, but this sector is thriving and at the same time facing challenges in the issue of quality to keep up with the global environment. Given the considerable lack of literature on TQM and the relevance of SOP in the banking sector, this study aims to bridge the gap. The aim is to observe the relationship between TQM and SOP through examining the mediating effect of organizational culture (OC) and the moderating effect of employee involvement (EI) in the banking industry of Bangladesh.

REVIEW OF LITERATURE & HYPOTHESIS DEVELOPMENT

Critical Success Factors of TQM Practices

Critical success factors (CSFs) may be observed as variables that govern firms' performance in the successful implementation of TQM. The factors and practices essential for the effective implementation of TQM can be considered as CSFs (Yusof & Aspinwall, 1999). These might be the predominant settings and drivers that are essential for a firm to attain its vision. According to Karuppusami and Gandhinathan (2007), CSFs of TQM are fundamental to the triumph of organizations, which require efficient management and proper monitoring for further improvement. Many researchers have identified CSFs of TQM (Capolupo et al., 2024; Chen, 2024; Georgiev & Ohtaki, 2020; Reinaldo et al., 2021; Sreedharan & Sunder, 2018).

Scholars (Akanmu et al., 2023; Gupta et al., 2023; Nogueiro et al., 2022; Venkatraman, 2007) have recognized and addressed TML as the CSF for TQM implementation. In general, they have contended that top management's capability to form a vision and endorse change is at the core of the effective implementation of TQM. The strong role of top management, driven by a fierce commitment, is critical in the implementation process of TQM and typically acts as a front-runner and driving force for generating values, goals, and structures that fulfill customers' needs (Yunoh & Ali, 2015). Top management commitment is ranked first and established as fundamental for successfully implementing TQM initiatives, as found in the study by Gupta and Mittal (2020). Through active participation in quality improvement programs, top management can demonstrate its commitment (Durairatnam et al., 2020). In a recent study on the leadership of TQM, Bouranta (2021) disclosed that transformational leadership has a positive effect on customer focus, human resource management, process management, strategic planning, and learning, which they addressed as TQM implementation regardless of the industry type, manufacturing area, or service. Moreover, the author concluded that the service industry requires employee education and transformational leadership.

“Quality begins with the customer” is a recognized statement for TQM practices. In banking parlance, the customer accepts the services offered by the banks. Currently, all types of organizations, from the smallest to the largest, are under pressure to satisfy end customers due to the globalization of the economy (Krishnan, 2013). Some researchers have addressed TQM as a culture of an organization devoted to total customer satisfaction through continuous quality improvement rather than merely management perception (Gupta et al., 2023; Talib et al., 2011; Vouzas & Psychogios, 2007). The customer’s upshots are constantly unanticipated in the service industry (Ordanini et al., 2014). As a result, the banking sector should focus more on its customers’ needs and expectations. Al-Swidi and Mahmood (2012) emphasized the necessity to gauge the comprehensive knowledge of customers’ needs, requirements, and expectations in designing services offered by banks. Customer satisfaction can be gained by capturing the customer’s voice (Chiguvi, 2016). At each level of the product development process, the integration of customers’ judgment should be respected (Wang & Meckl, 2020).

Quality performance is highly influenced by supplier quality (Flynn et al., 1994; Saraph et al., 1989). According to ISO 9000-2000, suppliers are considered as quality partners in the process of upgrading products and services. A deadline that is impossible to meet can result in an underwhelming selection of suppliers based on inadequate evidence about supplier specifications (Islam & Haque, 2012). Supplier quality management is considered an indispensable aspect of TQM implementation, focusing on effective supplier quality management that enables organizations to establish long-term, supportive relationships with their suppliers, particularly in terms of supplier efficiency, following supplier quality audits and participation in supplier quality events (Zhang et al., 2000).

Lahidji and Tucker (2016) demonstrated that the organizations have experienced high growth, which has led to the entrenchment of continuous improvement in their corporate policy. In a competitive banking business, due to the very essence of success, customer satisfaction is a thoughtful consideration (Siddiqi, 2011). As a result, various organizations invest in innovation to maintain customer satisfaction, which is a direct outcome of continuous improvement. In the literature, the association between TQM and innovation is proclaimed as a close and complex relationship (Hoang et al., 2006; Martinez-Costa & Martinez-Lorente, 2008). Continuous improvement not only improves outcomes but also enhances the capability to produce future results. Improvement never stops, and an organization must recognize that no process, product, or service ever reaches perfection if it remains static (Al-Khalifa, 2000). To achieve continuous improvement, all processes should be integrated, and all employees should contribute through active participation (Wang & Meckl, 2020).

TQM and Sustainable Organizational Performance

TQM is an integrative firm-wide management philosophy aimed at continuously improving the quality of the processes, products, and services by focusing on meeting or exceeding customer expectations to enhance customer satisfaction and organizational performance (Prajogo & McDermott, 2005; Sadikoglu & Olcay, 2014). TQM practices enhance robustness in their external social networks through establishing stronger external social networks, which in turn make substantial contributions to strategic flexibility and organizational learning (Perez & Gutiérrez, 2013). TQM contributes to achieving a competitive advantage by outperforming competitors (Santos-Vijande & Álvarez-González, 2007). Recently, researchers have found a positive relationship between TQM implementation and firms’ performance (Al-Dhaafri et al., 2016; Herzallah et al., 2014; Kanapathy et al., 2017; Panuwatwanich & Nguyen, 2017; Sadikoglu & Olcay, 2014; Valmohammadi & Roshanzamir, 2015). TQM is a potential tool for reinforcing competitive advantage, meeting customer needs, and improving organizational effectiveness through the system efficacy of production lines, planning, design, quality instruments, and techniques implemented, as well as customer satisfaction (Khanam et al., 2015). The application of TQM initiatives is being continuously explored for fostering and sustaining organizational manifestation and reinvigoration (Baird et al., 2011). Literature evidences the positive association of TQM and SOP (Sin et al., 2021a; Sin et al., 2021b; Wassan et al., 2022). To effectively lead their team and meet objectives for the organization’s stakeholders and customers, managers must possess sustainable excellence and a well-defined mission (Akanmu & Mohamad, 2021). According to Busse et al. (2016), sustainability is considered to be economic growth that satisfies current demands without compromising the ability of future generations to meet their own needs. TQM factors have a positive impact on proximal performance outcomes, which enhance sustainability in performance (Sin et al., 2021b).

TQM & Employee Involvement

TQM is a collaborative effort among management, employees, suppliers, and dealers aimed at meeting and exceeding customer satisfaction levels (Gupta & Mittal, 2020). The success of TQM leads to commitment to quality by the entire workforce of the organization (Singh & Dubey, 2013). Various attempts have been made by different researchers to demonstrate that TQM practices have a noteworthy relationship with HRM (Human Resource Management) practices, which leads to gaining competitive advantages (Ahmed & Siddiqui, 2020; Hataani & Mahrani, 2013; Sin et al., 2021b). Knowledgeable employees are the primary requirement for maintaining high quality, and to better comprehend quality-related matters and their contribution to TQM practices, employees should receive training and be assigned specific responsibilities (Wang & Meckl, 2020). The researchers also emphasized the necessary knowledge employees need to make constructive contributions to TQM in the direction of innovation, which is important for achieving complete reimbursements and business superiority. Positive employee work attitudes should be fostered, which will act as

mediators leading to propelling quality performance (Durairatnam et al., 2020). Employee engagement functions as a predictable mechanism to support the effective implementation of TQM (Ababneh, 2021).

TQM and Organizational Culture

Culture has been generically defined as the set of norms, beliefs, and values shared by members of the organization (Cameron & Quinn, 1999; Detert, et al., 2000; Stock et al., 2007). OC, according to De Long and Fahey (2000), is a broad concept that implies diverse levels of values, rules, and practices. One of the most vital critical success or failure factors of TQM practices for improving organizational performance is OC, which has been firmly recognized in many studies (Araújo et al., 2019; Gimenez-Espin et al., 2013; Green, 2012). OC is positively associated with successful TQM implementation, which is frequently referred to by many researchers (Gimenez-Espin et al., 2013; Gozukara et al., 2018; Green, 2012; Hilman et al., 2020).

An environment that fosters operational and organizational performance can be developed by OC (Cadden et al., 2013); however, it is essential to understand the role of OC in relation to TQM and organizational performance (Hilman et al., 2020). Therefore, examining the association among TQM practices, organizational performance, and OC is a profound need (Ebrahimi & Sadeghi, 2013). Investigating the mediating role of OC in the relationship between TQM and performance is also greatly needed (Kanapathy et al., 2017). Therefore, investigating the direct and indirect role of OC in the relationship between TQM and SOP would be an extended perspective in the context of Bangladesh. Consequently, it becomes apparent that a significant shift in the OC of the company is necessary for effective TQM deployment (Ababneh, 2021).

Conceptual Framework

While undertaking a deeper review and thorough analysis of literature, a framework has been developed for the study, and hypotheses have been constructed accordingly from a hypothetical standpoint.

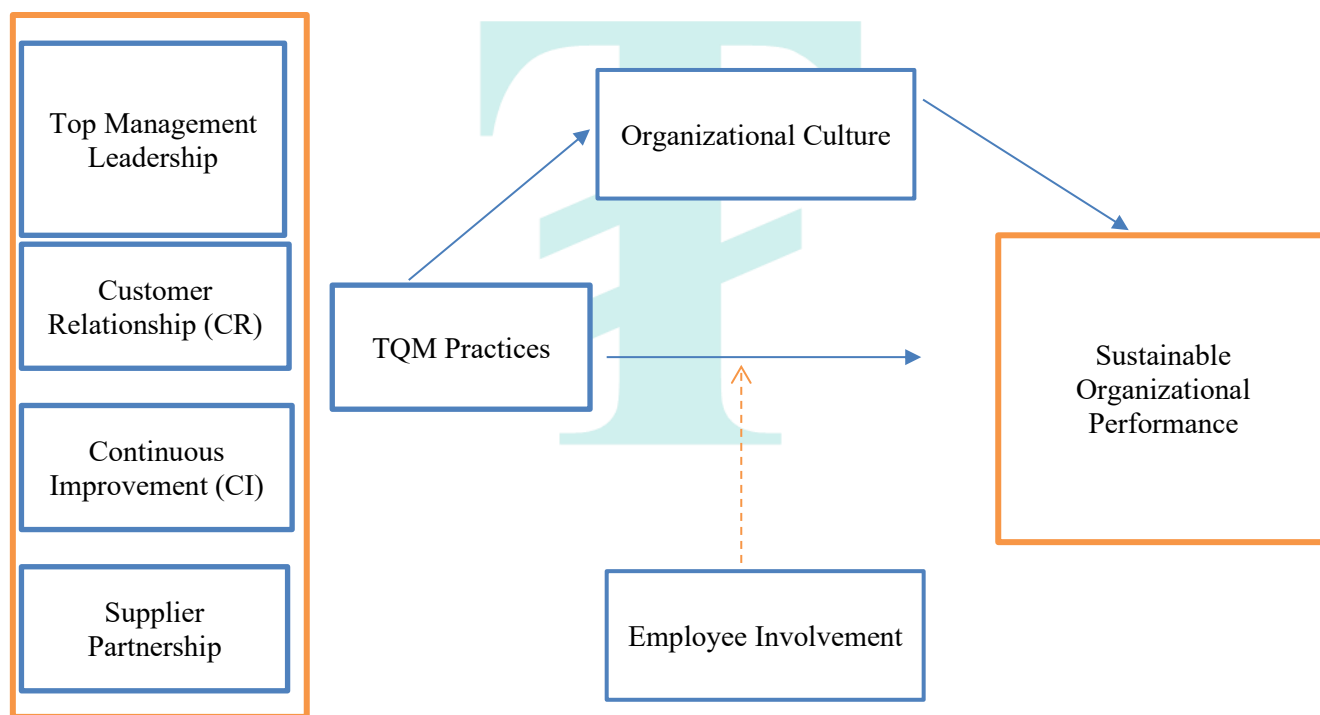


Fig. 1 Conceptual framework

- H1 TQM practices affirmatively influence SOP*
- H2 TQM practices affirmatively influence OC*
- H3 OC strengthens the interrelation between TQM and SOP*
- H4 EI moderates the relationship between TQM and SOP*

METHODOLOGY

Sampling Method

The sample size was determined according to Bartlett et al. (2001), giving 119 with margins of error of .03 and alpha of .05 for continuous data for a population of 10,000 or more, and the number of populations in this study is compatible with the requirement (Bangladesh Bank Annual Report, 2022–2023). 400 questionnaires were distributed to 150 respondents from the top level and 250 respondents from the mid-level. They were chosen as a sample due to their good understanding and detailed knowledge of operations and quality management in banks. The generation of banks, the number of employees, and the number of branches were considered as selection criteria for banks. The purposive sampling technique was used.

Framing the Research Constructs

The questionnaire is the research instrument used in this study for collecting data. The questionnaire was prearranged to use a 5-point Likert scale, which enabled the collection of data based on the level of agreement or disagreement of the respondents with the statements in the questionnaire.

Table 1 Sources of measured items and Cronbach's Alpha of the factors

Constructs	No. of Items	Sources	Cronbach's Alpha
TML	3	Zhang et al., 2000	0.722
EI	3	Lau et al., 2004 Valmohammadi, 2011	0.759
CR	3	Zhang et al., 2000	0.703
SP	3	Zu et al., 2010	0.719
CI	4	Antony et al., 2002	0.775
OC	4	Durairatnam et al., 2020 Irfan & Kee, 2013	0.768
SOP	4	AlShehail & Ajmal, 2022	0.732

Analysis Process

Partial least squares structural equation modeling (PLS-SEM) (SmartPLS-3) was chosen as the statistical tool for analyzing the survey data. The choice of using PLS-SEM for data analysis in this study was based on the ability to handle both normal and non-normal datasets. The SEM is recognized as a more inclusive and spontaneous technique for research design and data analysis than any other statistical model (Hafeez et al., 2006). Originally developed by Wold (1974, 1980, 1982), PLS-SEM, although once used only in scientific disciplines, is now widely applied in many social science areas, and in TQM research (Acquah et al., 2023; Akanmu et al., 2023; Ali AlShehail et al., 2022; Fotopoulos & Psomas, 2010).

Ethical Issues

In this study, the researcher sought approval to conduct the research and prepared a letter that was delivered to the HR departments of each bank. Additionally, the confidentiality and privacy of the information were strictly maintained, and the purpose of the research was explained to the respondents before they were asked to complete the questionnaires and participate in the interviews.

ANALYSIS & INTERPRETATION

Assessment of the Measurement Model

The items of each construct were verified using confirmatory factor analysis via SmartPLS version 3. According to the results, the factor loading of all the items were higher than the reference value of 0.708 (Hair et al., 2019). To assess reliability, the researcher used Cronbach's alpha and composite reliability (CR) test, where each of the constructs should have a value higher than 0.700. The average variance extracted (AVE) was also used to measure convergent validity, which should be higher than 0.500. In addition, the heterotrait–monotrait ratio (HTMT) was calculated to examine the discriminant validity, where a value lower than 0.850 indicates that the constructs are conceptually different (Hair et al., 2019). Based on the research data, all constructs met the minimum reference value to be declared reliable and valid (Tables 2 and 3).

The variance inflation factor (VIF) of each study item should be less than 5 to prevent significant multicollinearity issues. A possible collinearity problem is indicated by a VIF rating between 3 and 5. To avoid potential collinearity problems, a VIF value less than 3 is preferred (Hair et al., 2019). In this study, all items in each factor have a VIF score of less than 3 (Table 4).

Table 2 Measurement Model

Items	Loadings	Cronbach's Alpha	CR	AVE
CI1	0.734	0.768	0.851	0.589
CI2	0.725			
CI3	0.830			
CI4	0.776			
CR1	0.804	0.755	0.855	0.664
CR2	0.901			
CR3	0.731			
EI1	0.774	0.759	0.861	0.675
EI2	0.827			
EI4	0.861			
OC1	0.729	0.780	0.859	0.604

OC2	0.773			
OC3	0.835			
OC5	0.767			
SP1	0.848			
SP2	0.716	0.743		0.851
SP4	0.858			
SOP1	0.751			
SOP2	0.796	0.776		0.854
SOP3	0.799			0.595
SOP4	0.738			
TML1	0.759			
TML2	0.895	0.778		0.869
TML3	0.832			0.69

Table 3 Assessment of HTMT

	CI	CR	EI	OC	SP	TI	TML
CI							
CR	0.749						
EI	0.516	0.651					
OC	0.863	0.611	0.785				
SP	0.550	0.548	0.719	0.675			
SOP	0.785	0.584	0.613	0.766	0.606		
TML	0.664	0.625	0.820	0.685	0.619	0.720	

Table 4 VIF

Items	VIF	Items	VIF	Items	VIF
CI1	1.481	EI2	1.639	SP4	1.497
CI2	1.412	EI4	1.666	SOP1	1.586
CI3	1.711	OC1	1.302	SOP2	1.475
CI4	1.440	OC2	1.599	SOP3	1.681
CR1	1.608	OC3	1.785	SOP4	1.527
CR2	1.638	OC5	1.652	TML1	1.574
CR3	1.394	SP1	1.657	TML2	1.912
EI1	1.395	SP2	1.391	TML3	1.549

Structural Model (Hypotheses Testing)

The study involved a two-stage approach where TQM practices were composed of four independent latent variables: CI, CR, SP, and TML. To evaluate multicollinearity, the researcher examined the outer weight and loading intensities, as well as the VIF. To avoid major multicollinearity problems, the VIF should be smaller than 3, as was previously described. Additionally, the outer weights should be sufficiently large to ensure the accuracy of the measurement model's higher-order dimensions (Ali et al., 2018). The study's lower-order variables were determined to be highly significant, and the VIF was confirmed to be less than 3, which is below the set point (Table 5). As a result, the higher-order context is legitimate enough to be employed in subsequent exploration.

Table 5 Validity Test for the Higher Order Construct

HOC	LOCs	Outer Weight	t Statistics	p Values	Outer Loadings	VIF
	CI	0.591	9.855	0.000	0.905	1.715
TQM	CR	0.103	1.693	0.045	0.670	1.593
	SP	0.305	5.467	0.000	0.718	1.415
	TML	0.239	3.496	0.000	0.742	1.605

The PLS algorithm was run using smart PLS-SEM to test the model and examine the direct and indirect relationships, as well as their significance, and the path coefficients generated by bootstrapping, which determine the t-values and p-values. Through proposed bootstrapping on 5,000 samples, the hypotheses were investigated (Hair et al., 2019). Because the hypotheses were discovered to be unidirectional based on the analysis of the preceding research, the bootstrapping was carried out using a one-tailed t-test.

According to the prior assumptions, both TQM and OC have a positive influence on SOP. The analysis based on the survey data yielded similar results ($\beta = 0.204$, $t = 3.659$, $p = 0.000$, and $\beta = 0.528$, $t = 9.400$, $p = 0.000$). Additionally, the influence of TQM on OC exhibits a direct positive relationship ($\beta = 0.748$, $t = 32.898$, $p < 0.001$). The analysis also revealed that the moderating effect of EI on the relationship between TQM and SOP is also significant and favorable ($\beta = 0.060$, $t = 1.720$, $p = 0.043$). Furthermore, OC significantly strengthens the relationship between TQM and SOP ($\beta = 0.395$, $t = 8.289$, $p < 0.001$). Overall, all the hypotheses were supported based on the analysis of the survey data.

Table 6 Hypothesis Testing

Path	Beta	Standard Error	t Statistics	P Values	Confidence Interval	
					5.00%	95.00%
TQM -> SOP	0.204	0.056	3.659	0.000	0.113	0.299
OC -> SOP	0.528	0.056	9.400	0.000	0.433	0.618
TQM -> OC	0.748	0.023	32.898	0.000	0.702	0.780
EI*OC -> SOP	0.060	0.035	1.720	0.043	0.008	0.122
TQM -> OC -> SOP	0.395	0.048	8.289	0.000	0.316	0.474

DISCUSSION

The aim of this research was to explore the association of TQM and SOP through examining the mediating effect of OC and the moderating effect of EI in the banking industry of Bangladesh. According to the analysis, a positive association has been observed among TQM, OC, and SOP, which aligns with other studies (Akanmu, 2021; Al-Otaibi, 2015; Hilman et al., 2020; Prajogo & McDermott, 2005; Sin et al., 2021b; Valmohammadi, 2015). The result also reveals a positive association between the indirect effects of OC and EI, thereby strengthening the relationship between TQM and SOP, as illustrated in other studies (Al-Swidi & Mahmood, 2012; Hilman et al., 2020; Isnaini, 2021; Valmohammadi & Roshanzamir, 2015).

The study demonstrates a positive correlation between TQM practices and a higher level of SOP, suggesting that robust TQM frameworks are more conducive to achieving long-term sustainability. The researcher addressed TML, customer relationship, continuous improvement, and SP as the CSFs of TQM to achieve high-quality outputs, operational efficiency, and competitive advantage, which are essential for ensuring SOP. Top management is accountable for establishing policies, guidelines, and strategic objectives, aligning quality policies with the quality statement, creating a culture of continuous improvement, and demonstrating leadership and direction for quality management within the organization. Enhanced customer satisfaction can be achieved through establishing a synchronized system to put forward customer feedback; developing and offering services that understand the needs and preferences of customers in terms of maintaining a long-term relationship; personal counseling before a purchase decision; identifying emotional and psychological needs of customers; providing service with consistent quality; ensuring guaranteed security, privacy, and confidentiality; and offering discretionary portfolio management and global accessibility. SP can be assessed by focusing on long-term partnerships, establishing principles for improving partnerships, providing information for suppliers' quality data, selecting suppliers based on their quality system rather than prices, establishing a proper supplier evaluation system, and understanding the need to incorporate suppliers as an input for quality services. Continuous improvement is a vital TQM factor for implementing impactful SOP through the proper utilization of resources, using TQM tools and techniques to measure performance, build capabilities, and create a culture of incremental enhancements to processes and systems.

The researcher considers OC as a vital mechanism for fostering the TQM practices to gain SOP. Nevertheless, as discussed in the literature review, TQM requires organizational change, and in this regard, the role of OC is highly valuable. OC can reinforce TQM principles, drive continuous improvement, value both continuous improvement and customer satisfaction, promote innovation, transparency, and collaboration, offer solace to EI, and drive sustainability.

EI strengthens the relationship between TQM and SOP, as it has been illustrated as a critical moderating factor that explains this relationship. Quality movement is employee-driven. Therefore, EI in making decisions regarding the development of quality goals and strategies, customer-related problem-solving, incorporating the voice of customers, increasing commitment and ownership, and fostering cultural integration of engagement, participation, and continuous improvement will leverage the full potential of TQM to achieve long-term sustainability.

IMPLICATION & CONCLUSION

The global economy has witnessed many extreme changes that put every type of business organization under pressure due to the impact of high information technology on decisions, planning, and action; tremendous growth in customers' value awareness and value demands; a breakdown in the conventional boundaries of entrepreneur leaders and managers; growing complexities of modern business functions and structures; and emerging markets with information, communication, and knowledge-based services. Considering all this, gaining a competitive advantage requires finding a new way, and TQM is getting attention as well as appreciation in this regard. The study is based on findings that examine the extent of TQM practices in the banking sector of Bangladesh, which recognizes the urgent need to respond to competitors' strategies as quickly as possible. TQM initially seemed confined to the manufacturing sector, but the service sector is increasingly appreciating the benefits of TQM. Doubtlessly, the epoch of TQM is upon us. But without proper planning and effective utilization of CSFs of TQM in relation to other vital factors, it may become just a fad. TQM is a relatively new spectacle in the banking sector of Bangladesh. Aiming to survive in this dynamic environment, organizations are experiencing an urgency to adopt and implement new management approaches for SOP. In this regard, TQM practices, along with the association of OC and EI, can become the most effective strategy. Effective TQM practices would lead to SOP through high employee orientation, fostering conducive participation, and creating a culture that promotes self-efficacy and personal valence for fruitful TQM implementation. Either way, a quality-oriented, supportive culture would create a fertile platform for increasing employee involvement and commitment, ultimately leading to the effective implementation of TQM and enhanced, sustainable organizational performance in the long run.

Better understanding of integrating the approach of TQM, EI, and OC through alignment of TQM goals with corporate culture; formulation of strategy; and communication infrastructure to strengthen the employees' involvement through adopting a self-development plan for career growth and applying TQM tools such as quality circles, team building, and problem-solving tools would impact on sustainable business performance to gain competitive advantages in the global marketplace.

FUNDING INFORMATION

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

DECLARATION OF CONFLICT

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

REFERENCES

1. Ababneh, O. M. A. (2021). The impact of organizational culture archetypes on quality performance and total quality management: the role of employee engagement and individual values. *International Journal of Quality & Reliability Management*, 38(6), 1387-1408. <https://doi.org/10.1108/IJQRM-05-2020-0178>
2. Acquah, I. S. K., Quaicoe, J., and Arhin, M. (2023). How to invest in total quality management practices for enhanced operational performance: findings from PLS-SEM and fsQCA. *The TQM Journal*, 35(7), 1830-1859. <https://doi.org/10.1108/TQM-05-2022-0161>
3. Adebisi, S. A., and Bakare, N. A. (2019). Survival strategies and sustainability of small and medium enterprises in a volatile environment. *Management Dynamics in the Knowledge Economy*, 7(4), 553-569. DOI 10.25019/MDKE/7.4.07
4. Ahmed, S. W., and Siddiqui, D. A. (2020). Total Quality Management and Competitive Advantages: Evidence from Pakistani Banking Industry. *Human Resource Research*, 4(1). <https://doi.org/10.5296/hrr.v4i1.16410>
5. Akanmu, M. D., and Mohamad, B. (2021, June). The mediating role of organizational excellence between total quality management practices and sustainability: a preliminary. In *18th International Symposium on Management (INSYMA 2021)* (pp. 112-118). Atlantis Press. -<http://creativecommons.org/licenses/by-nc/4.0/>
6. Akanmu, M. D., Hassan, M. G., Mohamad, B., and Nordin, N. (2023). Sustainability through TQM practices in the food and beverages industry. *International Journal of Quality & Reliability Management*, 40(2), 335-364. <https://doi.org/10.1108/IJQRM-05-2021-0143>
7. Al-Dhaafri, H. S., Al-Swidi, A. K., and Yusoff, R. Z. B. (2016). The mediating role of TQM and organizational excellence, and the moderating effect of entrepreneurial organizational culture on the relationship between ERP and organizational performance. *The TQM Journal*, 28(6), 991-1011. <https://doi.org/10.1108/TQM-04-2014-0040>
8. Ali AlShehail, O., Khan, M. and Ajmal, M. (2022). Total quality management and sustainability in the public service sector: the mediating effect of service innovation. <https://doi.org/10.1108/BIJ-08-2020-0449> *Benchmarking: An International Journal*, 29(2), 382-410. <https://doi.org/10.1108/BIJ-08-2020-0449>
9. Ali, F., Rasoolimanesh, S. M., Sarstedt, M., Ringle, C. M., and Ryu, K. (2018). An assessment of the use of partial least squares structural equation modeling (PLS-SEM) in hospitality research. *International journal of contemporary hospitality management*, 30(1), 514- 538. DOI 10.1108/IJCHM-10-2016-0568
10. Al-Khalifa, K. N. (2000). *Understanding the cultural constraints of TQM implementation in Qatar industries*. (Doctoral dissertation, The University of Birmingham). <https://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.508644>
11. Al-Otaibi, F. M. S. (2015). Role of exploratory factor analysis applicability of TQM practices on the items of quality culture in the kingdom of Saudi Arabia. *International Journal of Business and Management*, 10(1), 136. doi:10.5539/ijbm.v10n1p136
12. Al-Swidi, A. K., and Mahmood, R. (2012). Total quality management, entrepreneurial orientation and organizational performance: The role of organizational culture. *African Journal of business management*, 6(13), 4717. DOI: 10.5897/AJBM11.2016
13. Antony, J., Leung, K., Knowles, G., and Gosh, S. (2002). Critical success factors of TQM implementation in Hong Kong industries. *International journal of quality & reliability management*. 19(5), 551-566. <https://doi.org/10.1108/02656710210427520>
14. Araújo, R., Santos, G., da Costa, J. B., and Sá, J. C. (2019). The quality management system as a driver of organizational culture: An empirical study in the Portuguese textile industry. *Quality Innovation Prosperity*, 23(1), 1-24. DOI: 10.12776/QIP.V23I1.1132
15. Baird, K., Jia Hu, K., and Reeve, R. (2011). The relationships between organizational culture, total quality management practices and operational performance. *International journal of operations & production management*, 31(7), 789-814. doi: 10.1108/01443571111144850.
16. Bangladesh Bank. (2022-2023). Branch Statistics. Statistics Department (e-Banking and e-Commerce Statistics Unit), Bangladesh Bank, Dhaka, Bangladesh. <https://www.bb.org.bd/pub/annual/anreport/ar1920/index1920.php>

17. Bartlett, E. J., Kotrlik, W. J., and Higgins, C., C (2001). Organizational Research: Determining Appropriate Sample Size in Survey Research. *Information Technology, Learning, and Performance Journal*, 19(1), 43-50.
18. Bouranta, N. (2021). Does transformational leadership influence TQM practices? A comparison analysis between manufacturing and service firms. *The TQM Journal*. 33 (3), 706-728. <https://doi.org/10.1108/TQM-12-2019-0296>
19. Busse, C., Schleper, M. C., Niu, M., and Wagner, S. M. (2016). Supplier development for sustainability: contextual barriers in global supply chains. *International Journal of Physical Distribution & Logistics Management*, 46(5), 442-468. doi: 10.1108/ijpdlm-12-2015-0300.
20. Cadden, T., Marshall, D., and Cao, G. (2013). Opposites attract: organisational culture and supply chain performance. *Supply Chain Management: an international journal*, 18(1), 86-103. <https://doi.org/10.1108/13598541311293203>
21. Cameron, K.S., and Quinn, R.E. (1999). *Diagnosing and changing organizational culture. Based on the competing values framework*. Addison-Wesley.
22. Capolupo, N., Virglerová, Z., and Adinolfi, P. (2024). Managing TQM's soft side: an explorative study of social care multiservice organizations. *The TQM Journal*, 36(3), 847-869 DOI 10.1108/TQM-01-2022-0037
23. Chen, J. K. (2024). Identifying critical success factors of total quality management via comprehensive assessment of soft and hard factors. *The TQM Journal*. 36(3), 679-701. <https://doi.org/10.1108/TQM-03-2020-0058>
24. Chiguvu, D. (2016). Impact of Total Quality Management on Customer Satisfaction in the Retail Sector: Case of indigenous Supermarkets in Botswana. *European Journal of Business and Management*, 8(28), 119-131.
25. De Long, D.W., and Fahey, L. (2000). Diagnosing cultural barriers to knowledge management. *Academy of Management Executive*, 14(4), 118-127. <https://doi.org/10.5465/ame.2000.3979820>
26. Detert, J.R., Schroeder, R.G., and Mauriel, J.J. (2000). A framework for linking culture and improvement initiatives in organizations. *Academy of Management Review*, 25(4), 850-863. <https://doi.org/10.5465/amr.2000.3707740>
27. Durairatnam, S., Chong, S. C., Jusoh, M., and Dharmaratne, I. R. (2020). Does people-related total quality management “work” for people? An empirical study of the Sri Lankan apparel industry. *The TQM Journal*. <https://doi.org/10.1108/TQM-06-2020-0140>
28. Ebrahimi, M., and Sadeghi, M. (2013). Quality management and performance: An annotated review. *International Journal of Production Research*, 51(18), 5625-5643. <https://doi.org/10.1080/00207543.2013.793426>
29. Flynn, B., Schoeder, R. and Sakibaba, S. (1994). A framework for quality management research and associated measurement instrument. *Journal of Operations Management*, 11, 339-66. [https://doi.org/10.1016/S0272-6963\(97\)90004-8](https://doi.org/10.1016/S0272-6963(97)90004-8)
30. Fotopoulos, C. V., and Psomas, E. L. (2010). The structural relationships between TQM factors and organizational performance. *The TQM journal*, 22(5), 539-552. DOI 10.1108/17542731011072874
31. Georgiev, S., and Ohtaki, S. (2020). Critical success factors for TQM implementation among manufacturing SMEs: Evidence from Japan. *Benchmarking: An International Journal*. 27(2), 473-498. <https://doi.org/10.1108/BIJ-01-2019-0037>
32. Gimenez-Espin, J.A., Jiménez-Jiménez, D. and Martínez-Costa, M., (2013). Organizational culture for total quality management. *Total Quality Management & Business Excellence*, 24(5-6), 678-692. <https://doi.org/10.1080/14783363.2012.707409>
33. Gözükar, İ., Çolakoğlu, N., and Şimşek, Ö. F. (2018). Development culture and TQM in Turkish healthcare: importance of employee empowerment and top management leadership. *Total Quality Management & Business Excellence*, 30(11-12), 1302-1318. <https://doi.org/10.1080/14783363.2017.1366266>
34. Green, T.J., (2012). TQM and organisational culture: how do they link? *Total Quality Management & Business Excellence* 23 (2), 141-157. <https://doi.org/10.1080/14783363.2012.647847>
35. Gupta, P., and Mittal, A. (2020). Identifying the Most Influencing Success Factors of TQM Implementation in Manufacturing Industries using Analytical Hierarchy Process. *Proceedings of the International Conference on Industrial Engineering and Operations Management*. Dubai: IEOM Society International
36. Gupta, S., Khanna, P. and Soni, U. (2023). Analyzing the interaction of critical success factor for TQM implementation- A grey-DEMATEL approach. *Operations Management Research* 16(3), 1619-1640 <https://doi.org/10.1007/s12063-023-00367-y>
37. Hafeez, K., Keoy, K. H., and Hanneman, R. (2006). E-business capabilities model: Validation and comparison between adopter and non-adopter of e-business companies in UK. *Journal of Manufacturing Technology Management*, 17(6), 806-828. <https://doi.org/10.1108/17410380610678819>
38. Hataani, L., and Mahrani, S. (2013). Strategic human resource management practices: mediator of total quality management and competitiveness (a study on small and medium enterprises in kendari southeast sulawesi). *International Journal of Business and Management Invention*, 2(1), 8-20. www.ijbmi.org.
39. Hair, J. F., Risher, J. J., Sarstedt, M., and Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European business review*, 31(1), 2-24. <https://doi.org/10.1108/EBR-11-2018-0203>

40. Herzallah, A. M., Gutiérrez-Gutiérrez, L., and Munoz Rosas, J. F. (2014). Total quality management practices, competitive strategies and financial performance: the case of the Palestinian industrial SMEs. *Total Quality Management & Business Excellence*, 25(5-6), 635-649. <https://doi.org/10.1080/14783363.2013.824714>
41. Hilman, H., Ali, G. A., and Gorondutse, A. H. (2020). The relationship between TQM and SMEs' performance: The mediating role of organizational culture. *International Journal of Productivity and Performance Management*, 69(1), 61-84. DOI 10.1108/IJPPM-02-2019- 0059
42. Hoang, D. T., Igel, B., and Laosirihongthong, T. (2006). The impact of total quality management on innovation: Findings from a developing country. *International Journal of Quality and Reliability Management*, 23(9), 1092 - 1117. <https://doi.org/10.1108/02656710610704230>
43. Irfan, S. M., and Kee, D. M. H. (2013). Critical success factors of TQM and its impact on increased service quality: A case from service sector of Pakistan. *Middle-East Journal of Scientific Research*. 15(1), 61-74. DOI: 10.5829/idosi.mejsr.2013.15.1.828
44. Islam, A., and Haque, A. F. M. A. (2012). Pillars of TQM implementation in manufacturing organization-an empirical study. *Journal of Research in international business and management*, 2(5), 128-141.
45. ISNAINI, D. B. J., DANILWAN, Y., MANSUR, D. M., ILYAS, G. B., MURTINI, S., and TAUFAN, M. Y. (2021). Perceived distribution quality awareness, organizational culture, TQM on quality output. *유통과학연구*, 19(12), 1-14. <http://dx.doi.org/10.15722/jds.19.12.202112.1>
46. Kanapathy, K., Bin, C. S., Zailani, S., and Aghapour, A. H. (2017). The impact of soft TQM and hard TQM on innovation performance: the moderating effect of organisational culture. *International Journal of Productivity and Quality Management*, 20(4), 429-461.
47. Karuppusami, G. and Gandhinathan, R. (2007). Web-based measurement of the level of implementation of TQM in Indian industries. *Total Quality Management and Business Excellence*, 18(40), 379-391. <https://doi.org/10.1080/14783360701231351>
48. Khanam, S., Talib, F., and Siddiqui, J. (2015). Identification of total quality management enablers and information technology resources for ICT industry: a Pareto analysis approach. *International Journal of Information Quality*, 4(1), 18-41. doi: 10.1504/ijiq.2015.071675.
49. Krishnan, A. (2013). Culture As a Successor of Quality Initiatives: A Review. *International Journal of Social Science*, 2(1), 53-61.
50. Lahidji, B., and Tucker, W. (2016). Continuous Quality Improvement as a Central Tenet of TQM: History and Current Status. *Quality Innovation*, 20(2), 157-168. <https://doi.org/10.12776/qip.v20i2.748>
51. Lau, R. S. M., Zhao, X., and Xiao, M. (2004). Assessing quality management in China with MBNQA criteria. *International Journal of Quality & Reliability Management*. 21(7), 699-713. <https://doi.org/10.1108/02656710410549064>
52. Ljungholm, D. P. (2016). Sustainability implementation and organizational performance. *Review of Contemporary Philosophy*, (15), 139-145.
53. Martinez-Costa, M., and Martínez-Lorente, A. R. (2008). Does quality management foster or hinder innovation? An empirical study of Spanish companies. *Total Quality Management*, 19(3), 209-221. <https://doi.org/10.1080/14783360701600639>
54. Nogueiro, T., Saraiva, M., and Pires, A. R. (2022, May). Critical Success Factors of TQM for Sustainability in Higher Education Institutions: A Theoretical Contribution. In *International Conference on Quality Innovation and Sustainability* (pp. 87-102). Cham: Springer International Publishing.
55. Ordanini, A., Parasuraman, A. and Rubera, G. (2014). When the recipe is more important than the ingredients: a qualitative comparative analysis (QCA) of service innovation configurations. *Journal of Service Research*, 17(2), 34-149. <https://doi.org/10.1177/1094670513513337>
56. Panuwatwanich, K., and Nguyen, T. T. (2017). Influence of organisational culture on total quality management implementation and firm performance: evidence from the Vietnamese construction industry. *Management and Production Engineering Review*, 8. DOI: 10.1515/mper-2017-0001
57. Pérez, V. F., and Gutiérrez Gutiérrez, L. (2013). External managerial networks, strategic flexibility and organisational learning: a comparative study among non-QM, ISO and TQM firms. *Total Quality Management & Business Excellence*, 24(3-4), 243-258. DOI: 10.1080/14783363.2012.669558
58. Prajogo, D. I., and McDermott, C. M. (2005). The relationship between total quality management practices and organizational culture. *International Journal of operations & production management*, 25(11), 1101-1122. DOI 10.1108/01443570510626916
59. Reinaldo, L. D. S. P., Vieira Neto, J., Goyannes Gusmão Caiado, R., and Gonçalves Quelhas, O. L. (2021). Critical factors for total quality management implementation in the Brazilian construction industry. *The TQM Journal*, 33(5), 1001-1019. <https://doi.org/10.1108/TQM-05-2020-0108>
60. Sadikoglu, E., and Olcay, H. (2014). The effects of total quality management practices on performance and the reasons of and the barriers to TQM practices in Turkey. *Advances in Decision Sciences*, 2014. <http://dx.doi.org/10.1155/2014/537605>

61. Salhie, L., and Abu-Doleh, J. (2015). The relationship between total quality management practices and their effects on bank's technical efficiency. *International Journal of Commerce and Management*, 25(2), 173-182.
62. Sancha, C., Wong, C. W., and Thomsen, C. G. (2016). Buyer-supplier relationships on environmental issues: A contingency perspective. *Journal of cleaner production*, 112, 1849-1860.
63. Santos-Vijande, M. L., and Alvarez-Gonzalez, L. I. (2007). TQM and firms performance: An EFQM excellence model research based survey. *International Journal of Business Science & Applied Management (IJBSAM)*, 2(2), 21-41. <https://hdl.handle.net/10419/190585>
64. Saraph, J.V., Benson, P. G., and Shroeder, R.G. (1989). An instrument for measuring the critical factors of quality management. *Decision Sciences*, 20, 810-829. <https://doi.org/10.1111/j.1540-5915.1989.tb01421.x>
65. Siddiqi, K. O. (2011). Interrelations between service quality attributes, customer satisfaction and customer loyalty in the retail banking sector in Bangladesh. *International Journal of Business and Management*, 6(3), 12-21. www.ccsenet.org/ijbm
66. Sin, K. Y., Sim, C. L., Lim, Y. J., Lee, D., and Janang, J. S. (2021a). The mediating effect of business ethics in the relationship between total quality management and sustainable performance: perspective from 4-and 5-stars hotels. *International Journal of Productivity and Quality Management*, 34(2), 176-204. <https://doi.org/10.1504/IJPM.2021.118429>
67. Sin, Y. K., Yeng, K. and Mardani, A. (2021b). Assessing the ideology of total quality management towards hotel sustainability performance: empirical evidence using structural equation modelling. *Int. J. Productivity and Quality Management*. 33(3), 311-335 <https://doi.org/10.1504/IJPM.2021.116934>
68. Singh, T., and Dubey, R. (2013). Soft TQM practices in Indian cement industry – an empirical study. *Int. J. Productivity and Quality Management*, 11(1), 1-28. <https://doi.org/10.1504/IJPM.2013.050566>
69. Sreedharan V, R., and Sunder M, V. (2018). Critical success factors of TQM, Six Sigma, Lean and Lean Six Sigma: A literature review and key findings. *Benchmarking: An International Journal*. 25(9), 3479-3504. <https://doi.org/10.1108/BIJ-08-2017-0223>
70. Stanciu, A. C., Constandache, M., and Condrea, E. (2014). Concerns about the sustainable performance of firm in the context of quality management systems implementation. *Procedia-Social and Behavioral Sciences*, 131, 340-344.
71. Stock, G.N., McFadden, K.L., and Gowen, C.R., III. (2007). Organizational culture, critical success factors, and the reduction of hospital errors. *International Journal of Productions Economics*, 106(2), 368-392. <https://doi.org/10.1016/j.ijpe.2006.07.005>
72. Talib, F., Rahman, Z. and Qureshi, M.N. (2011). Prioritizing the practices of total quality management: an analytic hierarchy process (AHP) analysis for the service industries. *Total Quality Management and Business Excellence*, 22(12), 1331-1351. <https://doi.org/10.1080/14783363.2011.625192>
73. Talib, F., Rahman, Z., and Mn, Q. (2012). Impact of Total Quality Management and Service Quality in the Banking Sector. *Journal of Telecommunications System & Management*, 1(2), 1-5. <https://doi.org/10.4172/2167-0919.1000102>
74. Valmohammadi, C. (2011). The impact of TQM implementation on the organizational performance of Iranian manufacturing SMEs. *The TQM journal*. 23(5), 496-509. <https://doi.org/10.1108/17542731111157608>
75. Valmohammadi, C., and Roshanzamir, S. (2015). The guidelines of improvement: Relations among organizational culture, TQM and performance. *International Journal of Production Economics*, 164, 167-178. <http://dx.doi.org/10.1016/j.ijpe.2014.12.028>
76. Venkateshwarlu, N., Agarwal, A., and Kulshreshtha, M. (2011). Implementation of TQM: A Case Study in an Auto Company. *Asia-Pacific Business Review*, VII(2), 74-82. <https://doi.org/10.1177/097324701100700207>
77. Venkatraman, S. (2007). A framework for implementing TQM in higher education programs. *Quality Assurance in Education*, 15(1), 92-112. <https://doi.org/10.1108/09684880710723052>
78. Vouzas, F., and Psychogios, A. G. (2007). Assessing managers' awareness of TQM. *The TQM magazine*, 19(1), 62-75. <https://doi.org/10.1108/09544780710720844>
79. Wang, Z., and Meckl, R. (2020). Critical success factors of total quality management in autonomous driving business models. *Cogent Engineering*, 7(17). <https://doi.org/10.1080/23311916.2020.1767018>
80. Wassan, A. N., Memon, M. S., Mari, S. I., and Kalwar, M. A. (2022). Impact of total quality management (TQM) practices on sustainability and organisational performance. *Journal of Applied Research in Technology & Engineering*, 3(2), 93-102. <https://doi.org/10.4995/jarte.2022.17408>
81. Wold, H. (1974). Causal flows with latent variables: partings of ways in the light of NIPALS
82. Wold, H. (1980). Model construction and evaluation when theoretical knowledge is scarce
83. Wold, H. (1982). Soft modeling: the basic design and some extensions. in Jo reskog, K.G. and Wold, H. (Eds), *Systems Under Indirect Observations: Part II*, North-Holland, Amsterdam
84. Yunoh, M. N., and Ali, K. A. (2015). Total Quality Management Approach for Malaysian SMEs: Conceptual Framework. *International Journal of Business and Social Science*, 6(1), 152.
85. Yusof, S. R. M., and Aspinwall, E. (1999). Critical success factors for total quality management implementation in small and medium enterprises. *Total Quality Management*, 10(4-5), 803-809. <https://doi.org/10.1080/0954412997839>

86. Zhang, Z., Waszink, A. and Wijngaard, J., 2000. An instrument for measuring TQM implementation for Chinese manufacturing companies. *International Journal of Quality & Reliability Management*, 17(7), pp. 730-55.
<https://doi.org/10.1108/02656710010315247>
87. Zu, X., Robbins, T. L., and Fredendall, L. D. (2010). Mapping the critical links between organizational culture and TQM/Six Sigma practices. *International journal of production economics*, 123(1), 86-106.
[dx.doi.org/10.1016/j.ijpe.2009.07.009](https://doi.org/10.1016/j.ijpe.2009.07.009)

