

PROCESS AND QUALITY IMPROVEMENT PRACTICES AND ORGANIZATIONAL LEARNING PERFORMANCE: A PLS-SEM STUDY

Nafiza Islam¹
Mohammad Thoufiqul Islam

Received 22.10.2025.
Revised 15.12.2025.
Accepted 19.01.2026.

Keywords:

TQM, organizational culture, organizational learning capability, soft TQM practices.

Original research



ABSTRACT

This study aims to scrutinize and confer the impact of soft TQM practices on organizational learning capability (OLC) with the mediating effect of organizational culture (OC) in the service sector of Bangladesh. After a thorough literature analysis and focus group discussions with top and mid-level employees, a questionnaire was framed, and its validity was verified by academics, research scholars, and industry specialists. Sample size was 160, and the data were scrutinized and summarized through Partial Least Squares-based Structural Equation Modelling PLS-SEM 4.0. The result confirmed a positive relationship among the variables, which indicates the strong association between TQM and organizational learning capability, as TQM is the key enabler for fostering organizational learning. However, organizational culture strengthens this relationship through promoting knowledge sharing, readiness to change, and continuous improvement. The study opens an avenue for the top management and quality practitioners to cultivate a supportive culture aligned with soft TQM practices and build strong integration of TQM and organizational learning capability for competitive sustainability. The study also adds value through its contextual novelty as one of the initial investigations conducted in the service sector of Bangladesh, and, to this effect, the study findings extend prior research and substantially enhance the understanding of the OC mechanisms on the TQM and OLC relationship model.

© 2026 Journal of Engineering, Management and Information Technolog

1. INTRODUCTION

The open market economy, swift technological advancement, and widespread global trade are the magnitudes of globalization, which intensify global rivalry and raise the need for quality enhancement in the business environment, which is highly required for gaining a competitive advantage and securing sustainability. Innovation in technology, changes in consumer needs and preferences, modifications in governmental rules, reform in societal frameworks and ideologies, encompass a new way of thinking and

adopting comprehensive strategies. Like other business sectors, the needs of the different groups of people are fulfilled by the service sector, which is considered a substantial and booming industry all over the world. Undeniably, delivering the highest level of service excellence is a prerequisite for the success of service businesses. The service sector of Bangladesh is small and underdeveloped, but it is emerging and developing. Nonetheless, dynamic shifts like sustained expansion have been a key factor for this sector, and Bangladesh is not an exception. Organizational efficiency issues, fierce competition, the complex demands of digital and real-

¹ Corresponding author: Islam Nafiza
Email: nislam@juniv.edu

time customers, the shift from expensive in-house services to more responsive and manageable ones, changes in government regulations, the challenge of complying with government regulations, and customers' shifting preferences for technology-friendly services are the major challenges, this sector is struggling with (Bhuiyan et al., 2020; Mujeri & Mujeri, 2021; Salam & Islam, 2015; Sultana et al., 2023) and, this situation is demanding the adaptation of a new management strategy for quality services. Quality, in this highly competitive era, is considered a deliberate instrument for measuring business performance. The challenges posed by globalization and the rapid advancement of information technology have not only increased competition in the business sector but also prompted companies to adopt different strategic approaches in order to gain a competitive edge. As a result, quality management has become a substantial aspect, especially in the competitive service sector all over the world. According to Venkateshwarlu et al. (2011), Total Quality Management is a management attitude that aims to uphold standard qualities when acquiring raw material inventories, maintain standard quality of goods, permits the application of standard qualities in manufacturing, logistics, and distribution processes, and, last but not least, provides traders and end users with excellent performance of goods and services. The role and significance of TQM application, which focuses on realigning operational strategies to manage the internal and external environment with varying degrees of dynamism and difficulty, are continuously increased by globalization, industry growth, technological advancement, and intense competition in the business world.

TQM is a strategy that provides a platform to be innovative through exploring new ideas, which appears to have a positive impact on performance (Ahinful et al., 2025). Voluminous literature illustrated TQM as a driving factor for competitive advantage and innovative performance (Ahinful et al., 2025; Ayodeji et al., 2021; Koomson, 2025; Koomson, 2024).

Despite the robust literature evidence of organizational culture, organizational learning, and TQM in a direct relationship has been observed, examining the indirect effect, both in mediating and moderating influence, is quite insignificant in numbers. Total Quality Management (TQM) and innovation are synergistic approaches that propel organizational performance (Shuaib & He, 2024). The study also examined the mediating effect of organizational learning in the relationship between TQM, innovation, and firm performance. TQM and organizational learning, these two management approaches have a reciprocal relationship from the focal point of practices, behaviors, and values, and have two key areas of focus, such as common focus and complementary focus (Tajouri et al., 2025). A study conducted by Haffar et al. (2019) reviewed the relationship between OC and TQM with the mediating effect of psychological mechanisms such as employee readiness for change and employee

commitment to change. Khalil and Muneenam (2021) investigate the causal relationship between TQM and corporate green performance while examining the mediating role of organizational culture, and revealed a positive and significant effect on this relationship. Haffar et al. (2022) addressed the influence of self-efficacy and personal valence in transferring the impact of group and adhocracy culture to TQM. Measuring the direct and indirect effects of OC on TQM adoption may enhance organizational performance and contribute to economic development by generating competitive advantage among the firms (Eshaq & Zainol, 2022). Organizational culture and organizational learning are measured as mediators and moderators in several research investigations in TQM, but they have seldom been observed where both variables are used concurrently in relation to soft TQM techniques, notably in the service sector, which founded the platform to develop the framework of the study.

In Bangladesh, TQM methodology is quite new, but in the manufacturing sector, practices are visible in some cases. However, the service sector of Bangladesh is still lacking the knowledge of TQM, thriving at the same time with challenges in the issue of quality to cope with the global environment. There is a considerable lack of literature with respect to TQM and organizational learning in this sector that attempts to bridge the gap. Therefore, this study has emerged as an attempt to examine the impact of TQM practices on organizational learning capability in the context of the service sector operating in Bangladesh, aligned with the mediating effect of organizational culture.

2. LITERATURE REVIEW

2.1 Critical success factors of soft TQM practices

Critical success factors can be identified as criteria that control a firm's presentation and the effective application of TQM. 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. Quality practitioners should enable CSFs with stronger driving forces for effective implementation of TQM (Chen, 2024; Reinaldo et al., 2021; Sreedharan & Sunder, 2018; Wassan et al., 2023). Extant literature has echoed a lot of studies that identified critical success factors of TQM. Fotopoulos and Psomas (2010) researched Greek companies and recognized nine critical factors that lead to the sustainability of a company. "Leadership, employee management and involvement, strategic quality planning, supplier management, process management, customer focus, continuous improvement, information and analysis, and knowledge and education" are the factors. Othman et al. (2020) have shown leadership, management of staff, information, and analysis, and customer attention as strong predictors of competitive advantage in the banking sector. A voluminous literature has been considered from different

arrays like manufacturing, service, banking, education, health care, tourism, telecom, and so on to explore the soft critical success factors of TQM implementation (Aburayya et al., 2020; Bouranta et al., 2019; Capolupo et al., 2024; El Shenawy et al., 2025; Gözükara et al., 2019; Nogueiro, et al., 2022; Othman et al., 2020).

2.2 Top Management Leadership

Due to the high level of cut-throat competition and the persistent process of change in the contemporary business environment, management of all sorts of organizations is under pressure to implement quality systems for achieving reduced production process errors and maximum profit, aiming at customer satisfaction. Providing high-end service has evolved into a deliberate domineering for senior management all over the world, and in this regard, a good number of quality tools and techniques have been introduced and practiced for achieving this management goal, whereas Total Quality Management (TQM) has been demonstrated to be among the most effective quality practices that have been implemented. A recent study on the leadership of TQM conducted by Bouranta (2021) exposed that transformational leadership has a positive consequence on customer focus, human resource management, process management, strategic planning, and learning, which were addressed as the TQM implementation regardless of the industry type, manufacturing or service. Moreover, the author concluded that the service industry requires employee education, and transformational leadership has a more positive influence on employee education in the service industry than in manufacturing. Research on TQM has constantly emphasized the strong association between successful TQM implementation and leadership (Georgiev & Ohtaki, 2020; Gupta et al., 2023; Haldorai et al., 2025). In general, they have contended that top management's capability to make a vision and endorse change is at the core of the effective implementation of TQM. The strong role of top management through strong commitment is very critical in the implementation process of TQM and stereotypically acts as a frontrunner and driving force for generating values, goals, and structures for customer need fulfillment (Yunoh & Ali, 2015). Top management commitment ranked first and was established as fundamental for implementing TQM initiatives successfully in the findings of the study conducted by Gupta & Mittal (2020). Through active participation in quality improvement programs, top management can demonstrate its commitment (Durairatnam et al., 2020). Innovative leaders can pursue TQM, which is a pathway to innovative performance (Koomson, 2025).

2.3 Customer Relationship

Quality begins with the customer- A recognized statement for TQM practices. The process of economic liberalization, the globalization of markets, and swift changes in a business environment are heading toward a shorter product life cycle and making customers more demanding, which ultimately creates organizations that

are more challenging to meet customer satisfaction. Presently, all types of organizations, from smallest to largest, are under pressure to satisfy end customers due to the globalization of the economy (Krishnan, 2013). Customers must be the center of organizational activities for any business to succeed in this raging environment, according to the marketing concept (Ali & Raza, 2017). Some literature addressed TQM as a culture of an organization devoted to total customer gratification through continuous quality improvement instead of merely management perception (Talib, 2013; Vouzas & Psychogios, 2007). The customers' upshots are constantly unanticipated in the service industry (Ordanini et al., 2014). Customer satisfaction can be gained by capturing customer voice (Chiguvi, 2016). At each level of the product development process, the integration of customers' judgment should be respected (Wang & Meckl, 2020).

2.4 Supplier Partnership

According to ISO 9000-2000, suppliers are considered as quality partners in the process of upgrading products and services. A deadline that is not possible to meet can produce an underrated selection of suppliers grounded on inadequate evidence about supplier specifications (Islam & Haque, 2012). Supplier quality management is measured as an indispensable issue of TQM implementation, with a focus on effective supplier quality management that lets the organizations create long-term supportive relationships with their suppliers concerning supplier efficiency after conducting supplier quality audits and participation in supplier quality events (Zhang et al., 2000).

2.5 Employee Involvement

Total Quality Management is a shared alliance of management, employees, suppliers, and dealers to meet as well as surpass customer satisfaction levels indeed (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 practices, which leads to gaining competitive advantages (Osazevbaru & Amawhe, 2022; Wassan et al., 2023). Knowledgeable employees are the prime requirement for maintaining high quality, and to better comprehend quality-related matters and their contribution in TQM practices, the employees should receive training and be assigned a pre-defined responsibility (Wang & Meckl, 2020). The study also emphasized employees' necessary knowledge to make constructive contributions to TQM heading toward innovation, which is very important for reaching complete reimbursements and business superiority. Positive employee work attitudes should be fostered, which will act as mediators to propel quality performance (Durairatnam et al., 2020).

2.6 Continuous Improvement

According to Morgan and Murgatroyd (1994), continuous improvement in quality consequences is attained by refining every process involved in distributing them. Yusuf et al. (2007) identified the attitude of continuous improvement as moving up the never-ending notion in everybody's mind and every work. Yunoh and Ali (2015) claimed that continuous improvement is not a definite package but a continuous expedition that requires the involvement of every component of the organization. The study conducted by Lahidji and Tucker (2016) showed that the organizations have experienced high growth, which has entrenched continuous improvement in their corporate policy. The association between TQM and innovation is proclaimed to be a very close and complex relationship (Thai Hoang et al., 2006). Continuous improvement not only improves consequences but also improves the capability to produce future outcomes and foster innovation. Improvement never stops, and an organization must recognize that no process, product, or service ever reaches perfection if it remains static (Al-khalifa, 2000). For achieving continuous improvement, all processes should be combined and all employees should contribute through participation (Wang & Meckl, 2020).

2.7 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; Yu, 2007). Organizational culture is positively associated with effective TQM application, proposed by many researchers (Aziz et al., 2019; Aziz & Morita, 2016; Fok et al., 2023; Gozukara et al., 2019). The indirect effect of organizational culture in relation to TQM with other variables has been observed and proven positive in various literatures (Almaamari et al., 2025; Ashraf et al., 2023; Cho et al., 2013; Haffar et al., 2022; Hilman et al., 2020; Mohammed et al., 2015; Sawaeen & Ali, 2021). Almaamari et al., (2025) illustrated that organizational culture positively moderates the relationship between total quality management and organizational performance and weighted organizational culture as a critical resource for attaining competitive advantage through fruitful implementation of TQM.

2.8 TQM and Organizational learning Capability

Organizational learning is a latent multidimensional phenomenon, and organizations should demonstrate a significant level of learning across the indicated dimensions, such as managerial commitment, systems perspective, openness and experimentation, and knowledge transfer and integration, to elevate the learning capability of their members (Jerez-Gomez et al., 2005). A study result demonstrated that TQM has a positive and meaningful impact on organizational learning, and organizational learning considerably influences and embraces organizational innovation (Aminbeidokhti et al., 2016). TQM endorses business

performance and acts as a mediator between business performance and organizational learning, resulting in a significant effect on the integrated model of TQM and organizational learning, which improves business excellence in financial services firms (Lee & Lee, 2015). Similar insightful findings have been illustrated in the study conducted by Shuaib and He (2024), and urged managers to integrate organizational learning as strategic cohesion with other organizational practices. Business organizations that adhere to organizational learning capability would be able to anticipate any changes in the macro and microenvironments and attain higher performance through excellence in operational systems (Basheer et al., 2018).

2.8 Conceptual framework

Conceptual framework is presented on Figure 1.

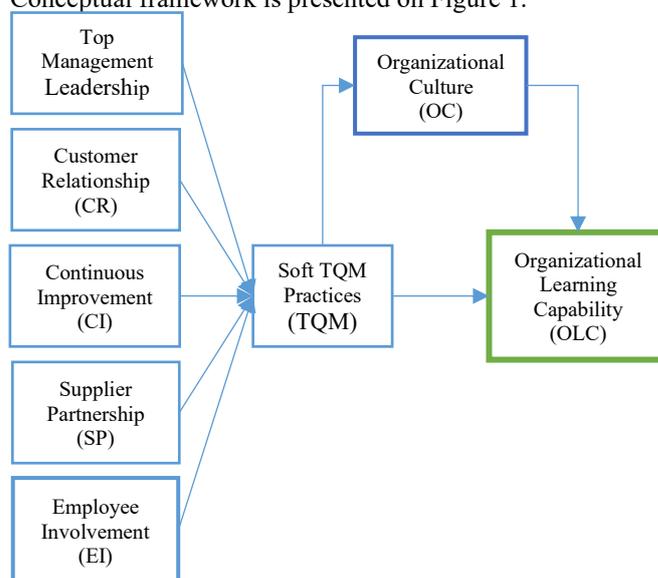


Figure 1. Conceptual Framework

Hypotheses:

- H1: TQM practices significantly influence OC*
- H2: TQM practices significantly influence OLC*
- H3: OC strengthens the interrelation between TQM and OLC*

3. METHODOLOGY

3.1 Population & sample

According to Bartlett et al. (2001), the sample size was calculated to be 119 with alpha 0.05 and margins of error 0.03 for continuous data for 10,000 or more populations. 200 questionnaires were distributed to 50 respondents from top-level management (President, Vice President, GM, Director) and 150 respondents from mid-level and first-line (Branch Manager, Departmental Head, Executive). They have been selected as a sample due to having a thorough understanding of the operations and quality control. The method of convenience sampling was applied as a sampling strategy.

3.2 Data collection sources

The data has been collected through primary and secondary sources. Primary data was collected from service organizations such as banks, insurance companies, event management, hospitals, etc., through self-administered questionnaires using email during the time of June 2024 to September 2024. Respondents read the questionnaire and rated their opinions on a Likert scale. For the literature review, secondary sources were studied initially. Relevant books, journals, academic and business abstracts, bibliographic databases, newspapers, and online search engines were used as secondary source.

3.3 Research instrument

A questionnaire has been used as the research tool in this study to gather data. The questionnaire was developed through a literature review to be administered using a 5-point Likert scale, which allowed data to be gathered according to respondents' agreement or disagreement with the claims. The items of the constructs have been extracted from several literatures for TQM practices (Antony et al., 2002; Ali AlShehail et al., 2022; Durairatnam et al., 2020; Valmohammadi, 2011; Zhang et al., 2000), organizational learning capability (Jerez-Gomez et al., 2005), and organizational culture (The questionnaires were completed and returned by 160 of the 200 targeted respondents, yielding an 80% response rate.

3.4 Analysis process

The Statistical Package for the Social Sciences (SPSS Version 23) program was used for demographic statistics. PLS-SEM (SmartPLS version 4) has been chosen as the statistical tool for analyzing the survey data. Choosing to use PLS-SEM on data distribution, in this study, explains how to take advantage of 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), though at the earlier period PLS-SEM was used in a science discipline, now is widely applied in many social science disciplines, including TQM and quality management (Acquah et al., 2023; Akanmu et al., 2023; Anil & KP, 2019; Hilman et al., 2020; Imran et al., 2018; Manley et al., 2024; Masudin, et al., 2025; Shuaib & He, 2024; Tajouri et al., 2025).

3.5 Ethical issues

In this study, the researcher pursued and practiced the ethical issues through a formal letter delivered to the HR department of each service organization for approval to carry out the study. In addition, confidentiality and privacy of the information were also strictly guaranteed, and the drive and determination of the research were explained to the respondents before engaging them in answering the questionnaires and interviews. The

purpose of the study is only academic and would not reveal the names of the participating organizations and respondents, rest assured.

4. ANALYSIS & INTERPRETATION

4.1 Demographic explanation

The participants were chosen from the top, mid-level, and first-line management of different service organizations of Bangladesh, as they have adequate knowledge and experience with quality issues and well understand the area of organizational learning (Table 1).

Table 1. Demographic statistics

Gender	Male		Female			
	70.5%		29.5%			
Ranking	Top Level		Mid-Level & First line			
	20%		80%			
Section	Banks	Insurance	Event Management	Travel Agencies	Internet Service	Others
	50%	10.5%	5%	15.5%	5%	14%

The study used frequency analysis to break down the gender ratio and the roles of the participants in management.

4.2 Assessment of the Measurement Model

The items of each construct were verified using confirmatory factor analysis using SmartPLS version 4.0. According to the results, the factor loadings of all the items were higher than the reference value 0.708 (Hair et al., 2019). To assess the reliability, the study used Cronbach's alpha and the Composite Reliability (CR) test, where each of the constructs should have a higher value of 0.700. Average Variance Extracted (AVE) was also needed to measure the convergent validity, which should be higher than 0.500. In addition, 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 the constructs met the minimum reference value to be declared as reliable and valid (Table 2 and Table 3).

The 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 the items in each of the factors have a VIF score of less than 3 (Table 4).

Table 2. Measurement Model

Items	Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
CI1	0.735	0.786	0.842	0.579
CI2	0.731			
CI3	0.755			
CI4	0.767			
CR1	0.812	0.745	0.865	0.656
CR2	0.855			
CR3	0.721			
EI1	0.765	0.765	0.845	0.678
EI2	0.812			
EI4	0.789			
OC1	0.739	0.798	0.879	0.612
OC2	0.767			
OC3	0.887			
OC5	0.797			
SP1	0.812			
SP2	0.877			
SP4	0.777			
OLC1	0.752	0.775	0.855	0.589
OLC2	0.802			
OLC3	0.798			
OLC4	0.728			
TML1	0.760	0.779	0.878	0.612
TML2	0.888			
TML3	0.837			

Table 3. Assessment of Heterotrait-Monotrait Ratio (HTMT)

	CI	CR	EI	OC	SP	OLC	TML
CI							
CR	0.749						
EI	0.516	0.651					
OC	0.853	0.612	0.775				
SP	0.551	0.538	0.720	0.685			
OLC	0.785	0.574	0.614	0.776	0.612		
TML	0.665	0.634	0.820	0.685	0.619	0.730	

Table 4. Variance Inflation Factor (VIF)

Items	VIF	Items	VIF	Items	VIF
CI1	1.481	EI2	1.639	SP4	1.497
CI2	1.412	EI4	1.666	OLC1	1.586
CI3	1.711	OC1	1.302	OLC2	1.475
CI4	1.440	OC2	1.599	OLC3	1.681
CR1	1.608	OC3	1.785	OLC4	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

4.3 Structural model (hypothesis testing)

The study used a two-stage approach where TQM practices were composed of four independent latent variables CI, CR, SP, and TML. In order to evaluate the multi-collinearity, the study looked at the outer weight and loading intensities as well as VIF. To avoid major multicollinearity problems, the VIF should be smaller than 3 (Hair et al., 2019), as was previously described.

Additionally, the outer weights should be significant enough to guarantee the accuracy of the measurement model's higher-order dimension (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
TQM	CI	0.591	9.855	0.000	0.905	1.715
	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

Through proposed bootstrapping on 5000 samples, the hypotheses were investigated (Hair et al., 2019). As 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 .

Table 6. Hypothesis Testing

	Beta	Standard Error	t Statistics	P Values	Confidence Interval	
					5.00%	95.00%
TQM -> OLC	0.209	0.055	3.649	0.000	0.112	0.301
TQM -> OC	0.530	0.054	8.402	0.000	0.423	0.620
TQM -> OC -> OLC	0.389	0.047	8.765	0.032	0.322	0.475

Analysis based on the survey data showed TQM practices have a positive impact on organizational learning capability ($\beta = 0.209$, $t = 3.649$, $p = 0.000$). In addition, the influence of TQM on OC also has a direct positive relationship ($\beta = 0.530$, $t = 8.402$, $p = 0.000$). The analysis also revealed that the mediating effect of OC on the relationship between TQM and OLC is also significant and favorable ($\beta = 0.389$, $t = 8.769$, $p = 0.032$). Overall, all the hypotheses are found to be supported based on the analysis of the survey data (Table 6).

5. DISCUSSION & CONCLUSION

According to the study findings, TQM practices affirmatively influence organizational culture in the service sector of Bangladesh, generating a similar result with other literature (Haffar et al., 2022). TQM practices promote employee involvement through active teamwork, constructive team participation, performance based reward system, commitment to continuous improvement, generation of innovativeness, effective formation of quality circles, transformational leadership and quality-focused behaviors, and ongoing self-evaluation and self-development which enable and foster organizational culture of open communication, teamwork, empowerment, and a commitment to improvement which are the pre requisition for smoother

TQM adoption as well as implementation. A strong organizational culture that adheres to TQM principles promotes quality initiatives aligned with the quality strategic goals, enhances employee engagement, and connects to organizational performance. Like some studies (Aminbeidokhti et al., 2016; Chienwattanasook & Jermisittiparsert, 2019; Hung et al., 2011; Mahmood et al., 2015), TQM practices also have a positive impact on organizational learning capability in the service sector of Bangladesh. Continuous improvement is one of the vital critical success factors of TQM, which requires problem identification and solution, innovative practices, process improvement, multidirectional changes, and knowledge sharing, which highly require continuous organizational learning. TQM practices and organizational learning capability generate mutual reinforcement for supporting the amplifying effect of performance enhancement on business results. The mediating effect of organizational culture on the relationship between TQM practices and organizational learning capability is proven significant, indicating that OC strengthens the interrelation between TQM and OLC. Much literature also examined the direct and indirect effects among TQM practices, organizational culture, and organizational learning and illustrated a strong association (Ashraf et al., 2023; Cho et al., 2013; Mohammed et al., 2015; Sawaeen & Ali, 2021). There is a deeper interconnectivity among TQM, organizational

culture, and organizational learning capability, as TQM promotes a flexible, empowered, and innovative culture through enhancing organizational learning capabilities, which secures employee readiness to embrace changes for implementing quality initiatives and leads to organizational performance and achieving sustainable competitive advantages. The interaction among TQM, OC, and OLC generates a strong platform for continuous improvement, adaptability to quality goals, greater innovation, and long-term competitive advantage.

6. IMPLICATION

TQM is a proven management philosophy for not only enhancing the quality-related issues but also making a paradigm shift from the traditional approach to contemporary ones. However, the failure history of TQM is also very alarming, and one of the vital reasons might be the lack of appropriate integration.

Table 7. Framework of Implication: Illustrating the Degree of Application (Darker is a higher need for implementation)

	TQM Practices	Organizational Culture	Organizational Learning Capability
Ensuring transformational leadership to adopt the philosophy of TQM			
Creating a culture of continuous improvement for sustainable competitive advantage			
Increasing employee morale through accountability and involvement			
Building a foundation for TQM and learning through TQM tools			
Creating culture transparency, value creation, employee engagement, and flexibility for quality initiatives			
Creating synergy through a learning-oriented culture supported by TQM activities			
Promoting the collective learning process			
Sharing knowledge through quality circles, cross-functional teams, and open feedback mechanisms			
Creating a culture of adaptation to identify customer requirements, and innovate processes and products			
Providing continuous training and education			

TQM is a philosophy, and proper blending of resources, principles, and goal alignment are the prerequisites for fruitful implementation. The table 7 illustrates the

implications of TQM along with the other variables to get the maximum benefit.

References:

Aburayya, A., Alshurideh, M., Al Marzouqi, A., Al Diabat, O., Alfarsi, A., Suson, R. & Alzarouni, A. (2020). Critical success factors affecting the implementation of TQM in public hospitals: A case study in UAE hospitals. *Systematic Reviews in Pharmacy*, 11(10), 230.

Acquah, I. S. K., Quaicoe, J., & 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. DOI: 10.1108/TQM-10-2021-0299

Ahinful, A. A., Opoku Mensah, A., Koomson, S., Cobblah, C., Takyi, G., & Kwarteng, A. H. (2025). Achieving banking industry innovation performance using total quality management: An empirical study. *The TQM Journal*, 37(5), 1292-1319. DOI: 10.1108/TQM-10-2023-0327

Akanmu, M. D., Hassan, M. G., Mohamad, B., & Nordin, N. (2023). Sustainability through TQM practices in the food and beverages industry. *International Journal of Quality & Reliability Management*, 40(2), 335-364. DOI: 10.1108/IJQRM-05-2021-0143

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>

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. *Benchmarking: An International Journal*, 29(2), 382-410. DOI: 10.1108/BIJ-08-2020-0449

- Ali, F., Rasoolimanesh, S. M., Sarstedt, M., Ringle, C. M., & 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
- Ali, M., & Raza, S. A. (2017). Service quality perception and customer satisfaction in Islamic banks of Pakistan: The modified SERVQUAL model. *Total Quality Management & Business Excellence*, 28(5-6), 559-577. DOI: 10.1080/14783363.2015.1100517
- Almaamari, Q. A., Al-Mekhlafi, A. B. A., Kanwal, N., & Dawwas, M. I. (2025). Organizational culture role in linking TQM practices to performance in the Yemen oil and gas sector. *Cogent Business & Management*, 12(1), 2492842. DOI: 10.1080/23311975.2025.2492842
- Aminbeidokhti, A., Jamshidi, L., & Mohammadi Hoseini, A. (2016). The effect of the total quality management on organizational innovation in higher education mediated by organizational learning. *Studies in Higher Education*, 41(7), 1153-1166. DOI: 10.1080/03075079.2014.966667
- Anil, A. P., & KP, S. (2019). TQM practices and its performance effects—an integrated model. *International Journal of Quality & Reliability Management*, 36(8), 1318-1344. DOI: 10.1108/IJQRM-10-2018-0266
- Antony, J., Leung, K., Knowles, G., & Gosh, S. (2002). Critical success factors of TQM implementation in Hong Kong industries. *International Journal of Quality & Reliability Management*, 19(5), 551-566. DOI: 10.1108/02656710210427520
- Ashraf, H. A., Iqbal, J., Bazmi, F. H., Munir, W., & Azeem, M. (2023). Unlocking business performance potential: Quality management, innovation performance and organizational learning culture in focus. *Journal of Asian Development Studies*, 12(3), 123-139. DOI: 10.62345/
- Ayodeji, I. O., Emmanuel, O. O., & Olajire, E. O. (2021). Impact of total quality management on organisational performance. *International Journal of Research in Commerce and Management Studies*, 3(3), 21-32. DOI: 10.38193/IJRCMS.2021.3302
- Aziz, A. R., Sumantoro, I. B., & Maria, D. (2019). Total quality management of micro, small and medium enterprises (MSMEs), and the impact to organizational culture and performance: Emerging country case. *Polish Journal of Management Studies*, 19. DOI: 10.17512/pjms.2019.19.1.03
- Aziz, R. A., & Morita, H. (2016). National culture, organisational culture, total quality management implementation, and performance: An empirical investigation. *International Journal of Productivity and Quality Management*, 19(2), 139-159. DOI: 10.1504/IJPM.2016.078883
- Bartlett, J. E., Kotrlík, J. W., & Higgins, C. C. (2001). Organizational research: Determining appropriate sample size in survey research. *Information Technology, Learning, and Performance Journal*, 19(1), 43-50.
- Basheer, M. F., Hafeez, M. H., Hassan, S. G., & Haroon, U. (2018). Exploring the role of TQM and supply chain practices for firm supply performance in the presence of organizational learning capabilities: A case of textile firms in Pakistan using PLS-SEM. *Paradigms*, 12(2), 172-178. DOI: 10.24312/paradigms120209
- Bhuiyan, A., Ali, M., Zulkifli, N., & Kumarasamy, M. (2020). Industry 4.0: Challenges, opportunities, and strategic solutions for Bangladesh. *International Journal of Business and Management Future*. DOI: 10.46281/ijbmf.v4i2.832
- Bouranta, N. (2021). Does transformational leadership influence TQM practices? A comparison analysis between manufacturing and service firms. *The TQM Journal*, 33(3), 706-728. DOI: 10.1108/TQM-12-2019-0296
- Bouranta, N., Psomas, E., Suárez-Barraza, M. F., & Jaca, C. (2019). The key factors of total quality management in the service sector: A cross-cultural study. *Benchmarking: An International Journal*, 26(3), 893-921. DOI: 10.1108/BIJ-09-2017-0240
- Cameron, K. S., & Quinn, R. E. (1999). *Diagnosing and changing organizational culture. Based on the competing values framework*. Addison-Wesley.
- Capolupo, N., Virglerová, Z., & 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
- 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. DOI: 10.1108/TQM-03-2020-0058
- Chienwattanasook, K., & Jermisittiparsert, K. (2019). Influence of entrepreneurial orientation and total quality management on organizational performance of pharmaceutical SMEs in Thailand with moderating role of organizational learning. *Systematic Reviews in Pharmacy*, 10(2), 223. DOI: 10.5530/srp.2019.2.31
- 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.
- Cho, I., Kim, J. K., Park, H., & Cho, N. H. (2013). The relationship between organisational culture and service quality through organisational learning framework. *Total Quality Management & Business Excellence*, 24(7-8), 753-768. DOI: 10.1080/14783363.2013.791100
- Detert, J. R., Schroeder, R. G., & Mauriel, J. J. (2000). A framework for linking culture and improvement initiatives in organizations. *Academy of Management Review*, 25(4), 850-863.

- Durairatnam, S., Chong, S. C., Jusoh, M., & 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*, 33(6), 1183–1200. DOI: 10.1108/TQM-06-2020-0140
- El Shenawy, A. S., Khourshed, N. F., Ragheb, M. A., & Beshr, M. H. (2025). Integration of Industry 4.0 and Lean Six Sigma: Critical success factors for overcoming socioeconomic challenges in the telecommunication sector. *SocioEconomic Challenges*, 9(1), 80-100. DOI: 10.61093/sec.9(1).80-100.2025
- Eshaq, M., & Zainol, Z. (2022). The effect of TQM and leadership on organizational performance of Dubai police: The mediating role of organizational culture. *International Business Education Journal*, 15(1), 131-143. DOI: 10.37134/ibej.vol15.1.10.2022
- Fok, L., Morgan, Y.-C., Zee, S. and Mock, V. E. (2023). The impact of organizational culture and total quality management on the relationship between green practices and sustainability performance. *International Journal of Quality & Reliability Management*, 40(6), 1564-1586. DOI: 10.1108/IJQRM-12-2021-0450
- Fotopoulos, C. V., & Psomas, E. L. (2010). The structural relationships between TQM factors and organizational performance. *The TQM Journal*, 22(5), 539-552. DOI: 10.1108/17542731011072874
- Georgiev, S., & Ohtaki, S. (2020). Critical success factors for TQM implementation among manufacturing SMEs: Evidence from Japan. *Benchmarking: An International Journal*, 27(2), 473-498. DOI: 10.1108/BIJ-01-2019-0037
- Gözükara, İ., Çolakoğlu, N., & Şimşek, Ö. F. (2019). 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. DOI: 10.1080/14783363.2017.1366266
- Gupta, P., & Mittal, A. (2020, March). Identifying the most influencing success factors of TQM implementation in manufacturing industries using analytical hierarchy process. In *Proc Int Conf Ind Eng Oper Manag* (No. March, pp. 541-52).
- Gupta, S., Khanna, P., & Soni, U. (2023). Analyzing the interaction of critical success factor for TQM implementation- A grey-DEMATEL approach. *Operations Management Research*, 16(3), 1619-1640. DOI: 10.1007/s12063-023-00367-y
- Hafeez, K., Keoy, K. H., & 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. DOI: 10.1108/17410380610678819
- Haffar, M., Al-Hyari, K. A., Djebarni, R., Al-Shamali, A., Abdul Aziz, M., & Al-Shamali, S. (2022). The myth of a direct relationship between organizational culture and TQM: Propositions and challenges for research. *The TQM Journal*, 34(5), 1395-1415. DOI: 10.1108/TQM-06-2020-0138
- Haffar, M., Al-Karaghoul, W., Djebarni, R., & Gbadamosi, G. (2019). Organisational culture and TQM implementation: Investigating the mediating influences of multidimensional employee readiness for change. *Total Quality Management & Business Excellence*, 30, 1367-1388. DOI: 10.1080/14783363.2017.1369352
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24. DOI: 10.1108/EBR-11-2018-0203
- Haldorai, K., Kim, W. G. and Phetvaroon, K. (2025). Top management commitment, institutional pressures and green supply chain practices: Pathways to sustainable performance. *Journal of Hospitality and Tourism Insights*. DOI: 10.1108/JHTI-07-2024-0773
- Hilman, H., Ali, G. A., & Gorodontse, 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
- Hung, R. Y. Y., Lien, B. Y. H., Yang, B., Wu, C. M., & Kuo, Y. M. (2011). Impact of TQM and organizational learning on innovation performance in the high-tech industry. *International Business Review*, 20(2), 213-225. DOI: 10.1016/j.ibusrev.2010.07.001
- Imran, M., Abdul Hamid, S. N., & Aziz, A. (2018). The influence of TQM on export performance of SMEs: Empirical evidence from manufacturing sector in Pakistan using PLS-SEM. *Management Science Letters*, 8, 483-496. <http://doi.org/10.5267/j.msl.2018.3.003>
- Islam, A., & 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.
- Jerez-Gomez, P., Céspedes-Lorente, J., & Valle-Cabrera, R. (2005). Organizational learning capability: A proposal of measurement. *Journal of Business Research*, 58(6), 715-725. DOI: 10.1016/j.jbusres.2003.11.002
- Karuppusami, G. & 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. DOI: 10.1080/14783360701231351
- Khalil, M., & Muneenam, U. (2021). Total quality management practices and corporate green performance: Does organizational culture matter? *Sustainability*, 13(19), 11021. DOI: 10.3390/su131911021
- Koomson, S. (2024). Do total quality management and external factors matter? The effect of innovation behaviour on innovation performance in banks. *European Business Review*, 36(6), 981-996. DOI: 10.1108/EBR-01-2024-0037

- Koomson, S. (2025). The impact of innovative leadership and total quality management in 21st-century banking: An empirical insight and foresight. *European Business Review*, 37(2), 230-244. DOI: 10.1108/EBR-03-2024-0111
- Krishnan, A. (2013). Culture as a successor of quality initiatives: A review. *International Journal of Social Science*, 2(1), 53-61.
- Lahidji, B., & Tucker, W. (2016). Continuous quality improvement as a central tenet of TQM: History and current status. *Quality Innovation Prosperity*, 20(2), 157-168. DOI: 10.12776/qip.v20i2.748
- Lee, C. Y., & Lee, H. H. (2015). The integrated relationship among organizational learning, TQM and firm's business performance: A structural equation modeling approach. *International Business Research*, 8(5), 43. DOI: 10.5539/ibr.v8n5p43
- Mahmood, S., Qadeer, F., & Ahmed, A. (2015). The role of organizational learning in understanding relationship between total quality management and organizational performance. *Pakistan Journal of Commerce and Social Sciences*, 9(1), 282-302. <https://ssrn.com/abstract=2594489>
- Manley, S. C., Williams Jr, R. I., & Hair Jr, J. F. (2024). Enhancing TQM's effect on small business performance: A PLS-SEM exploratory study of TQM applied with a comprehensive strategic approach. *The TQM Journal*, 36(5), 1252-1272. DOI: 10.1108/TQM-10-2021-0299
- Masudin, I., Barraq, R. F., Zulfikarijah, F., Nasyiah, T., Restuputri, D. P., Trireksani, T., & Djajadikerta, H. G. (2025). Examining sustainable performance using SEM-FsQCA: The role of TQM, green SCM, and competitive advantage in small and medium enterprises (SMEs). *Sustainable Futures*, 9, 100635. DOI: 10.1016/j.sfr.2025.100635
- Mohammed, A. H., Taib, C. A., & SR Nadarajan, S. (2015). Mapping the relationship among quality management practices, organizational learning, organizational culture, and organizational performance in higher education: A proposed framework. *American Journal of Industrial and Business Management*, 6(4), 401. <http://dx.doi.org/10.4236/ajibm.2016.64036>
- Morgan, C., & Murgatroyd, S. (1994). *Total quality management in the public sector: An international perspective*. McGraw-Hill Education (UK).
- Mujeri, M. K., & Mujeri, N. (2021). Services sector in Bangladesh: Changes and prospects. In *Structural Transformation of Bangladesh Economy: A South Asian Perspective* (pp. 205-228). Springer Singapore. DOI: 10.1007/978-981-16-0764-6_7
- Nogueiro, T., Saraiva, M., & 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). Springer International Publishing.
- Ordanini, A., Parasuraman, A. & 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. DOI: 10.1177/1094670513513337
- Osazevaru, H. O., & Amawhe, P. (2022). Emerging paradigm of employee's involvement in decision making and organizational effectiveness: Further evidence from Nigerian manufacturing firms. *American Journal of Economics and Business Innovations*, 1(3), 14-23. DOI: 10.54536/ajebi.v1i3.374
- Othman, B., Khatab, J. J., Esmaeel, E. S., Mustafa, H. A., & Sadq, Z. M. (2020). The influence of total quality management on competitive advantage towards bank organizations: Evidence from Erbil/Iraq. *International Journal of Psychosocial Rehabilitation*, 24(5), 3427-3439. DOI: 10.37200/IJPR/V24I5/PR202053
- Reinaldo, L. D. S. P., Vieira Neto, J., Goyannes Gusmão Caiado, R., & Gonçalves Quelhas, O. L. (2021). Critical factors for total quality management implementation in the Brazilian construction industry. *The TQM Journal*, 33(5), 1001-1019. DOI: 10.1108/TQM-05-2020-0108
- Salam, M., & Islam, M. (2015). E-Service delivery in Bangladesh: Major challenges and plausible propositions. *International Journal of Applied Information Systems*, 9(5), 1-4. DOI: 10.5120/ijais2015451034
- Sawaeen, F. A. A., & Ali, K. A. M. (2021). The nexus between learning orientation, TQM practices, innovation culture, and organizational performance of SMEs in Kuwait. *Interdisciplinary Journal of Information, Knowledge & Management*, 16. DOI: 10.28945/4743
- Shuaib, K., & He, Z. (2022). Mediating effect of organisational learning and moderating role of organisational culture on the relationship between total quality management and innovation among manufacturing companies in Nigeria. *Total Quality Management & Business Excellence*, 34, 894-929. DOI: 10.1080/14783363.2022.2138313
- Shuaib, K. M., & He, Z. (2024). Mediating effects of organisational learning on the relationship between TQM, innovation and business performance: Evidence from manufacturing SMEs in Nigeria. *International Journal of Business Performance Management*, 25(1), 94-127. DOI: 10.1504/IJBPM.2024.135150
- Singh, T., & Dubey, R. (2013). Soft TQM practices in Indian cement industry—an empirical study. *International Journal of Productivity and Quality Management*, 11(1), 1-28. DOI: 10.1504/IJPQM.2013.050566
- Sreedharan V, R., & 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. DOI: 10.1108/BIJ-08-2017-0223

- Stock, G. N., McFadden, K. L., & Gowen, C. R., III. (2007). Organizational culture, critical success factors, and the reduction of hospital errors. *International Journal of Production Economics*, 106(2), 368–392. DOI: 10.1016/j.ijpe.2006.07.005
- Sultana, R., Sharmin, S., Mohammad, A., & Tasnim, T. (2023). Achieving SDGs in Bangladesh: A meta-analysis on challenges and opportunities. *Journal of Bangladesh Institute of Planners*, 77-104. DOI: 10.3329/jbip.v16i1.77043
- Tajouri, O., El Manzani, Y., & Lakhali, L. (2025). The interplay between total quality management (TQM) and organizational learning: Similarities or complementarities? *Development and Learning in Organizations: An International Journal*, 39(1), 39-42. DOI: 10.1108/DLO-01-2024-0006
- Talib, F. (2013). An overview of total quality management: Understanding the fundamentals in service organization. *International Journal of Advanced Quality Management*, 1(1), 1-20. <http://management.cloud-journals.com/index.php/IJAQM/article/view/Mgmt-58>
- Thai Hoang, D., Igel, B., & Laosirihongthong, T. (2006). The impact of total quality management on innovation: Findings from a developing country. *International Journal of Quality & Reliability Management*, 23(9), 1092-1117. DOI: 10.1108/02656710610704230
- Valmohammadi, C. (2011). The impact of TQM implementation on the organizational performance of Iranian manufacturing SMEs. *The TQM Journal*, 23(5), 496-509. DOI: 10.1108/17542731111157608
- Venkateshwarlu, N., Agarwal, A., & Kulshreshtha, M. (2011). Implementation of TQM: A case study in an auto company. *Asia Pacific Business Review*, 7(2), 74-82.
- Vouzas, F., & Psychogios, A. G. (2007). Assessing managers' awareness of TQM. *The TQM Magazine*, 19(1), 62-75. DOI: 10.1108/09544780710720844
- Wang, Z., & Meckl, R. (2020). Critical success factors of total quality management in autonomous driving business models. *Cogent Engineering*, 7(17). DOI: 10.1080/23311916.2020.1767018
- Wassan, A. N., Memon, M. S., Mari, S. I., & Kalwar, M. A. (2023). Identifying the critical success factors of total quality management implementation in manufacturing industry of Pakistan: An exploratory factor analysis. *Journal of Applied Research in Technology & Engineering*, 4(1), 37-53. DOI: 10.4995/jarte.2023.17969
- Wold, H. (1974). Causal flows with latent variables: Partings of ways in the light of NIPALS.
- Wold, H. (1980). Model construction and evaluation when theoretical knowledge is scarce.
- Wold, H. (1982). Soft modeling: The basic design and some extensions. In Jöreskog, K. G. and Wold, H. (Eds), *Systems under indirect observations: Part II*. North-Holland.
- Yu, L. (2007). Corporate culture in numbers. *MIT Sloan Management Review*, 48(3), 4–9.
- Yunoh, M. N., & Ali, K. A. (2015). Total quality management approach for Malaysian SMEs: Conceptual framework. *International Journal of Business and Social Science*, 6(1), 152.
- Yusuf, Y., Gunasekaran, A., & Dan, G. (2007). Implementation of TQM in China and organisation performance: An empirical investigation. *Total Quality Management*, 18(5), 509-530. DOI: 10.1080/14783360701239982
- Zhang, Z., Waszink, A. & Wijngaard, J., (2000). An instrument for measuring TQM implementation for Chinese manufacturing companies. *International Journal of Quality & Reliability Management*, 17(7), 730-55. DOI: 10.1108/02656710010315247

Nafiza Islam

Department of Management Studies
Faculty of Business Studies
Jahangirnagar University
Dhaka, Bangladesh.
nislam@juniv.edu

ORCID: 0000-0002-6639 5469

Mohammad Thoufiqul Islam

Department of Management
University of Dhaka.
ORCID: 0000-0002-4111-3082