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**Effect of implementing TQM on Corporate Performance in the Construction Industry in Saudi Arabia**Abdulkarem Mohammed All Muaydh<sup>1\*</sup>, Nahg Abdul Majid Alawi<sup>1</sup>**Article Information****Received:** August 02, 2024**Accepted:** September 09, 2024**Published:** October 22, 2024**Keywords***Construction Companies,  
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Management (TQM)***ABSTRACT**

Despite the significance of the contracting industry in the Saudi Arabia and the significant investments that are being made in the project sector, there exists an obstacle or delay in the timely completion of projects. This delay leads to several costs, which can impact the strategic plans of the state and impede the progress of economic, social, and developmental goals. Therefore, this study aims to examine the effect of total quality management on performance of the construction companies in Saudi Arabia. The questionnaire was used to collect the data from 272 respondents. The result revealed that there is a positive and significant effect of TQM on the organizational performance of construction companies. The study highlighted that implementing the TQM approach would enhance the overall performance of construction, Saudi Arabia. Limitation and recommendations for future studies was provided.

The construction industry in Saudi Arabia is one of the most critical sectors of the economy, playing a vital role in achieving economic development and providing the necessary infrastructure to support other industries. This sector reflects the country's level of economic advancement, making it a key indicator of its economy. Its importance is particularly evident as it was the largest recipient of government spending during the first three national development plans with over 49% of total government expenditure allocated to it (Alghaseb & Alshmlani, 2022). Saudi Arabia's Kingdom is ranked 13th in the world for economic competitiveness. The research notes that Middle Eastern countries are seeing strong economic expansion, particularly in the building industry (Aichouni *et al.*, 2014). As part of Saudi Vision 2030, the nation's economy increasingly relies on the construction sector, which is the second-largest non-oil sector and the largest in the Middle East market. International reports indicate that the number of new projects in this sector exceeds 5,000, with a total value of up to 6 trillion Saudi riyals (Saudi Contractors Authority, 2018). Despite these strengths, the Saudi construction sector faces several challenges that impact the quality of its outputs, such as a lack of advanced knowledge, reliance on energy-intensive manufacturing processes, high construction costs, and failure to adhere to quality standards set by the Saudi Standards, Metrology and Quality Organization (SASO). According to a report by King Abdulaziz City for Science and Technology (2009), the unprecedented construction boom in recent years has led to the re-emergence of some issues related to product quality and project delivery delays. Although Saudi Arabia ranks 13th globally in terms of economic competitiveness, the Saudi construction sector requires significant improvements to meet quality standards and support sustainable development (Aichouni *et al.*, 2014). It is also important

to note that delays in project delivery result in significant financial losses, which can affect the state's strategic plans and hinder economic, social, and developmental progress. Most projects, regardless of their type or size, suffer from time or administrative delays, highlighting the urgent need to improve product quality, productivity, business outcomes, and customer satisfaction (Desouky *et al.*, 2021). Such improvements can be achieved through the implementation of quality management systems such as Total Quality Management, Six Sigma, ISO 9001, or Excellence Models, along with the associated tools and techniques. While the implementation of Total Quality Management (TQM) in construction companies offers distinct advantages, its impact on performance within the Saudi construction industry remains uncertain (Alghaseb & Alshmlani, 2022). Moreover, the potential benefits of TQM in this sector are not yet fully understood (Way *et al.*, 2016). The Saudi construction industry is one of the largest employers in the national labor market (Trigunarsyah, Moohialdin, & Islam, 2023). However, a review of the literature reveals that there has been limited research on the performance of construction firms that have adopted TQM within the Saudi context. Efforts to enhance corporate performance in construction companies through the application of management philosophies like TQM could support governmental initiatives and serve as a model for companies of various sizes and types in the construction industry. Therefore, the current study attempts to fill this gap, by examining the effect of TQM on firm performance in the construction sector in Saudi Arabia.

**LITERATURE REVIEW**

Total Quality Management (TQM) is widely recognized as a framework aimed at enhancing organizational performance (Kwan, 2016). Deming defined quality as

<sup>1</sup> Iqra Business School, University Geomatika Malaysia.

\* Corresponding author's e-mail: [almaydh@gmail.com](mailto:almaydh@gmail.com)

the ability to conform to specifications and be free from defects (Deming, 2018). With the growing influence of globalization and the market economy, the critical role of TQM and its associated standards has been increasingly emphasized (Guasch, 2007). Moreover, quality is a comprehensive concept that encompasses various organizational aspects, such as the involvement of all employees in continuous improvement and the integration of quality principles into the organizational culture (Alghaseb & Alshmlani, 2022). Over the past decade, TQM has become one of the fundamental tools in management practices, with widespread application in both manufacturing and service industries, as well as notable benefits in the construction sector (Panuwatwanich & Nguyen, 2017). The implementation of TQM can contribute to overall quality enhancement and improved business performance (Alghaseb & Alshmlani, 2022). All improvement measures applied within companies aim either to directly improve processes or indirectly enhance occupational safety (Balon & Roszak, 2020). Extensive research has been conducted on the implementation of TQM, with the benefits perceived as including higher customer satisfaction, better product quality (al-refaei *et al.*, 2023), and increased market share for construction companies (Aichouni *et al.*, 2014; Way *et al.*, 2016; Alghaseb & Alshmlani, 2022). In this context, Iqbal and Asrar-ul-Haq (2018) studied the relationship between TQM practices and employee performance in a dynamic technological region in Pakistan. Additionally, Panuwatwanich and Nguyen, (2017). found a significant impact of TQM on the performance of construction companies in Vietnam.

**MATERIALS AND METHODS**

The study employed a descriptive-analytical approach to examine the impact of Total Quality Management (TQM) on the performance of contracting companies in Saudi Arabia. This approach is characterized by its ability to understand and analyze phenomena through the collection and analysis of data to develop objective conclusions. The study focused on the employees of SALCO Saudi Contracting Company, one of the leading contracting companies in the Kingdom, with approximately 1,200 employees. Given the difficulty of reaching all members of the population, Krejcie and Morgan’s table was utilized to determine the appropriate sample size, resulting in a representative sample of 291 employees. Additionally, the researcher used random sampling to gather data from the study sample through a cross-sectional survey. The questionnaire was distributed to employees via social media platforms. The questionnaire was designed based on previous research and studies related to the field of study, and from references and sources related to the subject of the study. The questionnaire contained two sections: the first section related to the demographic characteristics of the study sample, and the second section was represented in the questionnaire regarding to the study variables. TQM was measured by 20 items

developed from previous studies such as Idris and Abu al-Rus (2022), Al-Harthy and Hammouri (2022), and Al-Anzi (2022). The measurement is divided to three dimensions: Senior management commitment to quality (8 items), employees’ participation (5 items), and continuous improvement (7 items). Organizational performance was measured by 7 items adapted from Al-Harthy and Hammouri (2022), and Al-Anzi (2022).

**RESULTS AND DISCUSSION**

**Results**

**Sample profile description**

The sample included employees from employees of SALCO Saudi Contracting Company. The results revealed that the number of males was 234, (88%), while the females were 38 (14 %) of the total study sample. Regarding the age of the respondents, 16 (22.1%) were under 30 years. Employees aged 30-40 were 84 (30.9%), while those aged 40-50 numbered 68, (25 %). Finally, employees over 50 totaled 60 (22%) of the sample. Results reveal that employees hold a diploma 81 (29.8%), employees hold a bachelor’s degree 86 (31.6%) of the total study sample. Followed by a master of 66 (24.3%). Employees with a Ph.D. were 39 (14.3%). Regarding to the employee’s experience, 50 (18.4%) have experienced less than 5 years, 87 (32%) have experienced from 5 to 10 years, 58 (21.3%) have experienced between 10 to 15 years, finally, 77 (28.3%) have experienced more than 15 years.

**Assessment of measurement model**

The measurement model, comprising total quality management, and organizational performance, generated satisfactory results. The model fit indices showed indicated a good fit:  $\chi^2 = 561.057$ ,  $DF = 316$ ,  $CMIN/DF = 1.775$  ( $p < 0.000$ ),  $CFI = 0.934$ ,  $TLI = 0.927$ , and  $RMSEA = 0.053$ . These findings demonstrate a good fit, as presented in Table (1) of the model fit assessment. Moreover, reliability, convergent validity, and divergent validity results summarized in Table (1) indicated that all factor loading exceeded the cut-off of 0.50, it was between 0.60 and 0.82 for all the items, composite reliability (CR) ranged from 0.884 for corporate performance to 0.960 for TQM, exceeding the recommended threshold of 0.70 (Alsamawi *et al.*, 2019). The average variance extracted (AVE) surpassed 0.50, as suggested by prior research (Fornell & Larcker, 1981; Alsamawai *et al.*, 2019; Nasser *et al.*, 2024). Average shared variance (ASV) was higher than the maximum shared variance (MSV) thresholds (Nasser *et al.*, 2024; Zumrah *et al.*, 2021), confirming the model’s reliability and validity according to Table (1).

**Table 1:** Overall reliability and validity of all constructs

Construct	CR	AVE	MSV	MaxR(H)
TQM	0.959	0.887	0.262	.969
Crisis Management	0.884	0.524	0.262	0.892

The second approach employed for the assessment of discriminant validity was the Heterotrait-Monotrait Ratio (HTMT), as recommended by previous studies (Henseler *et al.*, 2015; Al-refaei *et al.*, 2024; Alshuhumi *et al.*, 2024). While the Fornell-Larcker Criterion (FLC) is traditionally regarded as an effective method for assessing discriminant validity (DV), it sometimes fails to detect a lack of DV in certain research contexts (Al-refaei *et al.*, 2023). Henseler *et al.* (2015) proposed HTMT as a new method to address this issue, suggesting that the HTMT value for constructs should be below 0.85. In the current study, the HTMT values for all constructs were indeed below the recommended threshold of 0.85, establishing DV for all constructs as indicated in Panel B of Table 2.

**Table 2:** FLC and HTMT.

Variables	Panel A: FLC		Panel B: HTMT	
	TQM	P	TQM	P
TQM	0.942		-	
Performance	0.512***	0.724	0.529	-

After verifying the reliability, convergent validity, and discriminant validity, the structural model was employed to assess the impact of TQM on organizational performance in construction companies in Saudi Arabia. The hypothesized structural model indicated a positive and significant effect of TQM on organizational performance. The path coefficients showed  $\beta = 0.488$ ,  $t = 6.055$ , and  $P = 0.000$ , the findings show that the t-statistics is higher than (1.96), and the p-value is 0.05, indicating the direct hypotheses are significantly supporting (Al-Refaei *et al.*, 2024b; Al-Refaei *et al.*, 2019; Ghumiem *et al.*, 2022) the hypothesis regarding the direct effects of TQM on organizational performance at construction companies in Saudi Arabia. As shown in the table 3.

**Table 3:** Standardized regression estimation of direct effects

Path	Standardized	t-Value	P-Value	Result
TQM→OP	0.488	6.055	0.000	Supported

**Discussion**

The research findings demonstrated significant positive influence of implementing Total Quality Management (TQM) in Saudi construction companies. The study identified senior management commitment, worker participation, and continuous improvement as crucial elements in attaining this effect. Commitment from senior management to supporting TQM initiatives improves strategic direction and coordination across organizations, hence fostering a culture of quality and innovation and improve performance (Alshuhum *et al.*, 2024; Al-Refaei, 2024). Facilitating opportunities and encouraging staff participation were crucial elements in improving performance. Participating employees in decision-making and quality-related procedures has been shown to increase motivation and commitment to completing tasks with precision and efficiency (Al-Refaei *et al.*, 2021). Furthermore, continuous

improvement of work processes and procedures has a crucial impact on enhancing operational efficiency and minimizing inefficiencies and time wastage. The findings demonstrate the collaborative endeavours of different stakeholders within organizations and validate that the strategic implementation of TQM can improve the overall performance of organizations. The use of Total Quality Management (TQM) has been shown to produce measurable enhancements in the performance of contracting firms. This serves as robust evidence of the efficacy of this strategy within the construction industry of Saudi Arabia. The result of this study is consistent with previous studies which found positive effect of TQM on organizational performance. Specifically, this result is consistent with the research conducted by Alghaseb and Alshmlani (2022) demonstrated that the implementation of TQM leads to a general enhancement of the quality of products and services. This finding aligns with the results of the present study, which examined the influence of senior management commitment, staff participation, and continuing improvement on the overall performance of Saudi construction companies. Furthermore, the research conducted by Balon and Roszak (2020) examined that the objectives of improvement initiatives in organizations are to either enhance processes or improve worker safety. This is evident in the findings of the study, which demonstrated that continuous improvement plays a pivotal role in enhancing process efficiency and minimizing errors within those organizations. Additionally, the findings of this study is align with the research conducted by Aichouni *et al.* (2014) and Way *et al.* (2016) demonstrated that the adoption of TQM leads to enhanced performance improvement. These findings align with the present study, which emphasised the influence of TQM implementation on enhancing operational efficiency. Furthermore, the research conducted by Iqbal and Haq (2018) regarding the correlation between TQM practices and employee performance in Pakistan aligns with the results of the present study, which underscores the significance of employee participation in enhancing organisational performance. Ultimately, the research conducted by Panuwatwanich and Nguyen (2017) demonstrating a favourable influence of TQM on the performance of construction firms in Vietnam aligns with the results of this study. The present study also reveals a concrete and beneficial effect of TQM implementation in Saudi construction companies, particularly in terms of diminishing project delays and enhancing overall efficiency.

**CONCLUSION**

The present study examines the effect of TQM on organizational performance in construction companies in Saudi Arabia, it is not free of certain limitations. the current study was limited to testing the effect of TQM (senior management commitment, worker participation, and continuous improvement) on organizational performance in a construction company (SAPCO) in Saudi Arabia and

did not include other construction companies. Thus, future studies could expand to include all construction companies in Saudi Arabia. Second, this study focused on testing the effect of TQM on organizational performance by collecting data within a specific timeframe. Therefore, collecting data over different time periods may yield similar results but could be more generalizable. Third, the current study doesn't examine the possible mediating role of some variables, such as employee satisfaction, commitment, organizational citizenship behavior (OCB), and identification, this could provide more understanding of the effect of TQM on employees' attitudes and behavior organizational performance.

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