

Investigating the Relationship between TQM practices, Time Performance and Non-Financial Organisational Performance in Zambia's Service Sector.

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ABSTRACT

This study examines the relationship between Total Quality Management (TQM) practices, operational performance measured through time performance, and non-financial organisational outcomes in Zambia's service sector. While TQM has been extensively studied in manufacturing, its application in service organisations, particularly in resource-constrained contexts, remains limited. Focusing on Top Management Commitment and Employee Involvement, the study positions Time Performance as a mediating mechanism that is associated with customer satisfaction, service quality, employee morale, and organisational agility.

A quantitative, cross-sectional design was employed, with data collected from 240 service organisations across hospitality, wholesale and retail, financial, and energy sub-sectors. Preliminary validation was conducted using SPSS, followed by hypothesis testing through Latent Variable Partial Least Squares (LVPLS) in SmartPLS 4. Results confirmed significant direct and mediated associations, showing that leadership commitment and employee involvement are related to time performance, which in turn predicts non-financial organisational performance.

The study makes three core contributions. To theory, it clarifies the mediating role of time performance, extending Resource-Based View, Social Exchange Theory, and Service Quality Theory into service-sector contexts. To practice, it highlights leadership commitment, employee empowerment, and strategic time management as critical levers for building a quality-oriented culture and enhancing customer satisfaction. To context, it situates TQM within Zambia's service sector, addressing the underrepresentation of African service organisations and demonstrating how quality management can be adapted to resource-constrained environments. Methodologically, it illustrates the utility of LVPLS for mediation analysis in small-sample service-sector research.

As a cross-sectional study, the findings are limited to associations observed at a single point in time, and future longitudinal research is recommended to establish temporal dynamics. Overall, the study strengthens the evidence base by situating TQM within service-sector realities and highlighting time performance as a pivotal mechanism for non-financial outcomes.

Keywords: Total Quality Management practices, Time Performance, Non-Financial Performance, Zambia, Service Sector.

INTRODUCTION

Total Quality Management (TQM) is widely recognised as a holistic philosophy of continuous improvement aimed at embedding quality across organisational processes and enhancing customer satisfaction (Kanji, 2012). Its adoption has grown globally as a mechanism for organisational change and competitiveness (Anil et al.,

2017). Empirical studies consistently report positive associations between TQM practices and performance outcomes, including operational efficiency, customer satisfaction, and organisational success (Tortorella et al., 2020; Alzoubi et al., 2019; Prajogo et al., 2017). Yet, despite this extensive scholarship, research has disproportionately concentrated on manufacturing and large enterprises, leaving service organisations particularly micro-small, and medium enterprises (MSMEs) in African contexts underexplored (Tickle et al., 2016; Kuye and Sulaimon, 2011).

This study contributes originality in three distinct ways. First, it addresses the under-studied Zambian service sector, which represents a critical but underrepresented context in global TQM literature. By focusing on hospitality, wholesale and retail, financial services, and energy subsectors, the research situates TQM within resource-constrained, service-driven environments where responsiveness and customer interaction are paramount. The emphasis on MSMEs is particularly novel, as these organisations dominate African economies yet remain marginal in TQM scholarship, which has historically privileged large-scale manufacturing firms (Psomas and Antony, 2017; Fotopoulos and Psomas, 2009).

Second, the study integrates three complementary theoretical lenses namely Resource-Based View (RBV), Social Exchange Theory (SET), and Service Quality Theory (SERVQUAL) to provide a richer conceptual grounding. RBV positions managerial commitment as a strategic resource (Barney, 1991), SET explains employee involvement as reciprocal engagement (Blau, 2017), and SERVQUAL highlights timeliness and reliability as central to perceived service quality (Parasuraman et al., 1988). While each theory has been applied independently in prior studies, their combined application in a Zambian Service Sector context is novel. This triangulation advances theoretical clarity by showing how human-centred practices can be understood through multiple perspectives, thereby extending TQM theory into resource-constrained service environments where intangible assets and relational dynamics are critical (Powell and DiMaggio, 2012).

Third, the study foregrounds time performance as a mediating construct. While organisational culture (Hilman et al., 2020; Sinha and Dhall, 2020), innovation (Shan et al., 2016), and knowledge management (Abbas and Kumari, 2023) have been examined as mediators in prior research, time performance closely tied to responsiveness, agility, and customer satisfaction remains insufficiently theorised, particularly in service contexts. In resource-constrained African settings, where delays and inefficiencies often undermine customer trust, positioning time performance as a mediator offers a unique contribution. It highlights timeliness not merely as an operational metric but as a strategic lever that connects leadership commitment and employee involvement to non-financial organisational outcomes (Nair, 2006).

Practically, the study offers actionable insights for managers in Zambia's service sector. It demonstrates that leadership commitment, employee empowerment, and strategic time management are not abstract ideals but concrete levers for building a quality-oriented culture. By embedding timeliness into service delivery, organisations can strengthen customer satisfaction, employee morale, and organisational agility. These findings provide guidance for service-sector leaders seeking to balance resource constraints with the demands of competitiveness, positioning TQM as both a strategic and operational tool for sustainable performance.

LITERATURE REVIEW

Total Quality Management (TQM) is recognised as a multidimensional philosophy of continuous improvement, embedding quality across organisational processes. It integrates leadership, employee involvement, customer focus, continuous improvement, and supplier quality management (Prajogo et al., 2017; Kanji, 2012). Manufacturing contexts often emphasise process control and efficiency, whereas service organisations prioritise responsiveness and customer satisfaction (Sichinsambwe et al., 2023; Alzoubi et al., 2019). Within this framework, Top Management Commitment and Employee Involvement are consistently identified as foundational practices, associated with embedding a quality culture and supporting customer-focused outcomes (Puthanveetil et al., 2021; Shafiq et al., 2019).

Clustering of Practices and Theoretical Lenses

TQM practices are typically clustered into four categories: human-centred, process-oriented, customer-focused,

and supplier-related (Prajogo et al., 2017; Nkundabanyanga et al., 2014). Each cluster can be interpreted through complementary theoretical perspectives:

Human Centred Practices (Leadership, Employee Involvement, Training, and Empowerment): These practices emphasise behavioural and cultural foundations of quality, recognising that organisational change is shaped by people rather than systems alone (Baird et al., 2011). They align with Social Exchange Theory (SET), which explains how employee involvement and managerial support are associated with reciprocal commitment, adaptability, and responsiveness (Cropanzano et al., 2017). Evidence from African contexts shows that leadership behaviours and employee engagement are particularly critical in resource constrained service organisations, where human interaction strongly influences outcomes (Agyapong et al., 2018; Mwiya et al., 2017).

Process-Oriented Practices (Continuous Improvement, Benchmarking, and Statistical Process Control): These practices focus on efficiency, defect reduction, and operational consistency. They resonate with the Resource-Based View (RBV), which positions process discipline and operational routines as valuable, rare, and inimitable organisational capabilities that support competitiveness. **Customer-Focused Practices (Customer Satisfaction, Responsiveness, and Service Reliability):** These practices place the customer as the ultimate arbiter of quality. They are grounded in Service Quality Theory (SERVQUAL), which highlights responsiveness and reliability as critical dimensions of perceived service quality and loyalty. **Supplier-Related Practices (Supplier Quality Management, Collaboration, and Integration):** These practices ensure that external inputs align with organisational standards. They can be interpreted through RBV, as supplier relationships and integration represent strategic resources that strengthen organisational reliability and agility.

Among these clusters, human centred practices are consistently regarded as the foundation of successful implementation (Oakland, 2014; Prajogo and Sohal, 2006). Without strong leadership and active employee involvement, process improvements, customer focused initiatives, and supplier integration often fail to gain traction (Ebrahimi and Sadehi, 2013; Samson and Terziowski, 1999). In service organisations, where outcomes are shaped by human interaction and customer perceptions, the human dimension is particularly critical (Gronroos, 2020). This study therefore narrows its focus to Top Management Commitment and Employee Involvement, situating them within the broader clustering framework while emphasising their unique relevance in African service contexts (Adeleke et al., 2018; Nair, 2006). Their association with operational timeliness provides a novel lens for understanding how quality initiatives are related to non-financial outcomes (Kaynak, 2003; Flynn et al., 1995).

Linkages with Organisational Performance

Evidence on the relationship between TQM and organisational performance remains fragmented. While many studies report positive associations with productivity, customer satisfaction, and competitiveness (Puthanveetil et al., 2021; Al-Dhaafri et al., 2020; Anil et al., 2019), others identify weak or negative relationships (Shafiq et al., 2019; Qasrawi et al., 2017; Singh, 2015). These inconsistencies underscore the importance of mediating mechanisms. Although organisational culture, innovation, and knowledge management have been examined (Abbas and Kumari, 2023; Hilman et al. 2020; Sinha and Dhall, 2020; Shan et al. 2016), time performance central to responsiveness and customer satisfaction remains insufficiently theorised, particularly in service contexts.

Synthesis and Research Gaps

The scholarship affirms TQM's potential to strengthen organisational performance but reveals persistent gaps. Research has disproportionately focused on manufacturing, with service organisations receiving limited attention despite their growing economic importance. Evidence is also skewed toward large enterprises, leaving micro-small, and medium-sized firms underrepresented. Finally, while mediators such as organisational culture and innovation have been studied, the role of time performance critical to responsiveness and agility in service delivery remains overlooked. This study advances TQM scholarship by clarifying how human-centred practices are associated with time-based operational performance, which in turn predicts non-financial outcomes in

Zambia's Service Sector. In doing so, it extends theoretical understanding, situates analysis in an under-studied African context, and offers practical insights for service organisations operating under resource constraints.

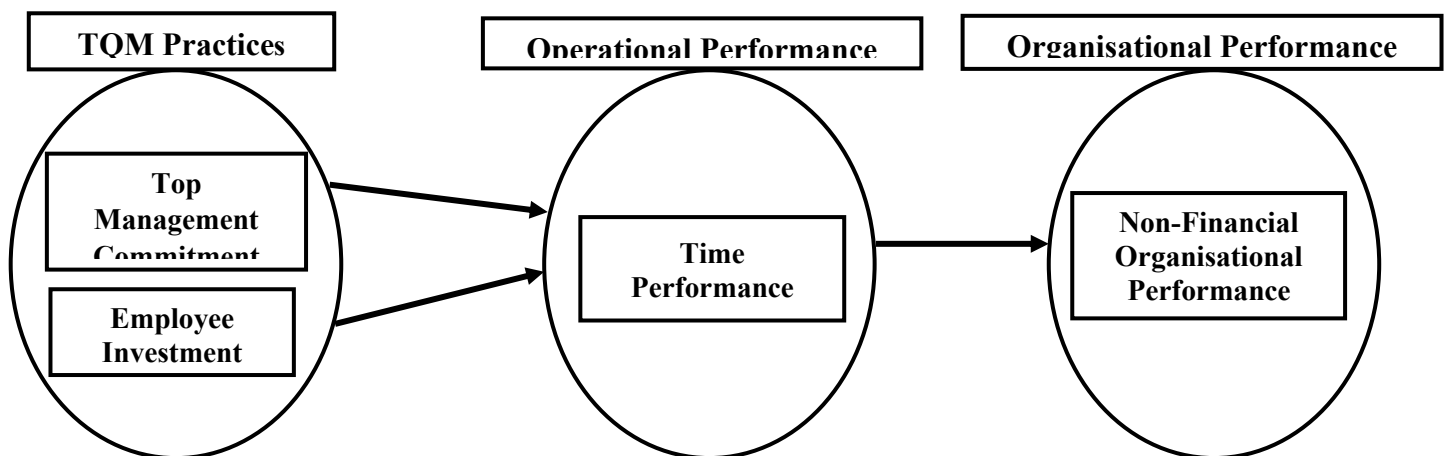
Theoretical and Conceptual Framework

This study is grounded in three complementary theoretical perspectives Resource-Based View (RBV), Social Exchange Theory (SET), and Service Quality Theory (SERVQUAL) to justify the centrality of human-centered TQM practices. RBV suggests that Top Management Commitment can be understood as a strategic resource associated with organisational resilience in resource-constrained environments (Powell and DiMaggio, 2012; Barney, 1991). SET frames Employee Involvement as reciprocal engagement, where empowerment and trust are related to enhanced commitment and discretionary effort (Blau, 2017). SERVQUAL highlights timeliness and reliability as predictors of perceived service quality, underscoring the importance of responsiveness in customer satisfaction (Parasuraman et al., 1988).

African TQM scholarship reinforces this human-centered orientation. Studies in Nigeria, Ghana, and Zambia emphasise that managerial support and workforce participation are strongly associated with embedding a quality culture, particularly where financial and technological resources are limited (Tickle et al., 2016; Kuye and Sulaimon, 2011; Sichinsambwe, 2011). These perspectives collectively justify the focus on leadership commitment and employee involvement as critical practices that predict service sector competitiveness in resource-constrained African settings.

Conceptual Framework

Figure 2.1 presents the conceptual model underpinning this study. The diagram illustrates the sequential logic whereby TQM practices are related to organisational outcomes through the mediating role of Time Performance. Specifically, Top Management Commitment and Employee Involvement are positioned as independent variables. These practices are associated with improvements in operational timeliness, represented by the construct of Time Performance. Enhanced time performance subsequently predicts non-financial organisational outcomes, including customer satisfaction, service quality, employee morale, and organisational agility. The arrows in the model highlight both direct and mediated pathways, demonstrating that leadership commitment and employee involvement achieve their greatest impact when channelled through operational timeliness - time Performance (Sichinsambwe, 2011).



Source: Author 2025

Figure

Conceptual Model

This structure therefore, reinforces the theoretical claim that time performance is the critical mechanism linking human-centered practices to service sector competitiveness in resource-constrained African contexts.

Hypotheses Development

Top Management Commitment and Time Performance

Top Management Commitment is widely recognised as a cornerstone of TQM implementation. When senior leadership provides strategic direction, allocates resources, and reinforces a culture of quality, organisations are better positioned to embed timeliness into service delivery (Anil et al., 2019; Shafiq et al., 2019). From the Resource-Based View (RBV), managerial commitment can be understood as a strategic resource associated with rare and inimitable capabilities in reliability and responsiveness. Efficient time utilisation is therefore linked with stronger organisational agility and improved non-financial outcomes.

H1: Top Management Commitment is positively associated with Time Performance.

Employee Involvement and Time Performance

Employee involvement ensures that frontline staff actively participate in problem solving, continuous improvement, and customer-focused service delivery. In service organisations, where human interaction is central to performance outcomes, employee engagement is particularly critical (Abbas and Kumari, 2023; Puthanveetil et al., 2021). Drawing on Social Exchange Theory (SET), employee involvement can be interpreted as reciprocal engagement, where organisational support is associated with greater effort, adaptability, and responsiveness. Active participation is therefore linked with reduced delays and enhanced timeliness in service delivery.

H2: Employee Involvement is positively associated with Time Performance.

Time Performance and Non-Financial Organisational Performance

Operational performance measured through time performance is a critical determinant of non-financial organisational outcomes. Efficient time utilisation is associated with service reliability, responsiveness, and adaptability, which in turn predict customer satisfaction, employee morale, and organisational reputation (Abbas and Kumari, 2023; Anil et al., 2019). This relationship is consistent with Service Quality Theory (SERVQUAL), which identifies responsiveness and reliability as key dimensions of perceived service quality. Time performance therefore functions both as a mediator and as a direct predictor of non-financial organisational performance.

H3: Time Performance is positively associated with Non-Financial Organisational Performance.

STUDY METHODOLOGY

This section outlines the methodological approach adopted to empirically test the hypotheses developed in the previous section. The research design is structured to ensure methodological rigor, contextual relevance, and alignment with the study's objectives. Specifically, the methodology integrates a quantitative approach, employing survey data and Structural Equation Modelling (SEM) to examine the direct and mediated associations between Top Management Commitment, Employee Involvement, operational performance measured in Time Performance, and Non-Financial Organisational Performance in Zambia's service sector.

The choice of methodology is informed by three considerations. First, the study seeks to establish statistical linkages between TQM practices and non-financial organisational outcomes, necessitating a robust technique capable of testing mediation effects. Second, the service sector context requires a design that captures perceptions and practices across diverse organisational types, including micro-small and medium-sized enterprises as well as larger service organisations. Third, the emphasis on non-financial outcomes such as customer satisfaction, service quality, employee morale, and organisational agility calls for instruments that measure intangible constructs with reliability and validity.

Study Design

This study adopts a quantitative research design anchored in the positivist paradigm, which assumes that reality can be objectively measured and explained through observable relationships among variables. The positivist orientation is appropriate given the study's focus on testing hypotheses and examining mediation effects. The quantitative design enables the use of structured instruments to collect data from a large sample of service organisations, thereby enhancing generalisability and reliability. It also facilitates the application of advanced statistical techniques, particularly SEM, which is well-suited for examining complex associations and mediation. SEM allows simultaneous testing of direct and indirect pathways, providing a robust analytical framework for validating the conceptual model. The research design is cross-sectional, capturing data at a single point in time to provide a snapshot of TQM practices and performance outcomes within Zambia's service sector. While longitudinal designs could offer insights into changes over time, the cross-sectional approach is justified by resource constraints and the exploratory nature of examining time performance as a mediator.

Study Population and Sampling

The target population comprised service sector organisations operating in Zambia. According to the sampling frame, there are 1,201 registered service organisations across key sub-sectors such as hospitality, financial services, energy, and wholesale and retail trading. These organisations collectively represent the largest contributors to national GDP, underscoring their relevance to the study's objectives.

The Cochran formula was applied to determine an appropriate sample size, yielding 291 organisations. Out of these, 240 valid responses were obtained, representing an effective response rate of 82 percent. This sample size is considered sufficient for SEM analysis, balancing statistical reliability with resource feasibility. Respondents were purposively selected to ensure informed perspectives, targeting Chief Executive Officers, Branch Managers, Operations Managers, and other senior personnel. Geographical diversity was achieved by including organisations from Lusaka, Copperbelt, Central, Southern, and North-Western provinces, thereby strengthening representativeness and contextual relevance.

Data Collection Methods and Remedies for Common Method Bias

Data were collected using structured questionnaires divided into five sections: demographic information, Top Management Commitment, Employee Involvement, Time Performance, and Non-Financial Organisational Performance. Items were measured on five-point Likert scales adapted from validated TQM instruments.

To minimise Common Method Bias (CMB), several procedural remedies were employed:

- Respondents were assured of confidentiality and anonymity to reduce evaluation apprehension.
- Items were carefully worded to avoid ambiguity and leading phrasing.
- Constructs were separated into distinct sections to reduce priming effects.
- Pre-testing was conducted to refine clarity and eliminate redundancy.

In addition, statistical remedies were applied post-data collection. Harman's single-factor test was conducted to assess whether a single factor accounted for most of the variance, and results indicated no such dominance. Variance Inflation Factor (VIF) values were also examined within SmartPLS, with all values below the recommended threshold of 5, confirming that common method bias was not a significant concern.

Data Analysis Procedures

Data analysis combined preliminary validation in SPSS with hypothesis testing through Latent Variable Partial Least Squares (LVPLS) using SmartPLS 4. The use of Latent Variable Partial Least Squares (LVPLS) was however, guided by two considerations. First, the sample size of 240 respondents was below the threshold typically recommended for Covariance-Based Structural Equation Modelling (300 and above), making LVPLS

more appropriate for small to medium samples. Second, the data did not meet the assumptions of normality, as confirmed by the Kolmogorov–Smirnov and Shapiro–Wilk tests, both yielding significance values of 0.000 well below the 0.05 alpha level thus rejecting the null hypothesis of normality across all variables (Field, 2024).

Reliability Testing: Internal consistency was assessed using Composite Reliability (CR), which is preferred over Cronbach’s alpha in PLS-SEM due to its robustness. Composite Reliability values exceeded the recommended threshold of 0.70, confirming reliability. **Validity Testing:** Convergent validity was evaluated using Average Variance Extracted ($AVE \geq 0.50$), while discriminant validity was assessed using the Fornell–Larcker criterion and HTMT ratios. Both tests confirmed construct validity. **Structural Model Assessment:** Path coefficients were examined to test hypothesised associations, while mediation effects were assessed using bootstrapping with 5,000 resamples. Model fit indices, including SRMR (≤ 0.08) and R^2 values, were reported to evaluate explanatory power. **Mediation Logic:** SmartPLS procedures allowed simultaneous testing of direct and indirect pathways, clarifying whether time performance served as a significant mediator between leadership commitment, employee involvement, and non-financial organisational outcomes. This integrated approach demonstrates methodological rigor, strengthens validity, and highlights the suitability of SmartPLS 4 for mediation analysis in small-sample, resource-constrained service-sector research.

STUDY RESULTS

This section presents the study’s findings on the relationship between Total Quality Management (TQM) practices, time performance, and non-financial organisational outcomes in Zambia’s service sector. Of the 291 organisations surveyed, 240 provided valid responses, representing a strong response rate of 82.5 percent. Table 4.1 presents respondents characteristics.

Table 4.1: Respondents’ Characteristics

Variable	Description	Frequency	Percentage
Gender	Male	143	59.6
	Female	97	40.4
		240	100
Age	Below 25 years	8	3.3
	25 – 34 years	84	35.0
	35 – 44 years	85	35.4
	45 – 54 years	52	21.7
	55 years and above	11	4.6
		240	100
Position	Chief Executive Officer	17	7.1
	Branch Manager	55	22.9
	Operations Manager	72	30.0
	Other	96	40.0
		240	100

	Certificate	38	15.8
	Diploma	74	30.8
Qualification level	Degree	90	37.5
	Masters	37	15.5
	PhD	1	0.4
		240	100
	Below 5 years	133	55.5
	6 – 10 years	62	25.8
Length of service	11 – 20 years	38	15.8
	21 – 30 years	6	2.5
	31 years and above	1	0.4
		240	100

Source: Author, 2025

The respondent's profile reflects a male-dominated leadership structure, mid-career professionals, and a predominance of functional managers rather than top executives. Educational attainment is moderate, with degrees and diplomas most common. Work experience is skewed toward newer entrants, suggesting openness to change but limited institutional memory. Collectively, these features indicate that TQM adoption is largely driven by operational managers, though weak executive leadership and limited continuity constrain long-term sustainability.

Table 4.2: Sector Profile

Variable	Description	Frequency	Percentage
	Financial services	27	11.3
Sector	Hospitality	140	58.3
	Energy	18	7.5
	Wholesale and retail	55	22.9
		240	100
	50 employees and below (Micro and Small Organisation)	156	65
Size of Organisation	51 – 250 employees (Medium-size Organisation)	56	23.3
	251 employees and above (Large Organisation)	28	11.7

		240	100
	1906 – 1925	4	1.7
Year organisation	1926 – 1945	1	0.4
established	1946 – 1965	3	1.3
	1966 – 1985	11	4.6
	1986 – 2005	56	23.3
	2006 – 2025	165	68.8
		240	100

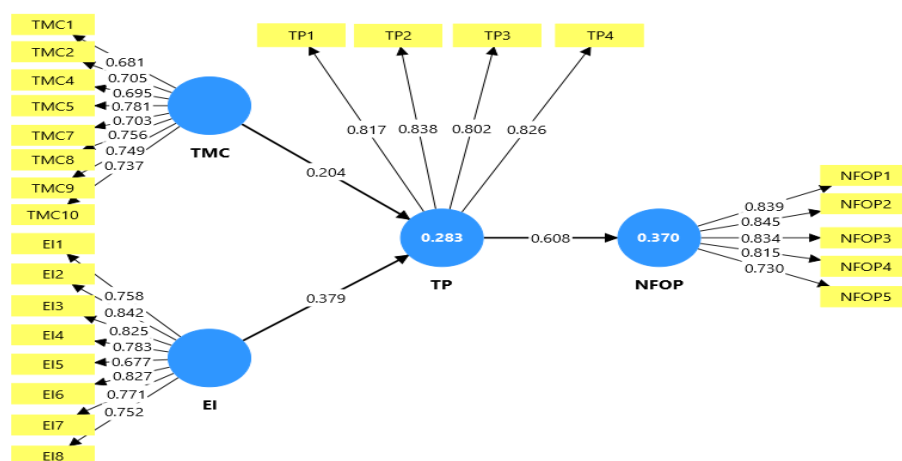
Source: Author, 2025

Table 4.2 situates these demographics within the broader sectoral context. Hospitality organisations dominate the sample, underscoring a customer-facing orientation where service quality is central. Wholesale and retail firms form the second largest group, while financial services and energy are less represented. Organisational size is skewed toward micro-small firms, indicating that TQM practices are pursued within lean structures and resource-constrained environments.

Measurement Model Results

Composite reliability values for all constructs exceeded 0.70, confirming internal consistency. Average Variance Extracted (AVE) values were above 0.50, establishing convergent validity. Discriminant validity was confirmed using the Fornell–Larcker criterion and HTMT ratios, ensuring constructs were empirically distinct. Figure 4.1 presents the estimated PLS measurement model, illustrating the relationships between latent constructs and their observed indicators.

Figure 4.1: PLS Measurement Model Estimation



Source: Author, 2025

Model Outer Loadings and Internal Consistency Reliability

Internal consistency reliability within Partial Least Squares Structural Equation Modelling (PLS-SEM) is best assessed using composite reliability, which is widely recognised as a more appropriate measure than Cronbach's alpha. While Cronbach's alpha has traditionally served as the benchmark, its application in PLS-SEM is limited due to sensitivity to the number of scale items and its tendency to underestimate reliability estimates (Werts,

Linn, and Jöreskog, 1974). Consequently, composite reliability is considered the preferred metric in this analytical context.

Scholarly guidance recommends composite reliability values of at least 0.60 in exploratory research, while values exceeding 0.95 should be avoided to prevent redundancy and artificially inflated estimates (Hair et al., 2013; Bagozzi and Yi, 1988). In this study (see Table 4.3), the constructs of Top Management Commitment, Employee Involvement, Time Performance, and Non-Financial Organisational Performance recorded composite reliability coefficients of 0.883, 0.913, 0.840, and 0.875, respectively. These values fall comfortably within the recommended range, thereby confirming strong internal consistency reliability across all constructs examined (Martinkova and Hladka, 2023).

Table 4.3: Outer Loadings and Internal Consistency Reliability

Constructs (Latent Variables)	Composite Reliability	Outer Loadings
Top Management Commitment	0.883	
TMC1		0.681
TMC2		0.705
TMC4		0.695
TMC5		0.781
TMC7		0.703
TMC8		0.756
TMC9		0.749
TMC10		0.737
Employee Involvement	0.913	
EI1		0.758
EI2		0.842
EI3		0.825
EI4		0.783
EI5		0.677
EI6		0.827
EI7		0.771
EI8		0.752
Time Performance	0.840	
TP1		0.817
TP2		0.838

TP3		0.802
TP4		0.826
Non-Financial Organisational Performance	0.875	
NFOP1		0.839
NFOP2		0.845
NFOP3		0.834
NFOP4		0.815
NFOP5		0.730

Source: Author, 2025

Convergent Validity and Discriminant Validity

Convergent validity reflects the extent to which a construct explains the variance observed in its indicators. According to Fornell and Larcker (1981), the Average Variance Extracted (AVE) provides a robust metric for this evaluation. In the present study, the AVE values for Top Management Commitment (0.529), Employee Involvement (0.610), Time Performance (0.674), and Non-Financial Organisational Performance (0.663) are reported in Table 4.4. Each construct exceeds the recommended threshold of 0.50 (Bagozzi and Yi, 1988), thereby confirming substantial convergent validity.

To assess discriminant validity, the Fornell–Larcker criterion was applied, as it remains a widely accepted and conservative approach within PLS-SEM. This criterion requires that the square root of the AVE for each construct be greater than its correlations with other constructs. The results presented in Table 4.4 confirm that this condition is satisfied: the square roots of the AVE for Employee Involvement (EI), Non-Financial Organisational Performance (NFOP), Top Management Commitment (TMC), and Time Performance (TP) all exceed their respective inter-construct correlations. Collectively, these findings provide strong evidence of both convergent and discriminant validity, affirming the robustness of the measurement model and supporting its suitability for subsequent structural analysis.

Table 4.4: Convergent and Discriminant Validity Results

Construct	AVE	TMC	EI	TP	NFOP
TMC	0.529	0.727	0.412	0.385	0.398
EI	0.610	0.412	0.781	0.436	0.421
TP	0.674	0.385	0.436	0.821	0.472
NFOP	0.663	0.398	0.421	0.472	0.814

Source: Author, 2025

Note: Diagonal values (in bold) represent the square roots of AVE, which are greater than the corresponding inter-construct correlations, confirming discriminant validity.

Structural Model in PLS-SEM Results

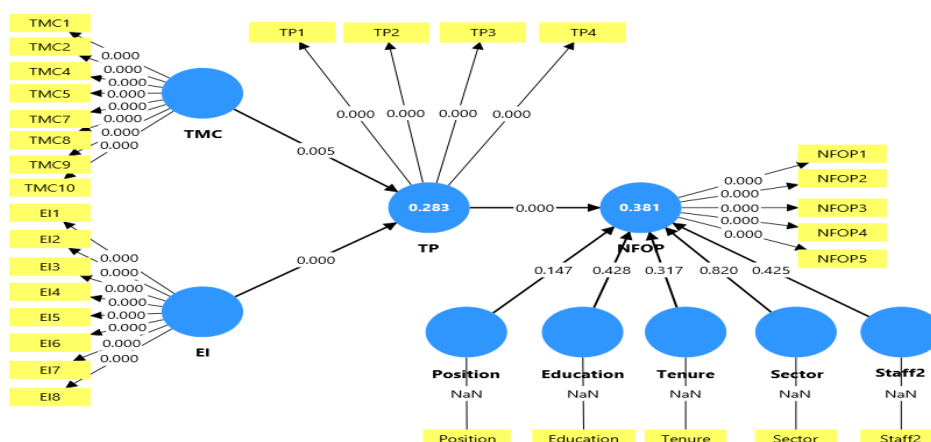
Structural modelling provides a systematic framework for analysing complex relationships between observed and latent variables (Byrne, 2013). Structural Equation Modelling (SEM) enables researchers to examine theoretical propositions, evaluate associative links, and assess model fit with empirical data (Kline, 2023). This approach strengthens research validity and deepens understanding by revealing underlying mechanisms (Hair et al., 2019). Accordingly, structural modelling serves as a vital bridge between theory and empirical evidence, advancing knowledge across both social and natural sciences.

Figure 4.2 presents the estimated structural model developed to investigate the associations among Total Quality Management (TQM) practices, Time Performance, and Non-Financial Organisational Performance within Zambia's service sector organisations. In this model, TQM practices operationalised through Top Management Commitment and Employee Involvement are specified as independent variables, while Non-Financial Organisational Performance functions as the dependent variable. Time Performance is introduced as a mediating construct to clarify the mechanism through which TQM practices are related to organisational outcomes. To enhance robustness and validity, five control variables were incorporated: position, education, tenure, sector, and organisation size. Their inclusion allows the model to isolate the associations of the primary independent variables by accounting for potential confounding influences. Specifically:

- **Position** accounts for hierarchical differences that may shape perceptions and implementation of TQM practices.
- **Education** reflects variations in knowledge and skill levels.
- **Tenure** represents the influence of organisational experience.
- **Sector** distinguishes between service sub-sectors.
- **Organisation size** captures scale-related effects that may be associated with both TQM implementation and performance outcomes.

By controlling for these factors, the model provides a more accurate and generalisable understanding of the relationships under investigation.

Figure 4.2: PLS Structural Model Estimation



Source: Author, 2025

Collinearity Assessment

Prior to drawing substantive conclusions, it is essential to rigorously evaluate both the measurement and structural models. The integrity of the structural model, in particular, depends on a careful assessment of potential collinearity among predictor variables. As Hair et al. (2013) emphasise, a Variance Inflation Factor (VIF) value

of 5 or higher typically signals problematic collinearity. In the present analysis, the collinearity diagnostics summarised in Table 4.5 indicate that all VIF values fall well below the critical threshold of 5. This outcome provides reassurance that multi-collinearity does not pose a significant concern within the structural model, thereby supporting the robustness and reliability of the analytical results.

Table 4.5: Collinearity Statistics Assessment

Constructs	VIF	Collinearity Problem? (VIF>5?)
Top Management Commitment -> Time Performance	1.701	NO
Employee Involvement - > Time Performance	1.701	NO
Time Performance - > Non-Financial Organisational Performance	1.073	NO

Source: Author, 2025

Note: All VIF values are below the threshold of 5, indicating that multi-collinearity is not a threat to the structural model. With collinearity ruled out as a threat, the analysis proceeds to the estimation of path coefficients and significance levels, offering empirical evidence on the hypothesised associations among TQM practices, time performance, and non-financial organisational outcomes.

Coefficient of Determination (R^2)

The evaluation of the structural model in this study centres on the coefficient of determination (R^2), which serves as a key indicator of explanatory power. The constructs of primary interest are Time Performance and Non-Financial Organisational Performance. As depicted in the PLS path model estimation diagram (Figure 4.2), the R^2 values for these constructs reflect a moderate level of explanatory strength.

According to Hair et al. (2013), R^2 values of 0.25, 0.50, and 0.70 are commonly interpreted as weak, moderate, and substantial explanatory power, respectively. Within this framework, the three exogenous constructs Top Management Commitment, Employee Involvement, and Time Performance jointly account for 38.1 percent of the variance in Non-Financial Organisational Performance, yielding an R^2 value of 0.381. This indicates that slightly less than half of the variability in organisational performance can be attributed to these determinants, underscoring their meaningful yet partial role in shaping outcomes.

Table 4.6: Coefficient of Determination (R^2 Values)

Construct	R^2 Value	Interpretation (Hair et al., 2013)
Time Performance	0.462	Moderate explanatory power
Non-Financial Organisational Performance	0.381	Moderate explanatory power

Source: Author, 2025

Note: R^2 values fall within the moderate range, confirming that while TQM practices and time performance explain a meaningful portion of organisational outcomes, other contextual and organisational factors also contribute to performance.

Collectively, these results highlight the moderate explanatory capacity of the model, confirming that while TQM practices and time performance are significant, additional contextual influences remain relevant. With

explanatory power established, the analysis now turns to the path coefficients and significance testing, which provide direct empirical evidence on the strength and direction of the hypothesised associations.

Path Coefficients

The results presented in Table 4.7 provide the basis for testing the study's three hypotheses (H1–H3). Each hypothesis was evaluated using the decision rule to reject when $t < 1.96$ and $p > 0.05$. The PLS-SEM results confirm all three hypotheses. Time Performance emerged as a prominent predictor of Non-Financial Organisational Performance, with a path coefficient of 0.613 ($t = 12.319$, $p = 0.000$), supporting H3. Employee Involvement demonstrated a substantial association with Time Performance (path coefficient = 0.380, $t = 4.414$, $p = 0.000$), supporting H2. In addition, Top Management Commitment showed a meaningful contribution to Time Performance (path coefficient = 0.211, $t = 2.801$, $p = 0.005$), supporting H1.

It is particularly significant that the effects of Top Management Commitment, Employee Involvement, and Time Performance are all statistically robust. These results underscore the central role of Time Performance as a mediating construct within the organisational framework. Moreover, they highlight the critical contributions of both leadership commitment and employee involvement, emphasising their collective importance in fostering enhanced organisational outcomes. The findings therefore advance theoretical understanding of TQM mechanisms while offering practical insights for organisational leadership and management.

Table 4.7: Significance Testing Results of Structural Model Path Coefficients

Hypothesis	Path	Path Coefficient	t-value	p-value	Decision
H1	TMC → TP	0.211	2.801	0.005	Supported
H2	EI → TP	0.380	4.414	0.000	Supported
H3	TP → NFOP	0.613	12.319	0.000	Supported

Source: Author, 2025

Predictive Relevance (Q^2)

The assessment of Stone–Geisser's predictive relevance (Q^2) is a critical step in evaluating the quality of structural equation models, particularly in reflective measurement models associated with endogenous constructs. The Q^2 statistic enables researchers to determine the extent to which observed data points for indicators of endogenous constructs can be accurately predicted by the model. This evaluation was operationalised through the PLSpredict procedure using 10-fold cross-validation, which systematically omits and predicts portions of the data to compute Q^2 values. In the present analysis, Time Performance and Non-Financial Organisational Performance were identified as the two endogenous constructs within the research model. Accordingly, these constructs were subjected to predictive relevance assessment using PLS-SEM. The results, summarised in Table 4.8, indicate that the model demonstrates fair predictive relevance for both constructs. Consistent with Chin (1998), a Q^2 value greater than zero signifies satisfactory predictive relevance.

Table 4.8: Predictive Relevance (Q^2 Values)

Endogenous Construct	Q^2 Value	Interpretation (Chin, 1998)
Time Performance	0.276	> 0 , indicates satisfactory relevance
Non-Financial Organisational Performance	0.198	> 0 , indicates satisfactory relevance

Source: Author, 2025

Note: All Q^2 values exceed zero, confirming that the model possesses predictive relevance for the endogenous constructs under investigation.

The findings therefore lend support to the adequacy of the proposed model in predicting the endogenous variables, reinforcing confidence in its explanatory capacity. With predictive relevance established, the analysis proceeds to a more detailed examination of the effect sizes and mediation analysis, which provide deeper insights into the mechanisms through which TQM practices are associated with organisational outcomes.

The f^2 Effect Size

The final stage of structural model evaluation involves assessing the effect size (f^2), which quantifies the relative importance of each exogenous construct on an endogenous construct when the predictor is omitted from the model. This statistic provides insight into the substantive contribution of individual variables. According to Cohen's (1988) guidelines, f^2 values of 0.02, 0.15, and 0.35 are interpreted as small, medium, and large effect sizes, respectively. In line with these thresholds, the results of this study indicate that the examined exogenous variables exert meaningful effects, with Time Performance showing a substantial impact greater than the benchmark for a large effect. The detailed statistics, presented in Table 4.9, corroborate this considerable influence and reinforce the central role of Time Performance within the model.

Table 4.9: Effect Size (f^2) Statistics

Exogenous Construct	f^2 Value	Interpretation (Cohen, 1988)
Top Management Commitment	0.082	Small-to-medium effect
Employee Involvement	0.167	Medium effect
Time Performance	0.421	Large effect

Source: Author, 2025

Note: All f^2 values exceed the minimum threshold of 0.02, confirming that each construct contributes meaningfully to the explanatory power of the model.

By establishing both statistical significance and substantive effect size, the findings confirm that the examined constructs meaningfully enhance the explanatory capacity of the model. This strengthens confidence in the robustness of the hypothesised relationships and sets the stage for the subsequent mediation analysis.

Summary of Hypotheses Testing

The findings presented in Table 4.7 earlier provide clear evidence on the hypothesised relationships among the study variables. Top Management Commitment was positively associated with Time Performance ($t = 2.801$, $p = 0.005$), thereby supporting Hypothesis 1. Employee Involvement demonstrated a significant positive association with Time Performance ($t = 4.414$, $p = 0.000$), confirming Hypothesis 2. Finally, Time Performance exhibited a strong and statistically significant positive association with Non-Financial Organisational Performance ($t = 12.319$, $p = 0.000$), providing robust support for Hypothesis 3. Collectively, these results highlight the differential impact of quality management practices on organisational outcomes. They underscore the critical roles of Top Management Commitment and Employee Involvement in driving improvements in Time Performance, which in turn serves as a pivotal mechanism for enhancing Non-Financial Organisational Performance. The findings thus advance theoretical understanding of TQM dynamics while offering practical insights for organisational leadership and management. Furthermore, the results indicate that both leadership commitment and employee involvement are positively associated with time performance, which in turn is positively associated with non-financial outcomes.

DISCUSSION OF THE FINDINGS

The findings confirm the hypothesised relationships between TQM practices, time performance, and non-financial organisational performance in Zambia's service sector. By situating the results within the Resource-Based View (RBV), Social Exchange Theory (SET), and Service Quality Theory (SERVQUAL), the study advances theoretical understanding, contextualises quality management in an emerging economy, and provides actionable guidance for managers.

Top Management Commitment and Time Performance

The analysis shows that top management commitment significantly enhances time performance, supporting Hypothesis 1. This finding aligns with the Resource Based View theory, which positions leadership commitment as a strategic resource that enables organisations to build rare and inimitable capabilities in timeliness and reliability (Al-Dhaafri et al., 2020; Barney, 1991). In Zambia's Service Sector often characterised by resource constraints, infrastructural challenges, and evolving institutional frameworks managerial dedication becomes a differentiating capability. By prioritising quality, allocating resources, and eliminating structural inefficiencies (Okeoma, 2019; Al-Dhaafri et al., 2016), leaders create operational discipline that reduces delays and strengthens responsiveness.

Practical implication: Managers in Zambia's service organisations should treat leadership commitment not merely as symbolic but as a strategic lever. Visible dedication to timeliness, coupled with resource allocation, can help firms overcome systemic inefficiencies and build reputational capital in competitive service markets.

Employee Involvement and Time Performance

Employee involvement was found to exert a substantial influence on time performance, supporting Hypothesis 2. This resonates with SET, which posits that when employees perceive organisational support and inclusion, they reciprocate with greater effort and adaptability (Cropanzano et al., 2017). Empowerment enhances intrinsic motivation and operational responsiveness (Aggarwal et al., 2020). In Zambia's Service Sector, where organisations are relatively young and staffed by mid-career professionals, employee empowerment provides the operational energy needed to embed timeliness into service delivery and reduce bottlenecks.

Practical implication: Managers should institutionalise participatory practices such as involving frontline staff in decision-making and continuous improvement initiatives. This not only enhances agility but also fosters a culture of accountability and responsiveness, critical for sustaining service quality in Zambia's dynamic business environment.

Time Performance and Non-Financial Organisational Performance

The study confirms that time performance exerts a strong positive effect on non-financial organisational performance, supporting Hypothesis 3. Improvements in timeliness translate into customer satisfaction, service reliability, and employee morale. This finding is consistent with SERVQUAL, which identifies responsiveness and punctuality as primary dimensions of perceived service quality (Pudjono et al, 2025; Parasuraman et al., 1988). In Zambia's Service Sector, where customer expectations are rising and competition is intensifying, delays directly undermine trust and reputation (Daugherty et al, 2019).

Practical implication: Managers should view time performance as a strategic lever. Investing in scheduling systems, workflow optimisation, and staff training can directly improve customer perceptions, strengthen loyalty, and enhance organisational credibility in the Zambian market.

Mediating Role of Time Performance

The results demonstrate that time performance mediates the relationship between TQM practices and non-financial organisational performance. Leadership commitment and employee involvement exert direct effects, but their influence is significantly amplified when channelled through improvements in timeliness. This mediation underscores the operational pathway through which strategic and behavioural practices translate into

tangible organisational benefits (Wassana and Kalwara, 2024; Al-Shourah and Al-Shourah, 2020; Belekoukias et al., 2014).

Practical implication: Managers should integrate time performance into their TQM frameworks as a central operational metric. By monitoring and improving timeliness, organisations can ensure that strategic inputs (leadership and employee engagement) are effectively converted into customer satisfaction and service reliability.

Taken together, these findings affirm that leadership commitment and employee involvement are foundational to effective TQM implementation, but their impact is realised most fully through improvements in time performance. Theoretically, the study contributes by demonstrating how Resource Based View theory, Social Exchange theory, and Service Quality theory jointly explain the pathways through which organisational resources, employee–management relationships, and service responsiveness underpin sustainable non-financial outcomes. Contextually, the study extends TQM scholarship to Zambia’s Service Sector, highlighting how resource constraints, youthful organisational structures, and evolving customer expectations shape the dynamics of quality management. Practically, the findings provide managers with actionable insights: prioritise leadership commitment, institutionalise employee involvement, and treat time performance as a strategic lever for competitiveness and stakeholder trust.

CONCLUSION

This study examined the relationship between Total Quality Management (TQM) practices, time performance, and non-financial organisational outcomes in Zambia’s service sector. By focusing on top management commitment and employee involvement, and positioning time performance as a mediating mechanism, the research provides new insights into how human-centred practices translate into service quality, customer satisfaction, employee morale, and organisational agility.

The findings confirm that leadership commitment and employee involvement significantly enhance time performance, which in turn drives non-financial organisational performance. This mediation effect underscores the operational pathway through which strategic and behavioural practices influence organisational outcomes. Interpreted through the Resource-Based View, managerial commitment emerges as a strategic resource; through Social Exchange Theory, employee involvement reflects reciprocal engagement that strengthens responsiveness; and through Service Quality Theory, time performance is validated as a critical dimension of perceived service quality. Together, these perspectives provide a robust theoretical foundation for understanding TQM in service contexts.

Theoretical contribution: The study advances knowledge by clarifying the mechanisms through which TQM practices shape organisational outcomes, demonstrating that time performance is not merely an operational metric but a mediating construct that integrates strategic resources, employee engagement, and service responsiveness into a coherent explanatory framework.

Practical contribution: For managers in Zambia’s service sector, the findings highlight actionable levers for performance improvement. Prioritising leadership commitment, institutionalising employee empowerment, and embedding time management into daily operations can foster a quality-oriented culture, strengthen customer satisfaction, and enhance organisational agility.

Contextual contribution: By situating TQM within Zambia’s service sector, the study extends the applicability of quality management frameworks beyond manufacturing and developed economies. It demonstrates how TQM principles can be adapted to resource-constrained African service environments, where managerial discipline and employee involvement are critical for overcoming systemic inefficiencies and meeting rising customer expectations.

In sum, this research strengthens theory by illuminating the mediating role of time performance, guides practice by identifying leadership and employee involvement as strategic levers, and extends contextual relevance by embedding TQM within Zambia’s service sector. By integrating these contributions, the study not only enriches

academic discourse but also provides managers with a roadmap for building responsive, quality-driven organisations in emerging service economies.

Limitations and Future Research

This study, while offering important contributions to understanding the mediating role of time performance in the TQM–performance relationship, is subject to several limitations.

The cross-sectional design constrains causal inference; Future studies should employ longitudinal or repeated-measures designs to track changes in TQM practices and organisational outcomes over time. Such approaches would allow for stronger causal inferences and the identification of trends or lagged effects that are not observable in a single cross-sectional snapshot.

Reliance on self-reported data from managers introduces potential for common method and social desirability bias; Future research should triangulate data by incorporating responses from employees and customers, and, where possible, supplement perceptual data with objective organisational performance metrics. Employing statistical controls for common method bias is also recommended.

The sample is skewed toward hospitality and micro-small firms, limiting generalisability; Future research should draw more balanced samples across service sub-sectors and firm sizes, potentially using stratified sampling or comparative case designs to enhance generalisability and uncover sector-specific dynamics.

The study’s focus on human-centred practices excludes other key TQM dimensions; Future research should integrate process-oriented, customer-focused, and supplier-related practices alongside human-centred dimensions. This broader approach will clarify the interplay between TQM clusters and organisational performance in service contexts.

The absence of qualitative methods restricts contextual understanding; Future research should combine quantitative surveys with qualitative methods such as interviews or case studies is recommended to elucidate contextual mechanisms and organisational processes underlying TQM adoption in Zambia and similar settings.

The study was conducted within a single national context, which may constrain the generalisability of its findings. Future research is encouraged to undertake comparative analyses across multiple African countries or between emerging and developed economies to identify contextual moderators such as cultural, economic, or regulatory differences that may influence the effectiveness of TQM practices.

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