

Total Quality Management Practices and Construction Contractor Performance in Abuja, Nigeria

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Abstract

Purpose: This study aims to assess the influence of Total Quality Management (TQM) practices on the organizational performance of construction contractors. It identifies eight key TQM practices and measures their influence on performance indicators, with a focus on providing guidance for prioritizing and implementing these practices to achieve specific performance targets.

Design/Methodology/Approach: The research collected and analysed data from 275 contractor firms located in Abuja, Nigeria, with a response rate of 163. Multiple statistical methods were employed to assess the relationship between TQM practices and organizational performance. The eight identified TQM practices include top management commitment, customer focus, employee management, education/training, continuous improvement, process enhancement, supplier quality management, and information analysis.

Findings: The study's findings underscore the critical role played by specific TQM practices in positively influencing the organizational performance of construction contractors. Notably, practices such as top management commitment, training, process management, and continuous improvement were found to have a significant impact. Mapping analysis was used to establish strategies for aligning TQM practices with performance indicators, providing a practical roadmap for improving specific aspects of organizational performance.

Research Limitations/Implications: This research acknowledges certain limitations. Firstly, the study focused on construction contractors in Abuja, Nigeria, which may limit the generalisability of the findings to other regions or industries. Secondly, while the research identified key TQM practices, it did not delve into the specific challenges or obstacles that organizations might encounter during implementation. Future studies could explore these issues in greater depth.

Practical Implications: The study offers valuable practical implications for construction organizations. It emphasizes the need for a flexible approach to adopting TQM practices tailored to support targeted performance improvements, recognizing that a one-size-fits-all approach is not suitable for all industries. Furthermore, the study underscores the significance of sustained commitment from top management in promoting the importance of TQM throughout the organization, highlighting its role as a catalyst for positive change.

Originality/Value: This research contributes to the field by bridging the gap between TQM practices and organizational performance in the construction industry. It provides a nuanced understanding of which TQM practices are most influential and how they can be strategically aligned with performance indicators. This adds value by offering organizations a clear roadmap for enhancing their performance and competitiveness through the adoption of TQM principles.

Keywords: Competitive Advantage, Construction Contractors Performance, TQM Practices, Construction Industry, Quality Management, Contractors, Top Management

1. Introduction

The global construction industry has long been recognized as an important contributor to gross domestic product (GDP) and a vehicle for a nation's financial growth. It currently represents over 10% of the world's GDP, with projections indicating that by 2020, it will contribute even more substantially, making up an estimated 13.2% of the global GDP. This industry is significant in filling the gap between conceptualization and realization, offering opportunities for increased project sustainability and economic development. It involves various activities, including land preparation, construction, alteration, and repairs of buildings and structures, making it a central player in infrastructural and economic development. Despite its considerable contribution to economic development, the construction industry has faced challenges such as fragmentation, issues with quality and standards, and comparisons to more streamlined industries such as manufacturing [1]. This has led to criticisms regarding poor performance in terms of cost-effectiveness, operational productivity, and customer satisfaction [1]. As a result, clients often expressed declining satisfaction with the built environment. In response to growing demands for higher-quality products and services, many organizations, including those in the construction sector, have turned to TQM practices. TQM is hailed for its capability to improve products, increase customer satisfaction, improve economic performance, and bolster competitiveness.

TQM is a strategy that integrates all organizational activities to focus on satisfying customer expectations, achieving organizational objectives, and sustaining a competitive advantage [2]. In the construction industry, TQM translates to maintaining construction work at the required standard to ensure clients' long-term satisfaction, thereby promoting competitiveness and business survival. Construction firms, particularly contractor organizations, constitute a significant portion of the construction industry. These organizations vary in their commitment to production, often leading to disparities in physical and service delivery output. However, many possess the potential to develop into more technically proficient businesses, driven by enthusiastic leadership committed to service enhancement and continuous performance improvement to gain a competitive advantage. To secure a competitive edge, contractor organizations must establish processes that promote continuous innovation through the implementation of quality management concepts. Construction contractors are integral to economic growth, contributing to income stability, industry growth, infrastructure provision, and employment and wealth creation. They play a crucial role in adapting to changing client expectations, market conditions, technological advancements, and globalization. To thrive in this changing environment, contractors must acquire the competencies and capabilities required for sustained competitiveness.

Considering the above, this research seeks to examine the level to which TQM practices and organizational success are associated as well as how TQM practices impact organizational outcome indicators in the setting of contractors in the construction sector. A synthesis of existing studies on TQM highlights the lack of empirical evidence about the impact of TQM on the construction sector, making this research even more relevant with the drive towards the circular economy. By exploring the correlation and

influence of TQM on performance indicators, this research aims to offer a valuable deeper understanding of the effectiveness of TQM practices in the construction sector and contribute to a better understanding of how TQM can drive the continuous improvement of organizational performance and superiority. Overall, this research is important as it aims to bridge the gap in the literature and provide an appraisal of the influence of TQM practices on contractors' performance in the construction sector.

2. Review of the Literature

2.1. Influence of Construction Industry Performance on Economic Development

The construction sector is a driver of economic development. It symbolizes investment in physical infrastructure, residential and commercial structures, and public facilities. This substantial spending on labour, materials, and equipment directly fuels financial activity, contributing immensely to gross domestic product (GDP) growth. Furthermore, sector growth spurs demand in related industries, such as manufacturing and transportation, through its multiplier effect. As the construction industry prospers, it reduces unemployment rates, alleviates poverty, and bolsters economic stability. Construction is pivotal in building critical infrastructure, including roads, bridges, and airport systems. This infrastructure development improves connectivity, reduces transportation costs, and attracts investment. Improved infrastructure facilitates efficient trade, strengthens supply chains, and improves regional integration, all of which are crucial for economic development. Moreover, modernizing infrastructure promotes business competitiveness and attracts foreign investment, as it creates an environment conducive to economic growth. The construction of residential and commercial properties not only addresses housing needs but also fuels the real estate sector. Real estate, in turn, serves as an important reservoir of wealth and an investment avenue for businesses. In addition, construction projects generate government revenue through taxes, permits, and fees associated with property transactions and construction materials. These revenues can be ploughed back into public services, education, healthcare, and social welfare programs, further contributing to economic growth and improving the well-being of citizens.

2.2. Total Quality Management (TQM)

TQM finds its roots in the contributions of renowned gurus such as Crosby, Juran, Taguchi, and Deming, each offering distinctive perspectives on defining quality [3]. Crosby emphasized the "zero defects" program advocating process improvement and adherence to customer needs. In contrast, Juran and Deming underscored the significance of leadership qualities, top management commitment, and involvement in achieving quality objectives. Juran focussed on identifying defects and their causes. Taguchi introduced the notion that any deviation from the required standard results in losses, highlighting the significance of meeting customer requirements. Quality management extends beyond the end product or service itself and includes the strategies used to achieve it. Quality management leverages planning tools and techniques for quality assurance and process control to ensure consistent product and service quality. Several definitions of quality abound in the TQM literature [3]. According to Feigenbaum, TQM is an efficient system that incorporates the efforts of numerous organizational groups in

developing, sustaining, and enhancing quality. This integration facilitates cost-effective production and service delivery while achieving customer satisfaction. TQM represents a management approach that promotes continuous improvement of processes, products, and services. It relies on the active participation of top management, personnel, and contractors to satisfy customer requirements.

2.3. Concepts of Total Quality Management (TQM)

TQM in construction begins with a deep understanding of the client's needs, specifications, and expectations. This customer-centric approach ensures that every aspect of the project aligns with client needs, leading to greater satisfaction and successful project delivery. Continuous improvement is the foundational concept of the TQM in construction. This industry faces constant technological improvements, changing regulations, and evolving best practices. Construction organizations must commit to continuing, incremental improvements in their processes, techniques, and quality standards to stay competitive and satisfy client requirements. TQM encourages active collaboration among stakeholders. Engaging team members in identifying issues and solutions and sharing their expertise fosters a culture of quality and accountability. Construction projects are inherently process-driven, involving several stages from planning and design to execution and handover. TQM emphasizes the importance of mapping, analyzing, and improving these processes. Streamlining workflows, reducing waste, and improving productivity are key objectives that contribute to improved quality performance. Leadership commitment is vital in the construction of the TQM. Project owners, top management, and site supervisors must lead by example and demonstrate unwavering dedication to quality. They provide the necessary resources, set expectations, and foster a culture that prioritizes quality throughout the project's lifecycle.

Construction projects rely heavily on materials, equipment, and subcontractors. TQM extends its principles to supplier relationships, emphasizing collaboration and communication. Building strong bonds with suppliers ensures that the construction materials meet the required quality standards, thereby reducing the risk of defects. Benchmarking against industry best practices is essential in construction TQM. Construction firms compare their processes, performance, and quality metrics with industry leaders and competitors. This enables them to identify areas that require improvement and adopt proven practices to improve the project (Egwanatum et al., 2022). The construction workforce includes various trades and specialties. TQM recognizes the significance of training and development to improve workers' skills, safety awareness, and quality consciousness. Continuous learning ensures that workers stay current with the evolving construction techniques and quality standards. Successful construction projects require the involvement and commitment of every stakeholder, including clients, architects, engineers, contractors, and employees (García-Bernal & Ramírez-Alesón, 2015). TQM seeks to create a culture where everyone is aligned with the project's quality objectives and actively contributes to its achievement.

2.4. Benefits of the TQM

Advancements in quality management (TQM) have resulted

in various approaches, viewpoints, and contexts, leading to diverse categorizations of benefits. While Oakland focused on the operational improvements brought about by TQM, Goldratt and Cox looked at external factors such as competitiveness, client satisfaction, and financial outcomes [4,5]. Rust et al, summarised the main benefit of TQM as "customer satisfaction through continuous improvement in every organizational process involved in delivering product and service [6]. Santos & Escanciano added that this satisfaction involves both internal and external customers [7]. Antony et al, investigated the critical success factors for TQM in the Hong Kong industry and identified seven benefits using factor analysis [8]. These included increased employee involvement, enhanced communication, improved efficiency, better quality, improved customer satisfaction, minimal cost of poor quality, and increased competitive advantage. The classification of TQM benefits can vary, from a general "increased customer satisfaction" to a detailed classification into employee benefits, productivity improvements, quality enhancements, customer satisfaction, cost savings, and competitiveness gains.

2.5. Links Between TQM Practices and Contractor Performance and Hypotheses for the Study

This section summarises the findings of existing studies that have assessed the link between TQM practices and numerous organizational outcomes. Several researchers have found significant relationships between TQM and performance in terms of efficiency, employee satisfaction, innovation, customer satisfaction, competitiveness, market share, financial gain, and overall organizational success [3,9-19]. However, some studies have reported negative results, which implies that the association between TQM and company outcomes is not always straightforward and may vary depending on the context and specific TQM practices being used [1,20-26]. This highlights the need for further research to gain a deeper understanding of the impact of TQM on organizational outcomes.

2.5.1. Top Management Commitment

Organizations led by top management fully committed to TQM practices and principles are more likely to experience positive outcomes in various aspects of organizational performance. This includes increased operational outcomes, inventory control, employee performance, innovativeness, social responsibility, customer satisfaction, and economic growth [27,28]. Studies have shown that top management commitment to TQM practices leads to a more collaborative and participatory organizational culture, where workers are encouraged to participate in decision-making and take ownership of their work [2,12,14,29-35]. This creates a more engaged and motivated workforce, which in turn contributes to better organizational performance and excellence. Top management commitment also supports the development of a comprehensive TQM system, which includes effective communication channels, employee development programs, and efficient information management. All of these elements work together to create a more effective and efficient organization, where quality is integrated into every aspect of the business. Therefore, the following hypothesis is proposed.

H1: Top Management Commitment Positively Influences Contractors' Performance

2.5.2. Customer Focus

A strong focus on customer needs and expectations within Total Quality Management (TQM) practices leads to significant improvements in organizational performance across various key performance indicators, including operational, inventory management, employees, innovation, customer satisfaction, sales, and overall firm success. This is supported by numerous studies [2,12,19,29,30,33,35,36]. By focusing on satisfying customers' requirements through TQM practices, organizations can advance the quality and reliability of their products, increase efficiency, and ultimately drive customer satisfaction, sales, and overall firm performance. Thus, the following hypothesis is proposed.

H2: Customer Focus is Significantly Associated with Contractors' Performance.

2.5.3. Employee/People Management

Employee involvement in quality management efforts is important for the success of TQM initiatives. Employees should understand their role in the organizational goals and strategies to enhance performance. Empowering employees to engage in quality efforts and fostering a sense of ownership leads to better results, as employees take a vested interest in improving products/services and processes. Research has shown that effective people management positively impacts organizational performance, including operational performance, supply management performance, social responsibility and customer results, financial performance, and overall firm performance [1,2,29,31,32,35]. Hence, the following hypothesis is proposed.

H3: Employee Management Significantly Influences Contractors' Performance.

2.5.4. Supplier Quality Management

The association between TQM and supply chain management is crucial. TQM helps reduce and streamline supplier organization to manage supplier affairs and partner with suppliers. It is important to engage suppliers early in the concept phase to benefit from their experience. Supplier quality management is vital as it provides better inputs that result in better product delivery [2,29,33,34]. Previous researchers have demonstrated that effective supplier quality management significantly impacts operational performance, inventory management, innovative performance, and firm performance. Thus, the hypothesis is that supplier quality management significantly influences organizational performance. Therefore, the following hypothesis is proposed.

H4: Supplier Quality Management Statistically Influences Contractors' Performance.

2.5.5. Education and Training

TQM organizations should provide training and education to employees to advance their skills in their job responsibilities. Effective training leads to better quality management, improved employee performance, increased customer satisfaction, and

overall increased firm performance. Researchers have indicated that training has a significant effect on operational performance, inventory management, employee performance, innovation, market and financial performance, and overall firm success [1,33,37]. However, other studies have reported negative results. The researchers propose the following hypothesis.

H5: Training Significantly Influences Contractors' Performance.

2.5.6. Process Management

Effective knowledge and process management are key to a successful Total Quality Management (TQM) strategy. Process management focuses on activities, not just results, and is proactive in reducing variations in the process and improving product quality. Effective knowledge management ensures that employees have access to reliable and consistent data and information to perform their jobs efficiently. Monitoring quality data helps improve the turnover rate of materials and supplies, identify and fix errors in processes, and minimize negative environmental impacts. Previous researchers have found that knowledge, process management, and statistical feedback positively impact operational performance, supply management, innovation, customer results, competitiveness, financial performance, and overall organizational performance [1,19,31-33,38]. Hence, the following hypothesis is proposed.

H6: Process Management Positively Influences Organisational Performance

2.5.7. Continuous Improvement

Continuous improvement improves business processes, meets and exceeds customer requirements, and complies with regulatory standards. In the construction sector, this involves tracking the cost of quality processes, using quality tools, continuously reviewing and improving the safety and workplace environment, encouraging project quality improvement discussions, and benchmarking processes. Existing literature has demonstrated that continuous improvement has a significant influence on operational performance, inventory management performance, customer satisfaction, and market performance [21,30,31,33]. Therefore, the following hypothesis is proposed.

H7: Continuous Improvement is Significantly Associated with Contractors' Performance.

2.5.8. Information and Analysis

Continuous improvement focuses on reducing process variability and improving output performance by continuously reviewing and enhancing business processes. This approach involves tracking the cost of quality processes, using quality tools, practicing continual review of construction safety and processes, and benchmarking processes for improvement. The results of continuous improvement efforts can positively impact operational performance, inventory management, customer satisfaction, market performance, and overall company performance. The TQM philosophy emphasizes analyzing information on customer needs and operational problems to drive quality excellence. Many TQM techniques help organizations process information for improvement

[2,19,31,33,38]. However, information and analysis can also inhibit organisational performance in certain cases. Empirical research has shown that information and analysis can improve customer results, supply management performance, operational performance, innovation performance, financial performance, and overall company performance. Consequently, the following hypothesis is proposed.

H8: Information and Analysis Significantly Influence Contractors' Performance.

2.5.9. Research Model

Existing studies identified seven major categories of TQM practices, including supplier, management, strategic planning, leadership, information and analysis, human resource management, process management, and customer focus [3,4,14]. These categories align with the procedure employed in the Malcolm Baldrige National Quality Award (MBNQA). These practices were chosen because they have been widely recognized as best practices in the literature and encompass both hard and soft issues of TQM. This selection reaffirms the notion that a single set of TQM practices is absent. However, it also underscores the multidimensional nature of TQM practices [14].

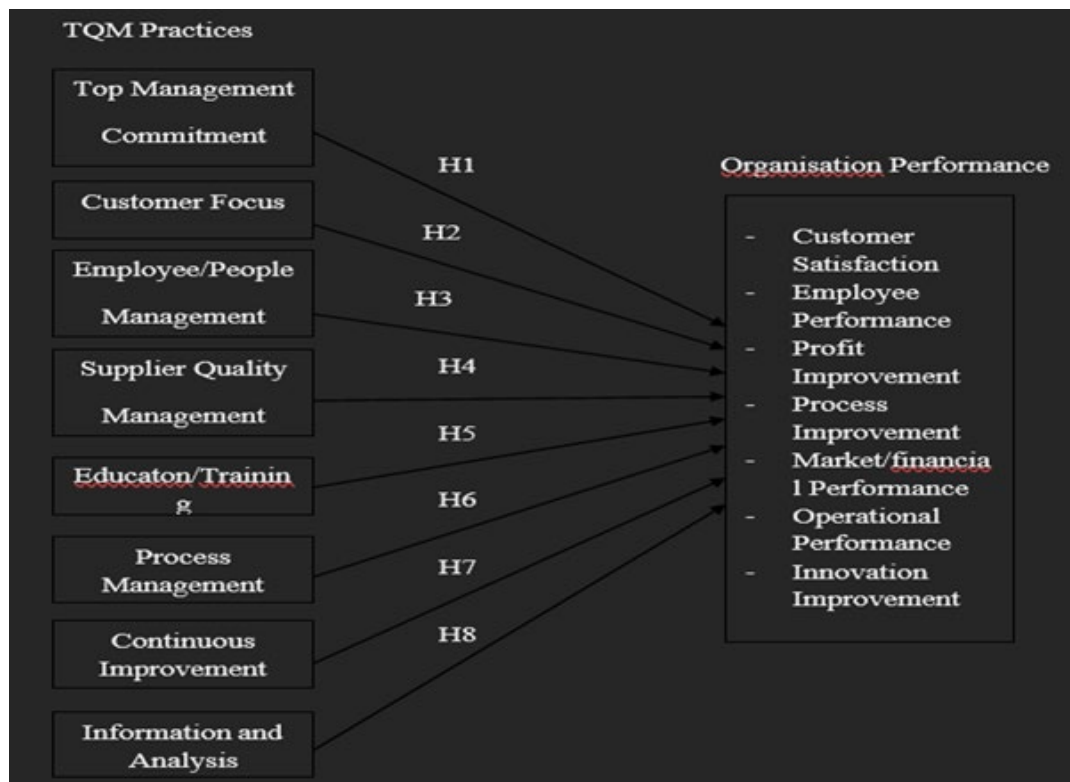


Figure 1: Proposed Research Model

3. Research Methodology

This study used a deductive research design that involved developing hypotheses and designing a research method to measure them. The quantitative method was used to gather data using questionnaires to identify total quality management (TQM) practices and organizational performance indicators and assess the impact of the identified TQM practices on the performance of construction contractors. Abuja, one of the construction hubs in Nigeria where most construction companies execute their projects, was chosen as the study area. The study employed convenience sampling. This method was chosen because of the nature of the study being undertaken, which is exploratory and deductive in nature, and the ease with which the study can be conducted using this approach. The number of respondents necessary to establish statistical significance was calculated using Eq. (1).

$$S = X^2 NP (1-P) / d^2 (N-1) + X^2 P (1-P) \tag{1}$$

where s = sample size, X² = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841), N = the population size, P = the population proportion (assumed

to be 0.50 since this would provide the maximum sample size), and d = the degree of accuracy expressed as a proportion (0.05, used in this study) [39]. Therefore, a sample size of 275 was required. 275 construction contractors registered with the Corporate Affairs Commission (CAC) and are up to date as per tax compliance, located in Abuja, Nigeria participated. However, 163 responses were retrieved. The collected data were grouped into four parts to collect information on the demographics of construction contractors, TQM practices, the performance level of construction firms based on the influence of TQM practices, and the influence of practices on performance indicators. The targeted respondents were the executive, senior, and middle management staff. Descriptive statistics were used to describe the characteristics of the data, and Pearson's correlation coefficient was used to determine the relationship between these variables, given that they were normally distributed, and a large sample size was available.

4. Results and Discussion

4.1. Demographics of the Respondents

The findings of the survey depict that 51% of the respondents held top management positions and 49% held middle

management positions, highlighting the level of knowledge about their organizations' performance. Additionally, 25.8% of the respondents held diplomas, and over 60.1% held first-degree certificates, with the remaining 14.1% having master's degrees. With regard to experience, 15.3% of the respondents had less than five years, 39.3% had between six and ten years, and 45.4% had

of experience in the construction industry. However, the results also showed that only 22.1% of the respondents' organizations had quality certification, indicating that the level of awareness about quality certification in the Nigerian construction sector is low, which requires improvement to address quality issues in the industry.

Distribution of Respondents	Frequency	Percentage (%)
Managerial position:		
Top management	85	51
Middle management	78	49
Education level:		
Diploma	42	25.8
Bachelor's degree	98	60.1
Master's degree	23	14.1
Services performed:		
Building Construction	84	52
Civil engineering	42	25.2
Others	36	22.1
Work experience:		
1-5 years	25	15.3
6-10 years	64	39.3
11 years and above	74	45.3
Certification of the Quality system:		
No	127	77.9
Yes	36	22.1

Table 1: Demographics of the Respondents

4.2. Reliability of the Research Instrument

Cronbach's alpha test for the reliability of a set of items that make up a scale. Likewise, it can be used for any subset of items on a scale. According to Gliem & Gliem, Cronbach's alpha of 0.60 and above is valid [40]. A value of 0.80 is a strong indicator of reliability. The Cronbach's alpha values for TQM practices

and performance variables are summarised in Table 2. With a Cronbach's alpha of 0.890, the TQM practices show a high level of reliability. The performance variable has a Cronbach's alpha of 0.878, which is within the acceptable range, indicating that the individual constructs used to measure performance are reliable. These results confirm that the instrument used is highly reliable.

Variable	No. of Items	Alpha Reliability Coefficient
TQM practices (Independent Variable)	8	.890
Performance Measures (Dependent Variable)	7	.878

Source: Field Survey (2022)

Table 2: Reliability Analysis

4.3. Descriptive Statistics for the Study Variables

Table 3 presents the findings of the descriptive statistics for the TQM dimensions and the characteristics of the TQM dimensions and organizational performance variables studied. The results show that the mean of the TQM dimensions ranges from 3.31 to 3.82. The mean of the top management commitment is the highest (3.81), indicating that the top management plays a crucial role in leading the organization's quality efforts. On the other hand, the mean for employee/people management is the lowest (3.31), which implies that employees do not place much importance on performance efforts. This could be a result of the characteristics of the industry where the workforce is

sometimes nomadic, reducing the contribution to organisational performance. The scale used in this study ranges from 1 to 4. For organizational performance, the variables range from 2.95 to 3.86, with a scale of 1 representing 50% and 5 representing over 95%. This indicates that contractor organisations place a strong emphasis on performance variables to achieve their objectives. All of the mean scores of the variables in this study are above the midpoint, indicating that most participants have similar views about each variable. Furthermore, the standard deviation (SD) is < 1, indicating that the variations in participant views are less. In summary, the mean and SD were employed to test the level of data spread.

Variables	Mean	Std. Deviation
Top Management Commitment	3.82	0.512
Customer Focus	3.72	0.503
Employee/People Management	3.31	0.641
Supplier Quality Management	3.73	0.510
Education/Training	3.70	0.620
Process Management	3.67	0.629
Continuous Improvement	3.71	0.552
Information and Analysis	3.71	0.577

Table 3: Descriptive Statistics of the TQM Practices

Variables	Mean	Std. Deviation
Customer Satisfaction	2.97	0.780
Employee Performance	3.66	0.611
Profit Improvement	3.84	0.541
Process Improvement	2.98	0.757
Market/Financial Performance	3.86	0.516
Operational Performance	3.37	0.625
Innovation Improvement	2.95	0.776

Table 4: Descriptive Statistics of Organisational Performance

4.4. Correlation Between TQM Practices and Contractors' Performance Variables

This study explored the relationship between TQM practices and contractors' performance. TQM practices encompassing top management commitment (TMC), customer focus (CF), employee management (E/PM), supplier quality management (SQM), training (T), process management (PM), continuous improvement (CI), and information and analysis (IA). The organizational performance dimensions comprise customer satisfaction (CS), employee performance (EP), profit improvement (PI), process improvement (PI_m), financial

performance (FP), operational performance (OP), and innovation improvement (II). The results are shown in Table 2. The correlation analysis showed a positive relationship between TQM practices and contractors' performance dimensions. This implies that implementing TQM practices can lead to improvement in organizational performance in various areas, such as customer satisfaction, employee performance, financial performance, and operational efficiency. The results indicate that a focus on TQM practices can have a significant impact on contractors' organization and contribute to their overall success.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Top Management Commitment														
Customer Focus	.248**													
Employee/ People Management	.209**	.277**												
Supplier Quality Management	.236**	.047	.277**											
Education/ Training	.259**	.297**	.201**	.204**										
Process Management	.244**	.087	.269**	.067	.253**									
Continuous Improvement	.232**	.277**	.247**	.269**	.195*	.247**								
Information and Analysis	.218**	.231**	.207**	.214**	.195*	.062	.248**							
Customer Satisfaction	.156*	.257**	.186*	.068	.151*	.160*	.191*	.269**						

Employee Performance	.141*	.041	.185*	.185*	.188*	.196*	.221**	.211**	.061					
Profit Improvement	.121*	.204**	.157*	.185*	.180*	.220**	.267**	.069	.288**	.204**				
Process Improvement	.169*	.200*	.189*	.189*	.262**	.231**	.200*	.282**	.548**	.620**	.396**			
Market/Financial Performance	.140*	.200*	.097	.157*	.105	.047	.267**	.185*	.285**	.306**	.090	.352**		
Operational Performance														
Innovation Improvement	.169*	.101	.234**	.127	.203**	.235**	.285**	.044	.417**	.105	.320**	.650**	.412**	
	.183*	.154*	.246**	.185*	.211*	.200*	.062	.204**	.667**	.581**	.069	.756**	.460**	.071

*. Correlation is significant at the 0.05 level (2-tailed), **. Correlation is significant at the 0.01 level (2-tailed).
Source: Field Survey (2022)

Table 5: Correlation Between TQM Practises and Contractors' Performance Variables

4.4.1. Top Management Commitment (TMC) and Contractors' Performance Dimensions

The correlation analysis reveals that top management commitment (TMC) is positively correlated with various organizational performance variables within construction organizations. Specifically, TMC showed positive correlations with customer satisfaction (CS), employee productivity (EP), process improvement (PI), profit improvement (PIIm), management and financial performance (M/FP), operational performance (OP), and innovation and improvement (II). The highest correlation values were observed for II, PIIm, OP, and CS, indicating a strong influence of TMC on these performance indicators. These findings confirm the hypothesised relationship (H1) that top management commitment has an important impact on organizational performance in the construction industry, with a notable emphasis on II, PIIm, OP, and CS.

4.4.2. Customer Focus (CF) and Organisational Performance Variables

The correlation analysis indicates that customer focus (CF) is positively and significantly correlated with several organizational performance variables within construction organizations. Specifically, CF showed statistically significant positive correlations with customer satisfaction (CS), process improvement (PI), profit improvement (PIIm), and management and financial performance (M/FP), implying a strong influence of CF on these performance indicators. However, Employee Performance (EP), Operational Performance (OP), and Information and Analysis (IA) exhibited weaker and non-significant positive correlations with CF. These results confirm the hypothesized relationship (H2) that customer focus has a positive impact on organizational performance within the construction industry, with the highest correlations observed in CS, PI, PIIm, and M/FP.

4.4.3. Employee/People Management (E/PM) and Organisational Performance Variables

The correlation results for E/PM indicated a positive relationship with CS ($r = .186^*$, $p < 0.05$); EP ($r = .185^*$, $p < 0.05$); PI ($r = .157^*$, $p < 0.05$); PIIm ($r = .189^*$, $p < 0.05$); M/FP ($r = .097$, $p < 0.05$); OP ($r = .234^{**}$, $p < 0.05$); and II ($r = .246^{**}$, $p < 0.05$). Overall, the findings indicated that E/PM is correlated with organizational performance in construction organizations, and

consequently, hypothesis (H3) is supported (H3: Employee/People management positively influences organizational performance).

4.4.4. Supplier Quality Management (SQM) and Organisational Performance Variables

The correlation values for SQM were positively and significantly related to CS ($r = .068$, $p < 0.05$); EP ($r = .185^*$, $p < 0.05$); PI ($r = .185^*$, $p < 0.05$); PIIm ($r = .189^*$, $p < 0.05$); M/FP ($r = .157^*$, $p < 0.05$); OP ($r = .127$, $p < 0.05$); and II ($r = .185^*$, $p < 0.05$). The findings indicated that organizational performance dimensions are positively correlated with SQM, but CS and OP are not significantly correlated with SQM. Furthermore, the results indicate that overall SQM has a significant relationship with organizational performance, with the highest values in EP, PI, PIIm, and II. This means that all variables are significantly related to SQM. In general, the findings indicate that SQM is related to organizational performance in construction organizations; therefore, hypothesis (H4) is supported (H4: Supplier quality management positively influences organizational performance).

4.4.5. Education/Training (E/T) and Organisational Performance Variables

The correlation values for E/T were positively and significantly correlated with CS ($r = .151$, $p < 0.05$); EP ($r = .188^*$, $p < 0.05$); PI ($r = .180^*$, $p < 0.05$); PIIm ($r = .262^{**}$, $p < 0.05$); M/FP ($r = .105$, $p < 0.05$); OP ($r = .203^{**}$, $p < 0.05$); II ($r = .211^{**}$, $p < 0.05$). The findings revealed that overall E/T has a positive relationship with organizational performance, with the highest correlation values in PIIm, OP, and II. These variables are correlated with E/T; therefore, the supported hypothesis (H5) (H5: Education/Training positively influences organizational performance) was developed in this study.

4.4.6. Process Management (PM) and Organisational Performance Variables

PM was found to be significantly correlated with CS ($r = .160^*$, $p < 0.05$); EP ($r = .196^*$, $p < 0.05$); PI ($r = .220^{**}$, $p < 0.05$); PIIm ($r = .231^{**}$, $p < 0.05$); M/FP ($r = .047$, $p < 0.05$); OP ($r = .235^{**}$, $p < 0.05$); and II ($r = .200^*$, $p < 0.05$); however, market/financial performance was not positively correlated with PM. Thus, the results showed that overall PM has a positive relationship

with organizational performance, with the highest correlation values being PI, PIm, OP, and II. This means that the variables are strongly correlated with PM. In general, the results showed that PM influences organizational performance in construction organizations; therefore, hypothesis (H6) is supported (H6: Process management positively influences organizational performance).

4.4.7. Continuous Improvement (CI) and Organisational Performance Variables

The correlation value for CI was found to be significantly correlated with CS ($r = .191^*$, $p < 0.05$), EP ($r = .221^{**}$, $p < 0.05$); PI ($r = .267^{**}$, $p < 0.05$); PIm ($r = .200^*$, $p < 0.05$), M/FP ($r = .267^{**}$, $p < 0.05$); OP ($r = .285^{**}$, $p < 0.05$); II ($r = .269^{**}$, $p < 0.05$). The results also revealed that overall CI is significantly positively correlated with organizational performance, with the highest correlation values in EP, Profit Improvement, PIm, M/FP, OP, and II. In general, the findings indicate that CI is correlated with organizational performance in construction organizations. In line with this hypothesis, (H7) is supported (H7: Continuous Improvement is significantly related to organizational performance).

4.4.8. Information and Analysis (IA) and Organisational Performance Variables

The correlation analysis revealed that Information and Analysis (IA) is positively and significantly associated with various organizational performance metrics in construction organizations,

with the strongest correlations observed in Customer Satisfaction (CS), Employee Productivity (EP), Overall Performance (OP), Profit Improvement (PIm), and Innovation and Improvement (II), thereby supporting the hypothesis that IA positively influences organizational performance (H8).

4.5. Strategies for Improving Contractor Performance

The findings of the mean ranking show the level of influence each TQM practice has on organisational performance. The practices were evaluated on a scale of 1 to 4, with 1 representing "Highly Insignificant" and 4 representing "Highly Significant." This helps to provide a clear picture of the impact each practice has on the overall performance of the organisation. The mapping of the results, as depicted in Figure 2, showcases the significance of each TQM practice. The practises were streamlined and their influence was analysed, which helped identify the most impactful practices. This information is valuable for organisations as they can use it to prioritize their TQM efforts and allocate resources more effectively. The results of this mean ranking are a valuable tool for organisations looking to improve their performance through TQM. By focusing on the practices that have the greatest impact, organisations can achieve significant improvements in efficiency, customer satisfaction, and overall performance. TQM practices with a ranking of 4 can be considered the cornerstone of any organisation's efforts to improve performance, while practices with lower rankings can be refined and improved over time.

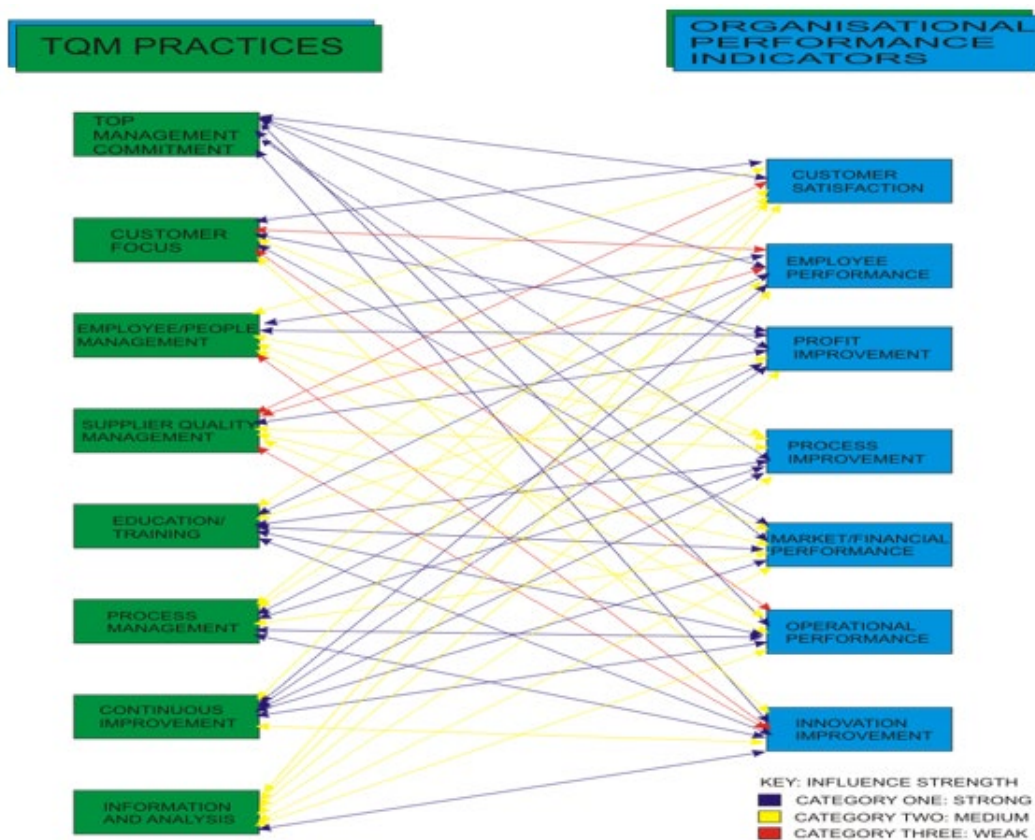


Figure 2: Mapping Strategies for Organisational Performance

4.5.1. Strategy 1: Customer Satisfaction

The main goal of organizations in any industry, including construction, is to satisfy their customers by providing the best products or services while meeting their objectives. Total quality management (TQM) practices have been identified as a way to improve performance and achieve customer satisfaction. This involves focusing on customer needs, with top management leading quality management programs and evaluating and improving the quality system. In the construction sector, customer focus is crucial, and organizations should understand both internal and external customers. They should strive to exceed customer expectations, gather customer feedback, and drive improvement processes. Effective employee management is vital because employees are essential for fulfilling customer requirements. Continuous education and training are necessary in the ever-changing construction industry to meet modern challenges and techniques. Organizations must effectively manage their processes and align them with strategic goals. This involves designing and implementing process architectures, measuring performance, and ensuring that managers can effectively oversee processes across departments. Organizations in the construction industry can achieve customer satisfaction through TQM practices that prioritise customer needs, effective employee management, continuous training, process management, continuous improvement, information analysis, and supplier quality management.

4.5.2. Strategy 2: Employee Performance

Effective people management is crucial for organizational performance. Assessing employee performance, providing a conducive work environment, and offering continuous education and training are essential for employee development and motivation. Streamlining processes, encouraging employee ideas, and maintaining open communication contribute to continuous improvement and optimal employee performance. Managing processes across departments and aligning them with strategic goals ensures effective performance management. Keeping records of employee performance aids in future analysis and development planning. Furthermore, organizations should focus on meeting customer needs and leveraging supplier contributions to enhance employee performance. By prioritizing people management, organizations can maximize employee potential and drive overall success.

4.5.3. Strategy 3: Profit Improvement

Profit is crucial for the survival of businesses, and organizational leaders must develop realistic plans to improve profitability. Customer focus is essential, as organizations should meet and exceed customer expectations by gathering feedback and aligning processes accordingly. Establishing strong relationships with suppliers ensures high-quality products that meet customer needs, ultimately driving up profits. Effective process management is vital for-profit improvement, with processes aligned to strategic goals and permeating through various departments. Continuous improvement processes, driven by open communication and employee involvement, streamline work and reduce waste, contributing to sustainable profit growth. Managing employees is a challenge, particularly in the construction industry, where they play a critical role in fulfilling profit improvement plans. Balancing the interests of

workers and employers and optimizing workflows are necessary to meet profit targets. Continuous education and training keep employees up-to-date with industry trends and techniques, facilitating profit improvement. Information analysis supports decision-making, research, planning, and quality assurance, steering the organization toward profit improvements and overall success.

4.5.4. Strategy 4: Process Improvement

Strong business processes contribute to competitive advantage. Organizational leaders must proactively identify, analyse, and improve existing processes to optimize them and meet quality standards. Process improvement is ongoing and should be followed by a tangible analysis of areas for enhancement. Effective process management involves aligning processes with strategic goals, implementing architectures, establishing measurement systems, and educating managers. Continuous education and training support process improvement, benefiting product quality, customer satisfaction, loyalty, productivity, employee skills, efficiency, and profits. Employees play a vital role in executing processes, and their interests should be managed under streamlined workflows. Supplier quality management and information analysis are crucial. Customer feedback drives process improvement, and the focus should be on meeting customer requirements while continually enhancing processes to fulfil organizational objectives.

4.5.5. Strategy 5: Market Performance

To thrive in the industry, organizations must efficiently use economic resources for the benefit of their clients. Top management plays a vital role in creating cost-effective production processes, fair pricing, and delivering value for money to enhance market performance. Customer satisfaction and retention are the key drivers of market share. Employee training and education should align with market performance objectives. Continuous improvement, whether through incremental changes or breakthrough innovations, is crucial. Cultivating employee engagement, ownership, and open communication fosters high morale, which is essential for meeting market performance. Employees are valuable assets that drive activities aimed at carving out a market niche. Managing the interests of workers and employers and streamlining workflows are essential to meet market performance requirements. Supplier quality management is critical for market performance, ensuring that products meet customer requirements with minimal adjustments or inspections. Regular collection and analysis of market information support evidence-based decision-making, strategic management, research, planning, quality assurance, and monitoring and evaluation, contributing to overall market success.

4.5.6. Strategy 6: Operational Performance

Organizations need to align their units and operations to achieve core business goals such as productivity and cost reduction. Top management plays a crucial role in setting operational performance objectives and configuring the operating environment to achieve quality, flexibility, and cost savings. Continuous education and training of employees are essential to meet evolving challenges and adopt modern techniques. Processes should be designed to meet client requirements and adapt to new demands. Continuous improvement through small

changes, employee involvement, and open communication is vital for operational success. Effective employee management and streamlined workflows are necessary for optimal performance. Supplier relationships should be interactive to ensure that products meet operational needs. Regular collection and analysis of operational performance information support decision-making and quality management. Maintaining strong customer relationships and incorporating their feedback into processes are key to success.

4.5.7. Strategy 7: Innovation Improvement

Innovation is the process of converting new concepts and knowledge into valuable products, services, or processes that deliver customer value. While the construction industry may be slow to embrace innovation, it must adapt to a constantly changing world. Top management plays a key role in driving innovation by aligning the organization with industry trends. Continuous education and training programs ensure that workers are equipped with the necessary skills and knowledge to meet evolving demands. Effective process management, aligned with strategic goals, enables organizations to meet innovation targets. Information and analysis support decision-making and quality assurance for innovation improvement. Close customer relationships provide insights into innovative solutions. Employee management, continuous improvement, and supplier collaboration are vital elements in fostering and sustaining innovation.

5. Conclusion and Recommendations

TQM is often described as a comprehensive approach that unifies every aspect within an organization to align with the demands of customers and the overarching organizational goals. However, prior research in this field has typically been industry-specific, making it challenging to pinpoint a universally applicable set of TQM practices suitable for all industries, regardless of their unique characteristics. Due to this limitation, it became crucial to identify generic practices essential for achieving a substantial enhancement in the overall performance of organizations, particularly within the construction industry. Through rigorous analysis, these practices were found to exert a positive influence on various indicators of organisational performance. This breakthrough prompted the development of strategies aimed at enhancing organizational performance, considering how these identified practices impact each performance indicator. This marked a departure from previous research, which mainly established correlations between these variables without providing actionable strategies. The outcome of this strategic mapping effort resulted in a collection of strategies tailored to achieve desired improvements in performance metrics.

It is recommended that this study be replicated in different countries or regions to see if the findings hold up in different cultural settings and if there are any differences in the impact of the variables on organizational performance. Longitudinal study: A longitudinal study could be conducted to determine the dynamic link between the variables and contractors' performance over time. This could offer a better insight into the factors that contribute to sustained performance improvement. Future research could examine additional variables that may impact the link between the variables and contractors' performance, such

as technology adoption, market competition, and government regulations.

Limitations of the Study

The study focused on construction contractors in Abuja, Nigeria, which may limit the generalisability of the findings to other regions or industries. Secondly, while the research identified key TQM practices, it did not delve into the specific challenges or obstacles that organizations might encounter during implementation. Future studies could explore these issues in greater depth.

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