

# A Structural Model of Quality Leadership, Process Innovation, and Organizational Excellence

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Article Info	ABSTRACT
<p><b>Article history:</b></p> <p>Received : 15.07.2025 Revised : 17.08.2025 Accepted : 09.09.2025</p>	<p>The purpose of this study will be to investigate the structural relationships involving quality leadership, process innovation, and organisational excellence in the context of competitive business environments. Based on the theoretical background of Total Quality Management (TQM), innovation capability theory, and business excellence models (EFQM/Baldrige) the paper expounds to the structural framework where quality leadership contributes to excellent performance of organisations both directly and indirectly via process innovation. On the quantitative side of the research design, the survey data was used to gather data on 312 managers based on manufacturing and service sector organisations. Partial Least Squares Structural Equation Modelling (PLS-SEM) was used to analyse the proposed model. The model of measurements proved excellent reliability and validity, whereas the outcomes of the structural model showed that quality leadership has a considerable impact on process innovation (<math>\beta = 0.64</math>, <math>p &lt; 0.001</math>) and organisational excellence (<math>\beta = 0.29</math>, <math>p = 0.01</math>). Process innovation also showed a significant positive relationship with organisational excellence (<math>\beta = 0.51</math>, <math>p &lt; 0.001</math>), whereas the <math>R^2</math> value was 0.58 and the value is significant. The mediation test established that the relationship between quality leadership and organisational excellence is mediated by process innovation to some extent. The conclusions draw practical implications to the managers as an indicator of the need to adopt leadership quality culture and innovation process improvement strategies to act as a catalyst to sustained excellence. This paper adds to the body of the quality management and innovation research because the investigation empirically supports an integrated structural framework that connects leadership practises with the innovation processes and excellence performance outcomes of the companies which is the advanced PLS-SEM analysis.</p>
<p><b>Keywords:</b></p> <p>Process Innovation, Organizational Excellence, Structural Equation Modeling (SEM), PLS-SEM, Total Quality Management (TQM), Business Excellence Models.</p>	

## 1. INTRODUCTION

In the modern day competitive and dynamically changing business set up, organisations are constantly being pressured to take their performance to the next level, ensure that they remain competitive and excel in long term excellence. The rising market turbulence, technology advancement, and the growing demands of customers are necessitating firms to utilise those leadership styles that encourage quality-focus culture and orderly run discipline. Quality leadership is also a key element in the way organisational values are formed, aligning goals, strategies and practises, as well as promoting the commitment that the employees will have towards the constant change. It has been identified in previous research that leadership devotion to total quality management philosophy has a profound

impact on organisational aptitudes and achievement results [1], [11]. Besides, participative, empowering, and knowledge sharing leadership styles lead to better organisational performance and ability to innovate [2], [12]. Process innovation has become a key process through which organisations can translate the leadership vision into operation and strategic results. Workflow has the potential to be reshaped, and resources are to be efficiently used to make the firm better and more efficient, cut down on waste, and bring better customer value. Empirical studies reveal that practises that are oriented towards innovation have a positive impact on performance, competitive advantage and sustainability [4], [16]. Optimization of quality management activities and innovation strategies also increases the agility and resilience of the

organisation especially in the turbulent and unpredictable environments [5], [14]. Use of process innovation therefore becomes a strategic pipeline between the leadership-informed quality efforts as well as the excellence-oriented outcomes.

As much as not much research work has explored quality management, leadership, and innovation in a combined structural framework, there is a lack of empirical research works that focus on the combination of the constructs. Most of the previous researchers concentrate either on leadership performance relationship or the innovation performance relationship but do not evaluate the mediating role of the process innovation in the attainment of organisational excellence simultaneously [2], [3]. Moreover, although Partial Least Squares Structural Equation Modelling (PLS-SEM) has since gained great acceptance in the management research literature as a predictive model and scholarly theory building [7], there is still the necessity of extensive empirical confirmation of integrated leadership-innovation-excellence models on sound measurement and structural evaluation platforms [9], [15]. This gap indicates the importance of organised examination that will mirror the correlation impacts of quality management and procedures innovation on the excellence results.

To address this research gap, the current study formulates and empirically validates a structural model that examines how quality leadership works in both the direct and indirect relationship with organisational excellence in terms of process innovation. By relying on the theoretical backgrounds of Total Quality Management and theory of innovation capability, the study aims at offering very strong empirical findings through the PLS-SEM in proving the relationships suggested. Through studying these interdependencies, the study will explain how leadership-based quality initiatives contribute to sustainable organisational excellence through the mechanisms. The rest of this paper is structured in the following way. In the following part, the appropriate literature is examined and elaborates the research hypotheses. This is followed with research methodology and data analysis procedures. The next section contains the empirical results on the result of the PLS-SEM analysis. The paper ends with the theoretical and managerial implications, limitations, and future research recommendations discussion.

## 2. Literature Review and Hypothesis Development

Quality leadership has been popularly accepted as a strategic spin of organisational performance and sustainability in the competitiveness. Based on the

concept of Total Quality Management (TQM), quality leadership attaches importance to top management commitment, constant improvement, and orientation to the customers as well as employee involvement. One of the core enabling factors in the TQM theory is leadership, which influences the organisational culture and puts the operational activities in line with the established strategic goals [1], [11]. Active proponents of quality concepts among leaders can build conditions that encourage the systematic resolution of issues, empirical-based decision-making, and improvement of long-term performance. Meanwhile, transformational theory of leadership indicates that visionary and empowering leadership provokes greater engagement levels of employees, innovation, and creativity [12]. Practical experience suggests that the leadership styles which promote sharing of knowledge and collaborative practises are very effective in building organisational capacity and performance [2]. The other models of business excellence like the EFQM and Baldrige models also add to the key importance of leadership in the excellence process by making it a vital facilitator that holds strategy, people and processes together towards excellence outcomes.

Process innovation constitutes the process by which quality initiatives that are led by the leadership change into operation. Based on the innovation capability theory, process innovation entails introduction of new or greatly enhanced production and delivery techniques that have led to increased efficiency, flexibility and value generation. Organisations that embrace innovation-based process management strategies are in position to address the environmental changes and technological developments in a better manner [4]. The study indicates that the combination of quality management and innovation strategy enhances organisational agility and competitive capability [5], [14]. Operationally speaking, process innovation lessens dissatisfactions and enhances reliability, and stakeholder satisfaction. The empirical analysis reveals that the capabilities on innovation play a major role in ensuring sustainable performance and a long term success of the organisation [16]. In this way, process innovation can be called a strategic channel between leadership practises and excellence results.

Organisational excellence is a holistic accomplishment of excellent performance on financial, operational, and stakeholder level. Excellence paradigms like EFQM, Malcolm Baldrige paradigm conceptualise excellence as a product of good leadership, sound management of processes and constant innovation. These models differentiate enablers and outcomes and conclude

that leadership and process abilities lead to quantifiable performance outcomes. The degree of sustainability and competitive positioning is always connected with quality management practises and innovation orientation [1], [14]. Hence, the structural relationship between leadership, innovation, and excellence necessitates the need to know them in order to propel the research in quality and business excellence. Although a lot of literature has been done on leadership, quality management and innovation, previous studies mostly focus on the constructs in isolation. People often have empirical studies which either emphasise the linkage between leadership and performance or the relationship between innovation and performance without necessarily considering the mediating effect of process innovation in an end-to-end excellence system [2], [3]. This discontinuous methodology restricts the integration of theory and empirical articulation. Moreover, with the current development of PLS-SEM as a strong tool of predictive and exploratory, the controlling approach as a management-research technique [7], [15], there are still scarce integrated structural analyses of quality leaders, process innovation, and organisational excellence. To fill this gap, the current study will offer a convergent structural model between the constructs as within the context of a single empirical framework.

It is assumed that quality leadership can create an environment in which continuous improvement and redesigning of processes can be optimally ensured; based on the theoretical and empirical

background presented above, it is hypothesised that quality leadership contributes to the ability to promote continuous improvement and innovative redesigning of the process. The quality values, empowerment and strategic alignment leaders are supposed to bring positive influence on process innovation. Organisations that successfully execute process innovation, in turn, have more chances of attaining high excellence results because of increased efficiency, flexibility, and value creation to the stakeholders. Also, there can be direct impact of quality leadership on the excellence of an organisation through influencing of culture, vision and coherency in the strategic planning. Nevertheless, due to the fact that the leadership-based quality initiatives are generally operationalized by the means of enhanced processes, process innovation should mediate the correlation between quality leadership and organisational excellence.

In line with these propositions, this study is hypothesised as follows: H1: the hypothesis holds that the quality leadership has a positive impact on the process innovation; H2: the hypothesis holds that the process innovation has a positive impact on the organisational excellence; H3: the hypothesis is that the quality leadership has a positive impact on the organisational excellence; and H4: the hypothesis is that the process innovation holds a middle ground between the quality leadership and organisational excellence. As Figure 1 shows, the proposed structural relationships, Table 1 is the summary of the hypotheses tested in the study.

**Table 1.** Summary of Research Hypotheses

Hypothesis	Relationship	Expected Direction
H1	Quality Leadership → Process Innovation	Positive (+)
H2	Process Innovation → Organizational Excellence	Positive (+)
H3	Quality Leadership → Organizational Excellence	Positive (+)
H4	Process Innovation mediates the relationship between Quality Leadership and Organizational Excellence	Positive Indirect Effect



**Fig. 1.** Proposed Structural Model of Quality Leadership, Process Innovation, and Organizational Excellence.

### 3. RESEARCH METHODOLOGY

The approach to the research taken in this study is quantitative, as it empirically tests the interconnection between quality leadership, process innovation, and organisational excellence. The survey design that was used was cross-sectional because it is suitable where only theoretical framework is to be tested, and structural relationship among latent constructs within a given time is to be analysed. The quantitative design provides an opportunity to statistically validate the hypotheses and predictive modelling with the help of Partial Least Squares Structural Equation Modelling (PLS-SEM). This method is especially appropriate when it comes to the scrutiny of intricate structural models and mediation effects evaluation. The structured questionnaire was used to gather information on managers who are in organisations operating in the manufacturing and service sectors. The target population was chosen to be the managers as they have first-hand information about the leadership practises, process improvement initiatives and system of organisation performance. Their work experiences can give credible information regarding the use of quality management and innovation strategies in their companies.

Only a purposive sampling method was used to make sure that the respondents had a relevant managerial experience and decision-making roles. The sample size was calculated in terms of the so-called 10-times rule that is generally used when analysing PLS-SEM, according to which the minimum sample size should be ten times the largest amount of structural paths that lead to any construct in this model. The smallest size of the

sample is 20 as the most complex endogenous construct in the proposed model has two direct paths. To further strengthen the statistical strength and the predictive validity, however, a bigger sample was aimed at. There were 350 distributed questionnaires and 312 valid responses received after screening of the data which gave a response rate of 89.1 percent. This size is regarded a sufficient one in terms of trustworthy PLS-SEM analysis and structural model estimation.

The measurement tool was composed of multi-item scales based on the previous research in such fields as quality management, innovation, and organisation performance. The measurement of all items on the list was according to a seven-point Likert-scale (strongly disagree) to 7 (strongly agree). The seven points scale has been chosen because it is more sensitive to responses and reflects the difference in the perceptions of managers. The constructs were operationalized as reflective models of measurement, i.e., the indicators that are observed are manifestation of their respective latent variables. By this specification, any change in the underlying construct is recorded in the change of the measured items. Academic experts and industry professionals reviewed the questionnaire prior to full-scale data collection to be sure that it is clear, relevant, and contents of the questionnaire are relevant. It was revised slightly and made better in wording and format. Upon data collection, the dataset was filtered to remove any missing values, outliers, and discrepancy and then solution to measurement model and structural model analysis via PLS-SEM.

**Table 2.** Measurement Constructs and Operationalization

Construct	Number of Items	Measurement Focus	Scale Type	Model Specification
Quality Leadership	5	Leadership commitment to quality, strategic vision, employee involvement	7-point Likert	Reflective
Process Innovation	5	Process redesign, technology integration, operational improvement	7-point Likert	Reflective
Organizational Excellence	6	Performance enhancement, stakeholder satisfaction, strategic alignment	7-point Likert	Reflective

### 4. Data Analysis Using PLS-SEM

Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS software was used in analysis of the empirical data. PLS-SEM was chosen since it is an adequate tool to use in a predictive piece of research, mediation analysis and obtain a complex structural relationship among latent constructs. The analysis process was based on two step process which included evaluation of the measurement model and

evaluation of the structural model. The measurement model was initially analysed to determine the reliability and validity of reflective constructs; quality leadership, process innovation and organisational excellence. The reliability of the indicators was determined by analysing outer loadings of items of measurement. Loadings of 0.70 and above were discussed as acceptable thus meaning that the indicator shows that it has adequately captured its underlying construct. The

items whose loadings were less than 0.40 were dropped and the rest whose loading was between 0.40 and 0.70 were considered in their contributions to composite reliability and convergent validity.

Cronbachs Alpha, Composite Reliability (CR), and rho A were the methods through which internal consistency reliability was tested; threshold values of 0.70 or more were deemed satisfactory which is in line with internal consistency between measurement items. The convergent validity was evaluated using the Average Variance Extracted (AVE) where Figure 0.50 or above showed that the construct is able to explain over half the variance of the indicators. Multifaceted criteria were used in establishing the discriminant validity. The Heterotrait-Monotrait (HTMT) ratio was tested and a value smaller than 0.85 (strict) or 0.90 (liberal) meant that the discriminant validity was adequate. Fornell Larcker criterion was also used to make sure that the square root of the AVE of each construct was greater than its correlations with the other construct. The review of cross-loadings was also done to ensure that every indicator loaded on the construct on which it was meant to load. The Multicollinearity between the predictor constructs was measured using the variability Inflation Factor (VIF) and a value that was less than 3.3 denoted that there were no critical problems of multicollinearity.

Once the model of measurement adequacy was verified, evaluation of the structural model was conducted to test the hypotheses that were put forward. The relationship between constructs was estimated to be strong and positive or strong and negative using path coefficients. The level of effect was evaluated by interpreting standardised beta (  $\beta$  ) values. The statistical significance measure was carried out through bootstrapping with 5,000 resamples with bootstrapping yielding t-values, p-values, and confidence levels to test the hypothesis. Coefficient of determination (  $R^2$  ) was analysed so as to determine the strength of the model in explaining the endogenous explanations (process innovation and organisational excellence). The magnitude of  $R^2$  was used to interpret the predictor variables as weak, moderate, or substantial. Effect size (  $f^2$  ) was obtained in order to determine the contributions of each exogenous construct in relation to the  $R^2$  value of endogenous variables, where 0.02, 0.15, and 0.35 indicate small, medium and large effect values respectively.

The blindfolding procedure was used to compute  $Q^2$  values in order to obtain predictive relevance. The  $Q^2$  values above zero meant that the model is predictively relevant to the endogenous constructs. In PLS-SEM, global model fit was not the main criterion, however, other measure of fit

included the Standardised Root Mean Square Residual (SRMR) and Normed Fit Index (NFI) were also observed to provide supplementary evidence of overall adequacy of the model. Lastly, mediation analysis was done to establish the existence of process innovation to mediate the correlation between quality leadership and organisation excellence. The assessment of the indirect effects was done by means of bootstrapping, and the significance of the effect was considered by the confidence interval and p-values. To establish the level of mediation, the Variance Accounted For (VAF) was calculated so as to find out whether the mediation effect was partial or complete. Such a thorough review was done to make sure that the measurement and structural aspects of the suggested model have been thoroughly validated before the interpretation of the empirical results.

## 5. RESULTS

To test the same, PLS-SEM was used to test the structural relationship proposed between quality leadership, process innovation and organisational excellence. The results are made in the form of descriptive statistics, assessment of measurement model and evaluation of structural model. According to the demographic profile of the respondents, most of them were mid-level and senior managers in organisations that operated in the manufacturing and service industries. The respondents were split to about 58 percent in manufacturing firms and 42 percent service organisation. Concerning the experience in the role of managing, 47 percent of them had over 10 years of experience, which guaranteed the provision of informed answers in terms of leadership and innovation practises. Sample consisted of 62 percent and 38 percent male and females with majority of the respondents having attained at least bachelor degree.

Descriptive statistics showed that, quality leadership had a mean of 5.62 and standard deviation of 0.78, which was relatively high on the commitment of quality practises by leadership. The reported mean of 5.48 with standard deviation equals to 0.81 seen in process innovation indicates the involvement in process improvement efforts. The average of 5.71 and the standard deviation of 0.74 indicated that the respondents slightly liked ranking their organisations as doing excellently on the dimensions of excellence. The standard deviations and means illustrate sufficient variability and the lack of extremely dispersive values. The test of measurement showed a sufficient amount of reliability and validity. The constructs all had Cronbach's Alpha and Composite Reliability of greater than the recommended 0.70 which is high internal consistency. The values of Average Variance Extracted (AVE) were more than

0.50 hence convergent validity was combination validity. Validity discrimination was achieved by the fact that HTMT values fell below 0.85 and VIF values were below 3.3, which means that there are

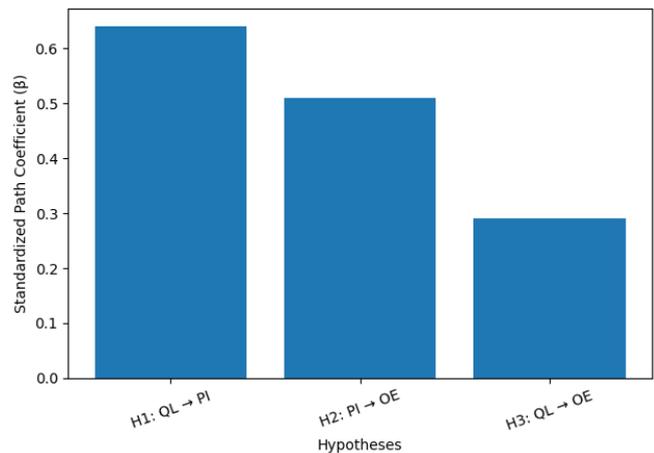
no severe concerns of multicollinearity. At Table 3, the detailed outcomes of the measurement model can be found.

**Table 3.** Measurement Model Assessment Results

Construct	Cronbach's Alpha ( $\alpha$ )	Composite Reliability (CR)	AVE	HTMT	VIF
Quality Leadership	0.91	0.93	0.72	0.74	2.15
Process Innovation	0.89	0.92	0.70	0.79	2.08
Organizational Excellence	0.92	0.94	0.75	0.76	2.24

Following confirmation of measurement adequacy, the structural model was evaluated. Bootstrapping with 5,000 resamples was performed to determine the significance of path coefficients. The results indicate that quality leadership has a significant positive effect on process innovation ( $\beta = 0.64$ ,  $t = 12.87$ ,  $p < 0.001$ ), supporting H1. Process innovation significantly influences organizational excellence ( $\beta = 0.51$ ,  $t = 9.74$ ,  $p < 0.001$ ), supporting H2. Quality leadership also demonstrates a direct positive effect on organizational excellence ( $\beta = 0.29$ ,  $t = 4.62$ ,  $p < 0.01$ ), supporting H3. Effect size ( $f^2$ ) values indicate that the strongest contribution is observed in the relationship between quality leadership and process innovation.

Process innovation coefficient of determination ( $R^2$ ) was 0.41, which implies moderate explanatory power. The  $R^2$  of organisational excellence was 0.58 indicating that there was massive explanatory effect of the model. This supports the results on the assumption that the proposed structural framework is useful in explaining the variance in the outcomes of organisational excellence. The outcome of the mediation analysis demonstrated the existence of a partial mediation between quality leadership and organisational excellence as process innovation mediates the relationship. The result of the indirect effect was substantial and the Variance Accounted for (VAF) value suggested partial mediation thus confirmed H4. The standardised path coefficients and the structural relationships are visualised through the (Figure 2) which shows the estimates of the path that are bootstrapped and it will be possible to know how strong the proposed relationships are.



**Fig. 2.** Bootstrapped Structural Model Path Coefficients (Standardized  $\beta$  Estimates).

## 6. DISCUSSION

The results of the research in this project have solid empirical evidence on the exclusive structural model between quality leadership, process innovation and organisational excellence. Based on the findings, it is possible to conclude that quality leadership is a strong contributor to process innovation, implying that the leadership dedication to quality principles establishes an organisational environment favourable to continuous growth and operational change. Leaders who focus on strategic vision, empowerment of employees, and quality-based culture seem to provoke the internal process of innovation which consequently enhances the organisational flexibility and output. This observation validates the fact that leadership is not only a management role but a strategic facilitator of the capability to innovate. The findings also indicate that process innovation has a significant positive impact on the excellence of organisations. Companies that reformulate work processes on a regular basis, adopt new technologies and improve business systems are at a better placed of attaining high performance results. The fact that the explanatory power of the model is relatively high shows that the process improvements that arise as a result of innovation are one of the key mechanisms of achieving excellence. These results support the opinion that operational excellence is

not a fixed conclusion but dynamic manifestation of systematic innovation and quality integration. The direct influence of quality leadership on organisational excellence was also established to be high though less important than the indirect link with process innovation. This is an indication that although leadership has a direct effect on strategic alignment and performance culture, a significant part of its power lies within the innovation initiatives. The mediation analysis proves that process innovation does mediate relationship between quality leadership and organisational excellence. This finding points to the need to transform leadership vision into concrete process advancements to deliver quantifiable excellence outcomes. Working in contrast to the prior studies, the findings were correlated with the outcomes of the studies focused on the significance of the leadership commitment towards stimulating the quality management and innovation performance. Earlier studies have indicated that transformational and quality style of leadership contributes to knowledge sharing, organisational learning and effectiveness in operations. Most of the previous studies, however, analysed the relationships of leadership and performance or the relationship of innovation and performance in isolation. The current research continues this literature by including these constructs into a cohesive structure and empirically proves the mediating role of the process innovation. Such unified approach brings a deeper insight into the role of leadership practise in the achievement of excellence.

In a theoretical perspective, the study will add to the existing literature in quality management and innovation research as it integrates TQM principles, innovation capability theory and business excellence models into one predictive model. The findings confirm the theory that leadership is a facilitating factor, innovation an enabling process, and excellence is the output of the performance. This alignment structure develops into the theoretical depth due to the sequential direction in which leadership-based quality culture drives innovation and eventually results in excellence. The results also play emphasis on leadership as being strategic in excellence of innovation. Organisations that operate in a more competitive and uncertain world should not simply depend on the established quality control mechanisms. Rather leaders need to develop adaptive capabilities, promote experimentation, and institutionalise the continuous improvement. Strategic leadership and innovation-oriented processes make organisations more resilient, increase the value they create to stakeholders, and be able to maintain a

competitive advantage in the long run. In general, the study points to the fact that excellence is not only learned with the intention of leadership, but through leadership-facilitated innovation practises that are part and parcel of organisational systems.

### **7. Practical Implications**

The results of the conducted study have a number of practical implications to managers, organisational leaders, and policymakers interested in making their organisations more competitive based on quality and integration of innovation. To begin with, the close connexion between quality leadership and process innovation emphasises the importance of organised leadership development strategies. The companies ought to invest in training programmes that enhanced the strategic quality management capabilities of leaders, change management capabilities of leaders and facilitation of innovations by leaders. The programmes aimed at leadership development must focus on alignment of visions, empowering the employees, decision making based on facts, and creating a culture of continuous improvement. With such competencies, leaders would enable organisations to foster a culture that readily promotes innovation-led excellence as opposed to only depending on conventional supervisory control.

Second, process innovation has a powerful influence on organisation excellence, which enhances the need to systematic redesign programmes. The management of organisations is advised to conduct frequent performance reviews and reviews of their operational processes with the help of lean management, digital transformation technologies and performance analytics. The continuous process improvement programmes ought to be codified as opposed to being incorporated as projects. Innovation initiatives can be highly effective through cross-functional cooperation, integration of technology and engagement of employees in problem solving. The managers are supposed to make sure that innovation initiatives are equated with strategic goals and backed by performance metrics.

Third, the findings underline the need to develop excellence-based culture of quality. Organisational excellence is not limited to any formal systems or certification rather it involves entrenched values that focus on customer focus, learning continuously and ensuring the stakeholder satisfaction. The leaders should convey clear quality images, reward the improvement in innovations, and strengthen behaviours that underpin the long-term enhancement. The establishment of the quality-focused culture will require the harmonisation of reward mechanisms, performance assessment indicators, and internal

communication channels with the objectives of excellence. With quality and innovation being part of the organisational identity, sustainable competitive advantage will be more achievable. Lastly, the research has a wider policy scope of improvement of organisational competitiveness both in the industry and country. Policymaker and industrial associations must promote the uptake of structured quality and innovation systems using awareness programmes, benchmarking schemes and excellence awards. The adoption of digital transformation, leadership development, and innovation platforms can enhance the ability of firms to compete in the international market. Through such policies as resilient and high performance organisations through leadership driven quality management and innovation, the stakeholders can also ensure sustainable economic development. In general, the implications on practise indicate that the aspiration to achieve the excellence of the organisation needs to be coordinated as a practise that incorporates development of the leadership capability, incessant process innovations, transformation of the culture, and favourable policy frameworks.

### **8. Limitations and Future Research**

Although this study has made contribution, it is also limited to a number of limitations. First, the study used cross-sectional design which involved gathering information obtained at one point in time. Although this method is suitable to investigate the structure relationships, it does not allow to develop causality and dynamic changes in the leadership practise, innovation process, and the excellence outcomes overtime. The nature of excellence in the organisation is evolutionary and longitudinal studies would introduce more knowledge about the impact of quality leadership in the innovation pathway and sustained performance at various phases of organisational development. Second, the research took place in a particular geographic and industrial setting, and this factor might limit the applicability of the results. Cultural, economic as well as regulatory environmental difference may have an effect on leadership styles, adoption of innovations as well as quality management practises. Subsequent studies would be to broaden the model to other nations, sectors or new markets to ascertain the strength and cross-cultural relevance of the model. Further comparison of studies between manufacturing and service industries or between state and non-state organisations would boost the knowledge on the contextual effects.

Third, the data were acquired by use of self-reported measures among the managerial respondents. Despite the good position of managers to evaluate the leadership and

innovation practises, self-reported data can create common method bias and perceptual subjectivity. The addition of multi-source data, e.g. objective performance measures or subject-level responses, or archival organisational measures could be used in future research to contribute to the increased accuracy of measurement and decrease possible bias. The longitudinal or multi-group SEM will be also appropriate in the future to be used and compare the differences with regard to various firm size, type of industries, or various levels of organisational maturity. Multi-group analysis would enable the researchers to examine the possibility of structural relationships differences in different contextual conditions. Also, the analysis of some modifying factors like digital capability, organisational culture, or environmental uncertainty might help to make the model more specific. Lastly, it can be investigated in future research how Structural Equation Modelling can be combined with Artificial Neural Networks (SEM-ANN) in order to strengthen predictive accuracy. Whereas SEM offers strong theory testing and causal model, ANN has the capacity of nonlinear relationships and complicated patterns of interaction of construct. An integrated SEM based on ANN methodology may provide more predictive information on the overall effect that the combination of leadership and innovation has on organisational excellence that enhances the methodological rigour and practicality of quality and innovation studies.

### **CONCLUSION**

The given study was determined to investigate the structural connexions between quality leadership, process innovation, and organisational excellence through the development and empirical testing of the combined model by the PLS-SEM. The first was to investigate the direct relationship between quality leadership and organisational excellence and indirectly through process innovation. Results of the empirical studies verify that quality leadership is a strong predictor of process innovation and positively influences organisational excellence, and process innovation is a weak predictor of excellence performance. The mediation analysis also indicates that process innovation partially mediates the relationship between quality leadership and organisational excellence showing the need to ensure that the leadership commitment is translated into practical process improvements. The good reliability, validity, and explanatory power of the model justify the model structural framework and reinforce its predicting power. Altogether, this research can contribute to the body of knowledge on quality management and business excellence by combining leadership theory, innovation

competence, and excellence models into one comprehensive empirical approach, thus enhancing the knowledge of how the leadership-based innovation would help to promote sustainable organisational excellence.

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