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

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ABSTRACT

This study assesses the impact of Total Quality Management (TQM) practices on the performance of Nigerian construction contractors in Abuja, Nigeria. By analysing data from 275 firms, the research identifies eight key TQM practices and their influence on various performance indicators. The findings revealed that practices such as top management commitment, training, process management, and continuous improvement significantly enhance organisational performance. The study offers practical guidance for construction organisations. It emphasises the importance of tailoring TQM practices to specific performance objectives, recognising that a one-size-fits-all approach may not be effective. Additionally, the research highlights the crucial role of top management in driving TQM adoption and fostering a culture of continuous improvement. While the study provides valuable insights, it is important to note its limitations. The focus on Abuja-based contractors may limit the generalisability of the findings to other regions or industries. Furthermore, the research does not delve into specific challenges that organisations may face during TQM implementation. Future studies could explore these areas in more detail. Thus, this research contributes to the field by bridging the gap between TQM practices and organisational performance in the construction industry. It offers a nuanced understanding of which practices are most influential and how they can be aligned with performance objectives. By providing a clear roadmap for enhancing performance and competitiveness, this study offers valuable guidance to construction organisations.

1. INTRODUCTION

The global construction industry has long been recognised as an important contributor to gross domestic product (GDP) and a vehicle for a nation's financial growth (Zhu et al., 2021). 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 global GDP (Ahmadi and Shahandashti, 2017). This

industry is significant in filling the gap between conceptualisation and realisation, offering opportunities for increased project sustainability and economic development (Yu et al., 2018). 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 (Al-Sabek, 2015; Sadikoglu and Olcay, 2014). This has led to criticisms regarding poor performance in terms of cost-effectiveness, operational productivity, and customer satisfaction (Sadikoglu and Olcay, 2014). As a result, clients often expressed declining satisfaction with the built environment (Onubi and Hassan, 2020). In response to growing demands for higher-quality products and services, many organisations, 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 (Anil and KP, 2019).

TQM is a strategy that integrates all organisational activities to focus on satisfying customer expectations, achieving organisational objectives and sustaining a competitive advantage (Jabeen et al., 2014). 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 (Dilawo and Salimi, 2019). Construction firms, particularly contractor organisations, constitute a significant portion of the construction industry (Frödell, 2011; Ng and Tang, 2010). These organisations vary in their commitment to production, often leading to disparities in physical and service delivery output (Ng and Tang, 2010). 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 (Frödell, 2011). To secure a competitive edge, contractor organisations 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 (Zuo et al., 2015). They play a crucial role in adapting to changing client expectations, market conditions, technological advancements, and globalisation. To thrive in this changing environment, contractors must acquire the competencies and capabilities required for sustained competitiveness (Tan et al., 2015).

Considering the above, this research seeks to examine the level to which TQM practices and organisational success are associated as well as how TQM practices impact organisational 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 organisational performance and superiority. Overall, this research is important as it aims to bridge the gap in literature and provide an appraisal of the influence of TQM practices on contractors' performance in the construction sector.

2. MATERIALS AND METHODS

2.1. Study Area

Abuja, the capital city of Nigeria, serves as study area for assessing TQM practices and construction contractor performance due to its rapid urbanisation and extensive construction activities. As one of Africa's fastest-growing cities and Nigeria's administrative centre, Abuja features a diverse blend of indigenous and multinational construction companies engaged in large-scale government and private projects. This diversity allows a complete assessment of TQM practices and performance outcomes across different company profiles. The city also serves as a focal point for construction regulations

aimed at improving industry standards (National Bureau of Statistics, 2021), making the findings of this study highly relevant for informing policy and industry practices. Additionally, Abuja's construction industry reflects issues typical of developing economies, such as resource constraints and skill gaps, together with opportunities for improving quality and performance driven by client needs (Eze and Chinedu, 2020). Its strategic importance and the representative characteristics of its construction challenges make Abuja an excellent case for studying the relationship between TQM practices and contractor performance, with results that could be applied to similar contexts across Nigeria and other developing countries (Okoro, 2021).

2.2. Data Collection

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) practises and organisational performance indicators and assess the impact of the identified TQM practises on the performance of construction contractors. 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 Equation (1).

$$s = \frac{\chi^2 Np(1-p)}{d^2(N-1)+\chi^2 p(1-p)} \quad (1)$$

where s = sample size, X^2 = 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) (Krejcie and Morgan, 1970).

Therefore, a sample size of 275 was required. A total of 275 construction contractors registered with the Corporate Affair 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, performance level of construction firms based on the influence of TQM practices, and 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 Spearman'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.

3. RESULTS AND DISCUSSION

3.1. Demographics of the Respondents

The results in Table 1 depict that 51% of the respondents held top management positions and 49% held middle management positions, highlighting the level of knowledge about their organisations' 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' organisations 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.

Table 1: Demographics of the respondents

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

3.2. 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 in a scale. According to Gliem and Gliem (2003), Cronbach's alpha of 0.60 and above is valid. A value of 0.80 is a strong indicator of reliability. The Cronbach's alpha values for TQM practises 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.

Table 2: Reliability analysis

Variable	No. of Items	Alpha reliability coefficient
TQM practices (Independent variable)	8	.890
Performance Measures (Dependent variable)	7	.878

3.3. 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 organisational 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 organisation'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.

Table 3: Descriptive statistics of the TQM practises

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

For organisational performance (Table 4), 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.

Table 4: Descriptive statistics of organisational performance

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

3.4 Correlation between TQM practices and contractors' performance variables

This study explored the relationship between TQM practises and contractors' performance. TQM practises encompass 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 organisational performance dimensions comprise customer satisfaction (CS), employee performance (EP), profit improvement (PI), process improvement (PIm), financial performance (FP), operational performance (OP), and innovation improvement (II). The results are shown in Table 5.

The correlation analysis in Table 5 showed a positive relationship between TQM practices and contractors' performance dimensions. This implies that implementing TQM practices can lead to improvement in organisational 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' organisation and contribute to their overall success (Pheng and Teo 2004).

Table 5: Correlation between TQM practises and contractors' performance variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Top Management Commitment															
2 Customer Focus	.248**														
3 Employee/People Management	209**	.277**													
4 Supplier Quality Management	.236**	.047	.277**												
5 Education/Training	.259**	.297**	.201**	.204**											
6 Process Management	.244**	.087	.269**	.067	.253**										
7 Continuous Improvement	.232**	.277**	.247**	.269**	.195*	.247**									
8 Information and Analysis	.218**	.231**	.207**	.214**	.195*	.062	.248**								
9 Customer Satisfaction	.156*	.257**	.186*	.068	.151*	.160*	.191*	.269**							
10 Employee Performance	.141*	.041	.185*	.185*	.188*	.196*	.221**	.211**	.061						
11 Profit Improvement	.121*	.204**	.157*	.185*	.180*	.220**	.267**	.069	.288**	.204**					
12 Process Improvement	.169*	.200*	.189*	.189*	.262**	.231**	.200*	.282**	.548**	.620**	.396**				
13 Market/Financial Performance	.140*	.200*	.097	.157*	.105	.047	.267**	.185*	.285**	.306**	.090	.352**			
14 Operational Performance	.169*	.101	.234**	.127	.203**	.235**	.285**	.044	.417**	.105	.320**	.650**	.412**		
15 Innovation Improvement	.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).

3.4.1. Top management commitment (TMC) and contractors' performance dimensions

The correlation analysis result in Table 5 reveals that top management commitment (TMC) is positively correlated with various organisational performance variables within construction organisations. Specifically, TMC showed positive correlations with customer satisfaction (CS), employee productivity (EP), process improvement (PI), profit improvement (PIm), management and financial performance (M/FP), operational performance (OP), and innovation and improvement (II). The highest correlation values were observed for II, PIm, OP, and CS, indicating a strong influence of TMC on these performance indicators. This in line with the findings of (Pheng and Hong 2005; Yang, 2006). These findings confirm the hypothesised relationship (H1) that top management commitment has an important impact on organisational performance in the construction industry, with a notable emphasis on II, PIm, OP and CS.

3.4.2. Customer focus (CF) and organisational performance variables

The result in table 5 indicates that customer focus (CF) is positively and significantly correlated with several organisational performance variables within construction organisations. Specifically, CF showed statistically significant positive correlations with customer satisfaction (CS), process improvement (PI), profit improvement (PIm), 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 hypothesised relationship (H2) that customer focus has a positive impact on organisational performance within the construction industry, with the highest correlations observed in CS, PI, PIm and M/FP. This finding agrees with studies of (Kumar et al., 2008; Oakland, 2014).

3.4.3. Employee/people management (E/PM) and organisational performance variables

The findings in Table 5 for E/PM indicated a positive relationship with CS ($r = .186^*$, $p < 0.05$); EP ($r = .185^*$, $p < 0.05$); PI ($r = .157^*$, $p < 0.05$); PIm ($r = .189^*$, $p < 0.05$); 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 organisational performance in construction organisations, and consequently, hypothesis (H3) is supported (H3: Employee/People management positively influences organisational performance). The relationship between employee management and organisational outcomes has been corroborated in the literature. For instance, Chew and Chan (2008) and Armstrong (2014) highlight the link between employee engagement and various organisational performance.

3.4.4. Supplier quality management (SQM) and organisational performance variables

The correlation values in Table 5 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); PIm (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 organisational 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 organisational performance, with the highest values in EP, PI, PIm, and II. This means that all variables are significantly related to SQM. In general, the findings indicate that SQM is related to organisational performance in construction organisations; therefore, hypothesis (H4) is supported (H4: Supplier quality management positively influences organisational performance), supporting findings in prior studies (Arditi and Gunaydin, 1997; Oakland, 2014; Pheng and Jasmine, 2004).

3.4.5 Education/training (E/T) and organisational performance variables

The results for E/T in Table 5 showed positive correlations with CS (r = .151, p< 0.05); EP (r = .188*, p< 0.05); PI (r = .180*, p< 0.05); PIm (r = .262**, p< 0.05); M/FP (r = .105, p< 0.05); OP (r = .203**, p< 0.05); and II (r = .211**, p< 0.05). These findings suggest that education and training (E/T) contribute positively to organisational performance, with notable relationships observed in PIm, OP, and II, supporting hypothesis H5 that E/T positively influences organisational performance, corroborating findings in recent study (Po et al., 2024).

3.4.6. Process management (PM) and organisational performance variables

PM in Table 5 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); PIm (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 organisational 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 organisational performance in construction organisations; therefore, hypothesis (H6) is supported (H6: Process management positively influences organisational performance). These findings reinforce the importance of PM in enhancing organisational performance (Kiran et al. 2022).

3.4.7. Continuous improvement (CI) and organisational performance variables

The correlation value for CI in Table 5 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 organisational 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 organisational performance in construction organisations. In line with this hypothesis, (H7) is supported (H7: Continuous Improvement is significantly related to organisational performance) and echoed (Furterer, 2022).

3.4.8. Information and Analysis (IA) and Organisational Performance variables

The correlation analysis in Table 5 revealed that Information and Analysis (IA) is positively and significantly associated with various organisational performance metrics in construction organisations, 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 organisational performance (H8). Recent studies highlight that IA systems enhance decision-making and provide real-time insights into performance metrics, thereby fostering better outcomes across customer and employee satisfaction and financial metrics. This approach is underscored by frameworks such as the Malcolm Baldrige Criteria, which

stress the importance of non-financial metrics such as customer satisfaction and process excellence alongside traditional financial indicators (ASQ, 2023).

3.5. 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 1, demonstrates 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 prioritise 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.

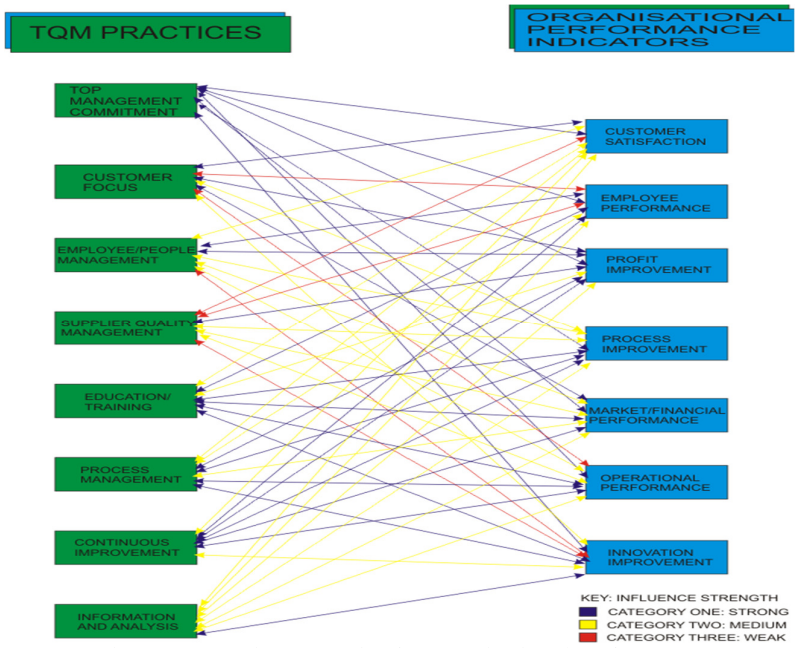

Figure 1: Mapping strategies for organisational performance

3.5.1. Strategy 1: customer satisfaction

The main goal of organisations in any industry, including construction, is to satisfy their customers by providing the best products or services while meeting their own 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 organisations 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. Organisations 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. Organisations 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.

3.5.2. Strategy 2: employee performance

Effective people management is crucial for organisational 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, organisations should focus on meeting customer needs and leveraging supplier contributions to enhance employee performance. By prioritising people management, organisations can maximise employee potential and drive overall success.

3.5.3. Strategy 3: profit improvement

Profit is crucial for the survival of businesses, and organisational leaders must develop realistic plans to improve profitability. Customer focus is essential, as organisations 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 organisation towards profit improvements and overall success.

3.5.4. Strategy 4: process improvement

Strong business processes contribute to competitive advantage. Organisational leaders must proactively identify, analyse and improve existing processes to optimise 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 organisational objectives.

3.5.5. Strategy 5: market performance

To thrive in the industry, organisations 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 supports evidence-based decision-making, strategic management, research, planning, quality assurance, and monitoring and evaluation, contributing to overall market success.

3.5.6. Strategy 6: operational performance

Organisations 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.

3.5.7. 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 organisation 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 organisations 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.

4. CONCLUSION

TQM is often described as a comprehensive approach that unifies every aspect within an organisation to align with the demands of customers and the overarching organisational 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 organisations, 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 organisational 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 organisational 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.

5. ACKNOWLEDGMENT

This research is part of a larger study examining the factors influencing organisational performance in the Nigerian construction industry.

6. CONFLICT OF INTEREST

There is no conflict of interest associated with this work.

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