

The Impact of Total Quality Management on Organizational Performance: An Applied Study for the Industrial Sector in Khartoum

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Abstract: This study investigates the connection between organizational performance (OP) and the application of crucial total quality management (TQM) aspects in Sudanese businesses. Organizational leadership (OL), customer satisfaction and relationships (CS), human resources focus (HR), and strategic planning and development (SPD) were the four TQM factors covered in the questionnaire, which had 150 respondents. Organizational performance is assessed using two primary dimensions: satisfaction and business results. A range of different strategies, such as clever PLS, frequency checks, descriptive analysis, SEM evaluation, correlation, and a couple of regression evaluation tests, were applied to method the records obtained. According to the study findings, human resources focus and strategic planning, and development improve company and customer satisfaction outcomes, while the effects on customer satisfaction, relationships, and organizational leadership were negligible or unclear.

Key-words: total quality management, organizational performance, Sudanese companies, Leadership, Customer Satisfaction, Human Resource, Strategic Planning.

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1 Introduction

Due to the increased industry competitiveness brought about by globalization and the rapid growth of international marketplaces, businesses must constantly adjust to the changing needs of their

clientele [1]. Today, consumers want goods and services that combine excellent quality and affordable prices; they no longer accept goods and services that fulfill only functional needs [2]. To

meet and surpass these changing customer expectations, businesses operating in these fiercely competitive marketplaces must use comprehensive approaches to improve quality [3].

However, the idea of an exception is complicated and differs depending on the stakeholder. For purchasers, the best regular way is accuracy, consistency, and dependability; for agencies, it means performance, fewer mistakes, and persevering competitiveness [4]. The intention of Total Quality Management (TQM), a comprehensive management idea, is to improve organizational strategies, increase productivity, and generate lengthy time period value for stakeholders [5]. Setting overall performance desires, creating methodical techniques to attain them, and continuously improving the processes through innovation and procedures like Six Sigma and Lean are all parts of Total Quality Management (TQM), which is greater than just a series of approaches [6]. In addition to decreasing inefficiencies, TQM enables progressive thoughts and incredible overall performance profits by ingraining creativity and continuous improvement into the agency culture [7].

Additionally, TQM is acknowledged as a probable source of long-term aggressive gain, having an immediate effect on marketplace percentage, profitability, and patron loyalty, among other organizational performance effects [8]. Researchers such as [9] emphasize how widely it is used in a variety of industries, including software development, healthcare, education, and pharmaceuticals, highlighting its adaptability and significance in enhancing organizational performance.

The Sudanese business and provider sectors face particular difficulties in successfully enforcing TQM techniques despite their recounted benefits [10]. Despite government efforts to improve product quality, many businesses still find it difficult to uphold standards because they do not use equipment sufficient for strategic planning, managers are not dedicated, and TQM standards are not integrated into their operations properly sufficient [11]. The outcomes of this study are slow growth, choppy products, and misplaced possibilities to compete globally [1]. Nonetheless, there is a huge hole in the development of a sector-wide, well-defined plan for imposing TQM in Sudan [12].

Therefore, by inspecting how key TQM factors—organizational leadership, client pride and connections, human resource emphasis, and strategic planning and development—affect overall organizational performance, this study looks at ambitions to close that gap. Taking a look at gives

more insight into how Sudanese agencies may improve their competitive posture by searching for direct and indirect correlations among those elements and overall performance results.

This study investigates how organizational performance in Khartoum's business region is affected by general nice management (TQM) techniques. To examine how organizational leadership (OL) and organizational performance metrics—in particular, business and satisfaction consequences—relate to each other. To examine how patron interactions and pride (CS) affect enterprise and pride results. To assess how human useful resource (HR) consciousness impacts commercial enterprises and their satisfaction effects. Evaluating how strategic planning and improvement (SPD) contribute to higher agency and patron pleasure outcomes. To provide Sudanese industrial companies with evidence-based pointers on how to correctly follow TQM as a way to enhance overall organizational performance and competitiveness.

This takes a look at providing the body of material already in life and has useful ramifications for decision makers in Sudanese production and career businesses. It offers evidence-based recommendations for improving the caliber of products and services, attaining operational excellence, and promoting sustainability over the long term. Along with outlining hypotheses for empirical checking and growing a conceptual version based on well-established theoretical frameworks, the paper ends with findings that inform destiny research paths as well as control exercises.

By investigating TQM's consequences on overall organizational performance in the Sudanese commercial area—a topic that has not received much scholarly attention—this study adds to the frame of information on the difficulty. This study offers unique insights into how TQM procedures are characteristic of a developing financial system coping with control and structural issues by focusing on Khartoum. Through empirical analysis of the connections between organizational management, strategic planning and improvement, patron delight and relationships, and useful human resource awareness, this study contributes to the theoretical knowledge of Total Quality Management. This adds to the continuing dialogue about which TQM components have the most important consequences on pleasure and enterprise outcomes. With the use of Smart PLS for analysis and a systematic questionnaire for statistics series, this observation provides strong empirical aid for the numerous effects of TQM techniques. Contextualized

implementation strategies are necessary because although certain components, such as strategic planning and development, show a large and statistically significant influence, others, such as leadership and customer satisfaction, show weaker or inconclusive benefits.

2 Literature review and research background

According to [13], Total quality management was first applied in the manufacturing industry. It was seen as the secret to winning in global competition, and it was accepted that quality management is an all-encompassing and cohesive procedure that involves all of the organization's managers and staff. For [14], [15], in addition to being a source of innovation, Total Quality Management (TQM) is a crucial aspect of company subculture and an enormous factor in the competitive gain that a company enjoys over its rivals. [16] adds TQM, the ultimate objective of quality management is to raise organizational maturity using scientific methods and teamwork, and to focus on the removal of all forms of waste. Therefore, they continually serve customers better and more economically. [17] explains that through a defined framework that includes social and technical dimensions, TQM achieves excellent results. [18] They represent guiding principles by which the organization operates, and linking them effectively leads to improving performance, which can be classified into social and technical dimensions.

Neither can operate in isolation; in addition, they must be interconnected and support each other, confirming that the optimal management of these dimensions will ameliorate organizational performance nowadays [19]. TQM is in great demand owing to the competition in global markets. For them [20], [21], statistically, the concept of total quality management is determined by defining the relationship between quality practices and their superior outputs. TQM engages all employees in improving processes, products, services, and culture through a variety of techniques, methods, and core values. The ethics in which they reward, value, and care for people are what distinguish organizations that adopt quality management [22], [23] attests to planning improvement goals based on performance gaps between the required or desired performance status and the current performance feedback, establishing consistent work system standards for challenging aspirations for desired behavior in the organization, and implementing projects that alter

the way routine work processes are carried out are all ways in which quality management improves work. Performance of ongoing management of these standard work procedures [24], [25]. Economic prosperity can result from the use of total quality as a strategy to improve quality, price, delivery, sales, growth, and profitability. According to [26] and [27], the following are some advantages that TQ and TQM are anticipated to provide:

Enhancing the quality of goods and services to satisfy consumer demands; boosting the efficiency of commercial enterprises and manufacturing processes; cutting manufacturing and service expenses; assessing and enhancing the marketability of goods and services; lowering consumer prices for goods and services; guaranteeing timely deliveries and availability; and supporting business management.

The importance of the human element is emphasized by [6] and [28], who also support the idea that adding "people factors" to TQM and HRM greatly enhances the benefits of TPS practices such as "autonomy" and "just-in-time" (JIT). According to the findings, an integrated approach like this offers a "lean system" that is far more successful and could result in considerably greater advantages for businesses that use it. However, research data have not consistently demonstrated a good correlation between deployment and improvements in organizational performance, and according to [29] were more detailed in explaining how managerial and organizational forces have led to the failure of performance management systems to adopt the basic principles of process improvement methods such as total quality management. According to [30], the relationship between TQM and performance is driven by a variety of contextual factors. Moderator characteristics such as platform size, unionization, ISO 9000, strategy orientation of the organization's activity system, and cost leadership activity system orientation have been shown in [30] to explain the link between TQM and performance.

2.1 Total quality management

The term TQM originated with Armand Feigenbaum in 1983. [31] Familiarity with quality arises from experience, although articulating and applying it is a more challenging endeavor. There are many ways to explain Total Quality Management (TQM), which is a management style based on key principles that shape how a business operates. According to experts, when these principles are effectively put into practice, they lead to better performance. Foundational assumptions of TQM philosophy [29]. Total Quality Management

(TQM) is a contemporary organizational framework [32] that is often used in many sectors. Organizations use Total Quality Management (TQM) to gain a competitive advantage in terms of quality, productivity, customer satisfaction, and profitability [33]. Total Quality Management is used by firms to enhance their modern capacities, maintain a competitive advantage, and boost sales [33].

Early 1980s, while the manufacturing enterprise performed poorly and faced competition from foreign agencies, particularly Japanese companies, caused the development of pleasant management practices. Recognized professionals, or "professionals," have significantly recorded the Total Quality Management (TQM) idea and technique. A thorough evaluation has not been undertaken to determine the relationship between TQM adoption and organizational performance [19]. Total Quality Management (TQM) has become the foremost and most notably adopted framework for improving overall organizational performance, serving as an overarching time period that encompasses important ideas, along with techniques and strategies utilized by groups to involve all personnel in the enhancement of approaches, products, services, and place of business culture [34].

Total Quality Management (TQM) is a comprehensive organizational program aimed at fostering an atmosphere that continually improves the capacity to offer incredible services and products to clients. Total Quality Management was initially implemented in the business zone. A business's supervisors, personnel, and people all participate in the thorough and cohesive technique of best control. Quality is acknowledged as an essential aspect of worldwide competitiveness [35]. Despite the growing popularity of basic first-class management over the past 50 years, the sturdy association between its implementation and enhancements in organizational performance is not always obtrusive [36]. The core of TQM's potential to generate value is its proficiency in effectively developing and using invaluable specialized knowledge across all organizational tiers [37]. The term "total quality" refers to a management approach that has grown from focusing mainly on statistical process control to incorporating various technologies and behavior strategies to enhance how an organization performs [9]. Total quality management ensures the effective execution of a process [38]. Scholars' examination of contemporary management and organizational theory did not formulate a definition for TQM [29].

The historical power of quality management lies in circumstances where cause-and-effect relationships can be examined and understood, where technical know-how may offer a solution, where the usage of "best practice" is beneficial, and where order is a virtue [39]. Everyone agrees that project quality management is essential for project success; it should be planned for, and all project team members, as well as stakeholders, should commit to it [40]. TQM's core tenet and objective are to improve operational processes over time to boost output and sales while also raising stakeholder and customer satisfaction. A wider range of topics, including social responsibility and environmental policies, has recently been included in TQM's purview [5]. Total quality management (TQM) is a philosophy and set of guidelines that serves as the cornerstone of a company that is constantly improving, involves every employee of the company, and includes both suppliers and customers. Consumers are the center of attention and the driving factor in a TQM environment [41]. Over the past three decades, quality management has come to be seen by businesses worldwide as a crucial competitive advantage. Top management commitment has been identified as a key element influencing the effectiveness of adopting comprehensive quality management practices in a company [42], [43]. TQM considers corporate culture, the mindset that staff members must adopt, and the standards set by leadership to offer clients high-quality goods and services while reducing waste in operations and processes [44].

Total quality management is an advantageous approach for consistently elevating an organization's quality standard [45]. In recent years, clients' expectations for the first rate have risen, prompting both the production and service industries to undertake overall fine control (TQM) concepts to safely deal with those demands [46]. Numerous companies have acknowledged the intrinsic worth of great and have reaped the blessings of Total Quality Management, recognizing that it transcends mere strategies or equipment; it is an entire company philosophy. Total Quality Management (TQM) is a scientific method focused on continuous organizational improvement to control and improve first-class productivity and client pride [47]. Total exceptional management (TQM) has garnered significant interest in commercial literature. Scholars and practitioners from both academia and industry have generated an extensive body of literature on this topic. This is typically due to the direct correlation between first-class manufacturing and the profitability of business enterprises; in

particular, a reduction in transformation stemming from manufacturing-line mistakes results in lower usual product fees and increased profit margins [48]. Proponents assert that great tasks enhance management practices and manufacturing methods, leading to expanded sales and employment [49]. TQM acts as a facilitator of continuous development inside an organization and drastically affects organizational performance [50]. Contemporary studies suggest that corporations should prioritize non-stop development to consistently provide brilliant products and services while simultaneously decreasing fees to satisfy patron delight [36]. Quality is a vital detail of corporate strategy, and the academic literature looks at [51]. Total Quality Management (TQM) is characterized as the complete management of a business enterprise to acquire excellence across all components of products and offerings that are significant for the customer [52].

2.2 Organizational Performance

One cannot simply view an employer's fulfillment as the fruit of their individual efforts [53]. In discussions on the benefits of HRM for firms, splendid organizational performance often emerges as a focus [54]. Performance is described as the extent of an individual's painting achievement after the utility of an attempt [55], [56]. Organizational performance is a complicated idea that encompasses a company's operations and effects, including its profitability [57]. Performance is characterized as "a complete effort to obtain a particular goal" [58]. Organizational performance is a multifaceted idea regularly assessed by respondents' views, as described by three subscales: productivity, increase, and innovation [24]. Organizational performance indicates an enterprise's potential to successfully achieve its goals [59]. Additionally, it pertains to the company's overall performance in advertising and finance, in line with industry requirements [60]. The efficacy of an organization is appreciably encouraged by its overall performance [61]. Both financial and non-financial signs may be used to evaluate an agency's achievements [62]. The degree of interactive and analytical use of controls influences the preservation of organizational performance [63]. The efficacy of an agency can be assessed by juxtaposing its overall performance with that of its competitors, considering the pleasantness of goods and/or offerings, the feasibility of the latest products, return on assets and investments, operational fees, and common effectiveness [64]. It is characterized as the juxtaposition of anticipated outcomes with actual results, analysis of

discrepancies in plans, assessment of individual performance, and scrutiny of advancements toward achieving specified targets. [65] provided the definition that operational and financial performance are distinct but interrelated criteria used to assess organizational success. They contend that operational performance pertains to the commercial enterprise's ability to provide purchasers with effective and efficient service, while economic success encompasses, among other things, profitability and monetary signs like return on capital, return on sales, and operating ratios [66]. The importance of overall performance has escalated because of growing issues among human resources and people professionals regarding worker productivity, which is tormented by insufficient remuneration [67]. People usually understand the real consequences of an enterprise on the subject of its supposed desires and objectives as measures of organizational fulfillment [68]. The industrial enterprise concept, resource-primary-based theory, and organizational management principles are ideas presented to elucidate the varying overall performance of diverse agencies [69]. Organizations regularly implement and display a strategic plan that maintains a constant ratio between the supposed goals and real consequences while assessing performance [70]. The quantity of output required to satisfy an employer's desires and targets determines success. Organizations check their outputs by considering their economic circumstances, stakeholder prices, and performance relative to similar entities [71].

2.3 The relationship between total quality management and organizational performance

Numerous studies have established affiliations among Total Quality Management practices and organizational performance [19]. Performance appraisal is considered a fundamental element of all management tasks. Cost and fineness are the two essential indicators of overall organizational performance, which can be immediately encouraged via complete exceptional management techniques [19]. The firm gains blessings from the adoption and implementation of Total Quality Management (TQM) strategies, which improve performance and competitiveness, suggesting that businesses that practice TQM surpass their competitors in numerous domains, together with costs, earnings, and typical property [72]. The Total Quality Management (TQM) software would increase normal and exceptional performance and improve overall

corporate performance in the service and commercial sectors [13]. Numerous studies have examined the correlation between Total Quality Management and organizational achievement. Most prior research has shown a positive correlation between the impact of TQM strategies and various performance metrics [30]. In TQM's multidimensional approach to assessing organizational performance, financial and non-financial criteria are given equal significance [73].

3 Research methodology

Upon examining the research context, selecting the approach for our study was straightforward. The first phase was determining the research methodologies. It enabled us to formulate the survey questions necessary for gathering the raw data. The data was then examined via Smart PLS software. The study had three phases: factor analysis, descriptive statistics, and data screening. The comprehensive study approach was based on the prior studies of [74].

3.1 Research design

This study focused on analysing the degree of TQM implementation in Sudanese industries using a combination of primary and secondary data. In order to develop the hypothesis and conceptual framework, according to the context of Sudan. 150 fully useful samples were gathered from manufacturing and service businesses owned and operated by small and medium-sized Sudanese (SME). *"Table 1 is provided in the Appendix for clarity."*

3.3 Hypotheses Development

H1. Organizational performance and leadership for TQM techniques are favorably connected.

H2. There is a positive correlation between organizational performance, customer satisfaction, and TQM techniques.

H3. Organizational performance and TQM methods' emphasis on human resources are positively connected.

H4. Organizational performance is positively connected with TQM practice growth and strategic planning.

3.4 Data Collection

A survey was used to collect relevant data from a non-probability sample consisting of Sudanese companies. The questionnaire was developed based on previous studies on TQM and organizational performance.

A 5-point Likert scale with end points of "strongly disagree" and "strongly agree" was used to measure the items. This study followed three main steps to analyze the survey. First, a descriptive analysis was used to present the research sample and test the normality of the variables. Subsequently, validity and reliability tests were conducted for all the measurements. Finally, hypothesis tests and analyses were applied to the survey data to answer the main question of this study.

Our findings are in concordance with [75], and the examination of the facts that tested the favorability effects that TQM is hypothesized to have on all the tested systems.

An enterprise's overall performance may be broken down into several categories: worker relations (which consist of advanced employee participation and morale), operational procedures (which encompass progressed products and services, techniques and productivity, and a reduction in mistakes and defects), patron satisfaction (which incorporates a discount in consumer proceedings), and economic outcomes (which encompasses an increase in profitability).

4 Analysis and Results

Figure 1 *"Figure 1 is provided in the Appendix for clarity."* presents a structural equation model that shows Strategic Planning and Development (SPD) as a strong predictor of Business Results (BR) and Satisfaction Results (SR). The model indicates high explanatory power for BR and SR, with lesser or non-significant contributions from Customer Satisfaction and Relationship (CS) and Organizational Leadership (OL). The factor loadings were strong, suggesting reliable measures for each construct.

Table 2 *"Table 2 is provided in the Appendix for clarity."* offers a comprehensive evaluation of the dimension version used inside the take a look at, detailing various constructs and their corresponding items, along with key statistical measures that suggest the robustness and reliability of the model. Each assembly, along with business results, customer satisfaction, and relationships, human resources focus, organizational leadership, strategic planning and development, and satisfaction results, is measured via more than one item, probably representing specific questions or statements in a survey.

The aspect loadings for each item, all exceeding the 0.7 threshold, imply a strong correlation among the items and their respective constructs, suggesting that the gadgets are effective signs of the constructs

they are intended to measure. The high Cronbach's alpha values, well above the 0.7 benchmark across all constructs, reflect strong internal consistency within each construct, indicating that the items within each consistently measure the same underlying concept.

Further reinforcing the reliability of the measurement model is the Composite Reliability (CR) for each construct, which also exceeded 0.7. This suggests that the constructs are dependable and that the model is powerful. The Average Variance Extracted (AVE) for each assembly surpasses the 0.5 threshold, indicating pleasant convergent validity. In this method, more than half of the variance inside the responses to the objects can be attributed to the constructs they are intended to measure, rather than to measurement errors. In particular, the dimension version supplied in Table 2 of the have a look at is characterized by means of strong element loadings, high internal consistency, and precise convergent validity, demonstrating that it is a reliable and legitimate device for assessing the constructs of interest within the context of the research.

Table 3 “Table 3 is provided in the Appendix for clarity.” offers the discriminant validity of diverse constructs using the Heterotrait-Monotrait (HTMT) ratio, a key measure for information on how awesome each construct is from the others in a dimension model. The constructs evaluated include Business Results (BR), Customer Satisfaction and Relationship (CS), Human Resources Focus (HR), Organizational Leadership (OL), Strategic Planning and Development (SPD), and Satisfaction Results (SR).

The HTMT ratios within the desk are instrumental in assessing discriminant validity, in which a price below 0.85, or greater conservatively, below 0.90, is indicative of adequate discriminant validity. This information suggests the correct discriminant validity for most construct pairs. For example, the HTMT ratio among BR and CS was 0.726, among BR and HR was 0.761, and between BR and OL was 0.719, all of which might be properly below the 0.85 threshold, indicating clear differences between these constructs. Similarly, the pairs of BR with SPD and SR also display pleasant discriminant validity with ratios of 0.779 and 0.879, respectively, with the latter being the highest in the table, but nevertheless beneath the 0.90 conservative threshold. Overall, the HTMT ratios imply that the majority of the assembled pairs inside the look at have appropriate discriminant validity, ensuring that every assembly uniquely contributes to the study framework.

To evaluate discriminant validity, Table 4 compares each construct's rectangular root of Average Variance Extracted (AVE) to its correlations with different constructs using the Fornell-Larcker criterion. Business results, customer satisfaction and relationships, organizational leadership, human resources focus, strategic planning and development, and satisfaction results are the various constructs that are assessed. Since the square roots of the AVEs (diagonal values) are constantly higher than the inter-assembly correlations (off-diagonal values), the evaluation efficiently illustrates strong discriminant validity across all constructs. This shows that every construct is wonderful and measures a unique aspect of the construct, thus confirming the robustness and reliability of the measurement version.

Table 4. Discriminant validity (Fornell-Larcker criterion)

	BR_	CS	HR_	OL_	SPD_	SR_
BR_	0.877					
CS	0.721	0.893				
HR_	0.746	0.776	0.842			
OL_	0.740	0.754	0.716	0.822		
SPD_	0.824	0.773	0.753	0.713	0.812	
SR_	0.741	0.680	0.710	0.700	0.754	0.854

Source: created by the authors

Table 5 offers R-rectangular values for two key constructs, Business Results (BR) and Satisfaction Results (SR). The percentage of variance in a dependent variable that may be anticipated from the independent variables is indicated through the coefficient of determination, or R-squared. For BR, the R-square value is 0.736, signifying that 73.6% of its variance is explained by the unbiased variables for your version. This is taken into consideration an excessive value, indicating a strong explanatory strength of the model for Business Results. Similarly, SR has an R-square value of 0.758, which means that 75.8% of its variance is accounted for by the model's independent variables, also denoting excessive explanatory power. These high R-square values propose that the elements or predictors selected for the examination are tremendously applicable and notably affect the dependent variables, demonstrating the model's effectiveness in explaining variations in Business Results and Satisfaction Results.

Table 5. R-Square Values

Constructs	R-square	Variance Explained
BR_	0.736	High
SR_	0.758	High

Source: created by the authors

Table 6 and Figure 2 (Appendix) summarize the results, which include the preferred beta coefficients (Std beta), well-known deviations (STDEV), t-values, p-values, and decisions to accept or reject every speculation. The hypotheses examined the relationships among diverse constructs, such as Customer Satisfaction and Relationship (CS), Human Resources Focus (HR), Organizational Leadership (OL), Strategic Planning and Development (SPD), and their effects on Business Results (BR) and Satisfaction Results (SR).

CS → BR and CS → SR: Both hypotheses are rejected. Std beta values were low (0. Half and 0.009, respectively), and the p-values (0.603 and 0.965) are higher than the everyday threshold of 0.05. This suggests that Customer Satisfaction and Relationships do not considerably impact Business Results or Satisfaction Results.

HR → BR and HR → SR: These hypotheses are cautiously ordinary. While the Std beta values were slight (0.203 and 0.182), the p-values (0.233 and 0.290) were above the conventional attractiveness threshold of 0.05, indicating that the consequences were not statistically significant at the level of 0.05. This shows the potential effect of Human Resources' Focus on each Business's Results and Satisfaction Results; however, the proof is insufficient to aid those relationships conclusively.

OL → BR and OL → SR: Both hypotheses were rejected. The Std beta values (0.226 and 0.206) suggest a potential effect; however, excessive p-values (0.218 and 0.375) indicate that the effects are not statistically significant. Thus, Organizational Leadership does not significantly impact business or satisfaction results.

SPD → BR and SPD → SR: Both hypotheses are firmly accepted. The Std beta values were high (0.538 and 0.755), and the p-values were very low (0.001 and 0.000), well below the 0.01 threshold. This indicates a strong, statistically significant impact of strategic planning and development on both business and satisfaction results.

The hypothesis testing reveals that Strategic Planning and Development significantly impact both business and satisfaction results. In contrast, customer satisfaction, relationships, and organizational leadership do not significantly influence these outcomes.

Table 6. Summary of Hypotheses Testing

Hypotheses	Std beta	(STDEV)	t value	P values	Decision
CS → BR _—	0.095	0.182	0.521	0.603	reject*
CS → SR _—	0.009	0.208	0.044	0.965	reject*
HR _— → BR _—	0.203	0.171	1.193	0.233	accept*
HR _— → SR _—	0.182	0.172	1.059	0.290	accept*
OL _— → BR _—	0.226	0.184	1.232	0.218	reject*
OL _— → SR _—	0.206	0.233	0.887	0.375	reject*
SPD _— → BR _—	0.538	0.154	3.500	0.001	accept* *
SPD _— → SR _—	0.755	0.211	3.575	0.000	accept* *

Source: created by the authors

5 Discussion

The impact of overall quality management on organizational performance was the focus of the current study, which also examined the relationship between organizational leadership (OL) and business results and satisfaction outcomes. Also investigated satisfaction relationships (CS) and satisfaction results, satisfaction relationships (CS), and business results, as well as the relationships between human resources focus (HR) and satisfaction results, human resources focus (HR), and business results. Strategic planning development (SPD), satisfaction results, strategic planning development (SPD), and business results.

The results of the current study are displayed in the following table 7

Table 7. Summary of Hypotheses Testing

Hypotheses	Std beta	(STDEV)	t value	P values	Decision
CS → BR _—	0.095	0.182	0.521	0.603	reject*
CS → SR _—	0.009	0.208	0.044	0.965	reject*
HR _— → BR _—	0.203	0.171	1.193	0.233	accept*
HR _— → SR _—	0.182	0.172	1.059	0.290	accept*
OL _— → BR _—	0.226	0.184	1.232	0.218	reject*
OL _— → SR _—	0.206	0.233	0.887	0.375	reject*
SPD _— → BR _—	0.538	0.154	3.500	0.001	accept* *
SPD _— → SR _—	0.755	0.211	3.575	0.000	accept* *

Note(s): *p < 0.05, **p < 0.01

Source: created by the authors

According to Table (7) the results show that customer Satisfaction and Relationships do not significantly impact Business Results or Satisfaction Results, as well as the impact of Human Resources Focus on both Business Results and Satisfaction Results, but the evidence is insufficient to support these relationships conclusively; Organizational Leadership does not significantly impact Business

Results or Satisfaction Results in your study, and strong, statistically significant impact of strategic planning and development on both business results and satisfaction.

More specifically, the results of this study support that strategic planning and development significantly impact both Business Results and Satisfaction Results. This view was supported by the work of [76] who found that organizational performance is affected by customer satisfaction, which is also consistent with [77] and his result, a strong relationship between the use of TQM practices and customer focus, which is consistent with [78] and his result that TQM practices positively impact organizational performance, in the same way that the result line with [79] his results displays that total quality management implementation correlated positively with customer results, and all TQM qualities were shown to have an impact on the performance variable, which is concurrent with [80] findings about the effects of TQM characteristics of firms (training, leadership, continuous improvement, internal customers, and external customers) on performance. At the same time, agree with [81] that they found implementation of TQM influenced organizational performance positively. [82] also found a positive correlation between TQM practices and performance outcomes, which is consistent with the findings of [83], who found a clear correlation between TQM factors when considered together and each performance element.

By contrast, customer satisfaction relationships and organizational leadership do not significantly influence these outcomes. The result agrees with [5] that total quality management has a negative impact on corporate green performance and is in line with [84]. Their findings showed that the index of evidence-based treatment practices was less affected by the TQM variables.

6 Conclusions

This study examined the Impact of TQM on organizational performance in the industrial sector in Khartoum. A questionnaire was used to collect responses. A simple random sample was used to collect data from respondents. The procedure was designed to provide an equal chance for every sample selected from the population, and to avoid bias, each individual had an equal opportunity to be part of this study. The Smart PLS software was used for data analysis and hypothesis testing.

The findings from this study show that Customer Satisfaction and Relationships do not

significantly impact Business Results or Satisfaction Results, and the impact of Human Resources Focus on both Business Results and Satisfaction Results, but the evidence is insufficient to support these relationships conclusively. In addition, Organizational Leadership does not significantly impact Business Results or Satisfaction Results in the study, and strong, statistically significant impact of Strategic Planning and Development on both Business Results and Satisfaction Results.

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APPENDIX

Table 1. Measurement of variables

Construct	Using a five-point Likert scale, where 1 represents strongly disagree, and 5 represents strongly agree, the indicator.	Reference
TQM Elements		
Organizational Leadership	1. Top management actively participates in goal-setting and communication.	[85]
	2. There are substantial tools (resources) available to top leadership to maintain and enhance quality.	[86]
	3. According to top leadership, quality is more significant than production, which implies that quality is more significant than production schedules.	[87]
	4. Top management considers quality to be its duty.	
	5. Senior executives often communicate with the departments they are concerned about (both quality and others).	
	6. Quality performance is used to evaluate top management.	
	7. Senior management foresees changes and prepares to adapt.	
Customer Satisfaction and Relationships	1. The primary needs of the client are determined (i.e., product specifications are found and met).	[88]
	2. Customer-focused tactics are developed and evaluated for potential enhancements.	[89]
	3. Support is given for customer collaborations to improve ties.	[90]
	4. Products are designed, developed, and delivered in accordance with customer specifications.	
	5. Feedback on customer satisfaction is gathered at regular intervals.	
	6. To uphold our quality standards, customer concerns are appropriately recorded and examined.	
	7. If a product or part is supplied with defects, concessions are offered.	
Human Resource Focus	1. Recruitment procedure is such that "the right person is selected for the right job".	[91]
	2. Individuals who have currently been employed receive education, which is both appropriate and effective.	[92]
	3. Health and safety practices are excellent.	
	4. Career improvement education is furnished to personnel by the company, which includes training that is provided both within and outside of the business enterprise.	
Strategic Planning and Development	1. The business promotes research and planning to enhance all of its operations and products.	[93]
	2. The procedure and quality of the product are regularly inspected.	[94]
	3. The organization uses the seven quality instruments for process planning, control, and enhancement.	
	4. We gather information first, and after analyzing it, we decide how to improve the process.	
Organizational Performance (OP)		
Satisfaction Results	1. The production percentage (production achieved/production anticipated) has increased.	[95]
	2. Employee satisfaction and morale are excellent.	
	3. Our clients are completely happy.	
	4. We guarantee that none of our products has any flaws.	
Business Results	1. Sales have increased (as compared to prior years).	[96]
	2. Exports have increased (compared with prior years).	
	3. The profit has increased (compared to prior years).	

Source: created by the authors

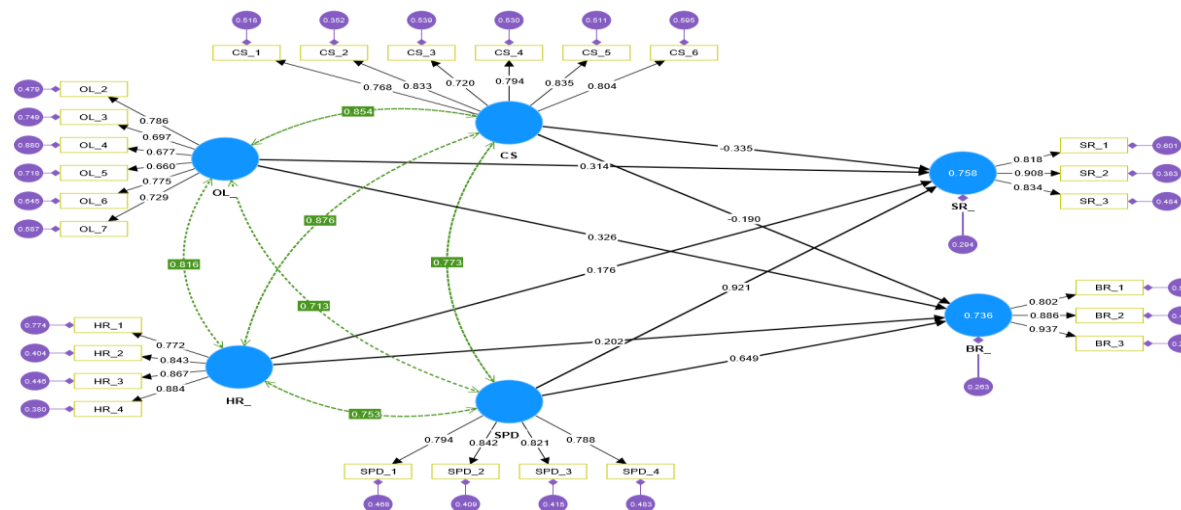


Fig. 1: Assessment of the Measurement Model

Source: created by the authors

Table 2: Summary of the Measurement of the Model

Constructs	Items	Factor Loading	Cronbach's alpha (> 0.7)	CR (> 0.7)	AVE (> 0.5)
Business Results (BR)	BR_1	0.802	0.907	0.912	0.769
	BR_2	0.886			
	BR_3	0.937			
Customer satisfaction and Relationship (CS),	CS_1	0.768	0.910	0.911	0.629
	CS_2	0.833			
	CS_3	0.720			
	CS_4	0.794			
	CS_5	0.835			
	CS_6	0.804			
Human resources focus (HR),	HR_1	0.772	0.905	0.906	0.710
	HR_2	0.843			
	HR_3	0.867			
	HR_4	0.884			
Organizational leadership (OL)	OL_2	0.786	0.869	0.866	0.521
	OL_3	0.697			
	OL_4	0.677			
	OL_5	0.660			
	OL_6	0.775			
	OL_7	0.729			
Strategic planning and development (SPD),	SPD_1	0.794	0.891	0.886	0.659
	SPD_2	0.842			
	SPD_3	0.821			
	SPD_4	0.788			
Satisfaction Results	SR_1	0.818	0.887	0.893	0.730
	SR_2	0.908			
	SR_3	0.834			

Source: created by the authors

Table 3. Discriminant validity (HTMT Ratio)

	BR_	CS	HR_	OL_	SPD_	SR_
BR_						
CS	0.726					
HR_	0.761	0.889				
OL_	0.719	0.838	0.821			
SPD_	0.779	0.769	0.755	0.723		
SR_	0.879	0.680	0.706	0.680	0.832	

Source: created by the authors

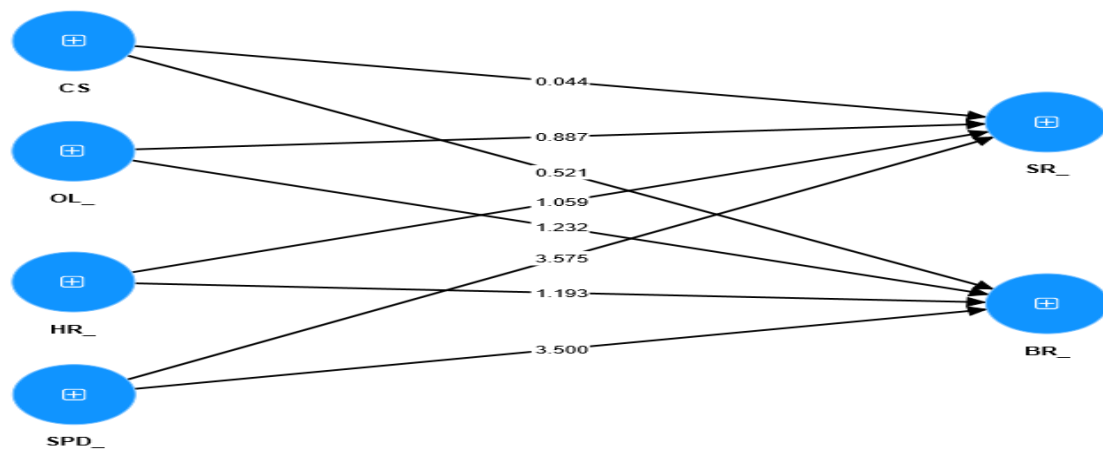


Fig. 2: Structural Model (Bootstrapping @5000)

Source: created by the authors

Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

The authors contributed equally to the present research at all stages, from the formulation of the problem to the final findings and solution.

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