Measuring the Impact of Continuous Quality Improvement Practices on Innovation Outcomes and Competitive Advantage

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Article Info	ABSTRACT
	The continuous Quality improvement (CQI) practises are widely spread to achieve the efficiency of operations and the product reliability, and their strategic role in the innovation performance and sustainable competitive advantage is under-investigated. This paper talks of the effects of CQI practises on the innovation results and competitive advantage based on the theoretical perspective of Resource-Based View (RBV) and the Dynamic Capabilities Theory. The proposed relationships were tested in Structural Equation Modelling (SEM) when the quantitative survey was carried out in 268 manufacturing and service companies. The findings reveal that CQI practises have significant and positive effects on product and process innovation results. On their part, the outcomes of the innovation have a significant positive impact on the competitive advantage. Moreover, the mediation analysis establishes that innovation outcome is a partial mediation between CQI practises and competitive advantage that implies that quality-based company routine increases competitiveness both directly and indirectly facilitated by the development of innovation capability. These are some of the findings that re-rank CQI as a strategy-enabled tool that promotes innovation-driven differentiation and long-term performance rather than merely being a tool of operational effectiveness in most instances. The research paper leverages the existing literature on the quality management field and innovation by empirically elucidating the mechanism by which continuous upgrading programmes lead to the prevalence of competitive advantage. The implications to managers involve the necessity to incorporate CQI models and innovation strategy to optimise the development of long-term organisational value.

1. INTRODUCTION

With an ever-changing competitive and unstable business world, organisations have been placed under constant strain of enhancing operational efficiency and at the same time, develop innovative potentials to keep them competitive over the long term. To achieve effective process reliability, waste reduction, and customer satisfaction, two broad categories of practises Continuous Quality Improvement (CQI), incorporating Total Quality Management (TQM), Kaizen, Lean management, and Six Sigma, have become highly popular (Pancher, 2011) [1] [2] [3]. Although these tools have always been considered as operational improvement tools, operational improvement routines have been proposed in recent strategic management literature to operate as dynamic organisational capabilities sparking innovative and strategic renewal [4], [5]. Although much has been

done concerning the quality management and firm performance, the association between the CQI practises and the outcomes of innovation has not been adequately elucidated. Available literature is much concerned with operational efficiency, cost savings, or customer satisfaction levels [6], and few studies investigate empirically the issue of whether CQI efforts directly lead to product and process innovation. In addition, the pathway by which CQI is translated to sustainable competitive advantage has failed to be comprehensive in theory. In particular, very little studies have explored innovation as a mediation channel between CQI practises and competitive advantage with powerful structural models [7]. According to the Resource-Based View (RBV), competitive advantage is a result of organisation capability of value as well as capabilities which are hard to imitate [8]. Dynamic Capabilities Theory goes

further to posit that companies have to keep restructuring the internal practises in response to environmental change [9]. CQI practises, being described by continuous learning, systematic problem-solving, and transfunctional cooperation, could, therefore, constitute a dynamic capability contributing to the improvement of innovation performance and the competitive position.

Therefore, the objectives of the study include the empirical analysis of how the Continuous Quality Improvement practises influence the outcomes of innovation and competitive advantage. Particularly, the study will answer the following questions:

1. Do Continuous Quality Improvement activities have a positive impact on results of innovation?
2. Are the results of innovation creating competitive edge?
3. Is innovation an intermediary on the CQI practises-competitive advantage relationship?

Through the merging of quality management and innovation perspectives into the single theoretical framework, the present study would add to the body of literature by shedding light on the strategic aim of CQI as an innovation-facilitating ability as opposed to an efficiency-driven practise. The rest of the paper follows this structure: Section 2 has the review of the literature and formulation of hypotheses; Section 3 has the conceptual framework and a methodology; Section 4 reports the empirical findings; Section 5 comments on the theoretical and managerial implications; and finally, the conclusion of the paper is given in Section 6.

2. Literature Review and Hypothesis Development

2.1 Continuous Quality Improvement (CQI)

Continuous Quality Improvement (CQI) can be defined as the systematic and organisation-wide strategy, to continuously improve products, services, internal processes, by continuous data-driven and iterative learning cycles. Practically, CQI is implemented in terms of structured improvement model which include use of Plan-Do-Study-Act (PDSA), Lean, Six Sigma (DMAIC) and integrated Lean Six Sigma initiatives which institutionalise problem-solving and process control to be routinely structured as a managerial way of doing things. The majority of CQI models overlap on two groups of practises including soft quality practise (leadership commitment, employee involvement, training, and culture) and hard quality practise (process standardisation, measurement systems, and statistical/process control). Empirical research indicates that the two clusters are relevant, though they appear to operate differently and they vary according to context and the intensity of implementation, most

organisations implement strategies using CQI tools and fail to instil the underlying cultural routines, which limit the effect on strategy [10].

The main CQI practises that are often quantified in the management literature are: (i) the leadership commitment to quality, (ii) the involvement and empowerment of employees, (iii) standardisation of the processes and the maintenance of continuous processes, (iv) the use of data to make decisions (metrics and feedback loops) as well as the monitoring of the processes and the correction/prevention systems (v).

Even though CQI is extensively researched as a model of operational excellence the bulk of the evidence remains to be focused on measures of cost, efficiency and reliability of services and even after this has been achieved, the strategic role of CQI in innovation and competitive advantage has not been consistently modelled and tested, particularly based on mediation mechanisms.

2.2 CQI and Innovation Outcomes

The theory of Dynamic Capabilities contends that the ability of firms to remain in performance in turbulence lies in their ability to disorganize routines, learning mechanisms and resources organisation into the future. CQI practises might help develop this ability-building process by instituting structured experimentation, root- cause analysis and organisational learning into day-to-day operations. These routines may enhance product innovation (new/improved services), process innovation (new/improved production/operations techniques), etc [11]. Recent synthesising efforts confirm that quality management practises tend to have a positive correlation with types of innovation (product/process; incremental/radical), though with firm size, industry, and the mix of soft and hard quality practises. The more recent empirical SEM-based research builds on this line of reasoning by providing empirical evidence that quality practises are linked to innovation-related measures (e.g., exploration/exploitation, green innovation) which validates the notion that CQI has the ability to influence innovation outcomes by dissolving capability pathways. The major drawback of current CQI-innovation research is the inconsistencies in the operationalization of CQI and innovation (different scale compositions, different dimensions of innovation) and extensive use of cross-sectional self-report research, which exposes the research to common-method bias and undermines causal assertions. Moreover, most studies only test direct effects without the mechanism of unpackaging (e.g., learning routines, ambidexterity, innovation capability).

H1: The Continuous Quality Improvement practises have a positive effect on the outcomes of innovations.

2.3 Innovation and Competitive Advantage

Considering the Resource-Based View (RBV), a sustainable competitive advantage is realised when a capability that is difficult to imitate is developed by the firms and has value. Both the results of the innovation, such as differentiation, speed to market, better value delivery, and higher process efficiency, are largely discussed as manifestation of capabilities that may result in better performance compared to competitors [12]. The evidence of meta-analysis also attests to the existence of a strong positive relationship between innovation and organisational performance, which means that the consequences of innovation are an important channel to long-term competitiveness in various contexts, though the effect sizes may differ according to the type of innovation and the context. Most publications identify the outcomes as competitive advantage, but operationalize it in an uneven manner (financial metrics vs perceived advantage vs indicators in the market). This undermines the comparability and arguments in mediation testing less compelling unless competitive advantage and rationale of measurement is well specified in the study.

H 2: The results of innovation have a positive effect on competitive advantage.

2.4 Direct Effect of CQI on Competitive Advantage

CQI may also have direct impacts on competitive advantage such as quality consistency, reduced costs of defects, and greater reliability of delivery and customer satisfaction all of which may be utilised to strengthen competitive positioning despite lack of innovation benefits. Studies based on a dynamic capabilities lensing indicate that a systematic management of processes and continuous improvement processes can aid in the maintenance of a competitive edge, especially to SMEs and resource-bound firms [13]. Nonetheless, the effects of direct CQI-advantage can be contingent upon the maturity of implementation and strategic alignment (i.e. is CQI being implemented as a compliance/ efficiency tool versus as a strategic capability). The integrated Lean Six Sigma/TQM strategies also underline the fact that the leadership dedication and system integration are the key factors that determine whether CQI will be able to expand beyond the operational scope to strategy level. A weakness of previous research is that it just takes CQI as a bundle and fails to make a separation between soft and hard practises, or fail to test boundary conditions (sector turbulence, firm size, market dynamism) which could explain when direct effects are increased or diminished by.

H3: CQI practises have a positive impact on the competitive advantage.

2.5 Mediating Role of Innovation

Better explained in terms of theory is that CQI increases competitive advantage by outcomes of innovation: CQI creates consistent processes and learning habits that enhance the capability of the firm in generating, applying, and leveraging innovations. The QM -innovation-performance realm is inherently being reported within systematic reviews that directly and indirectly report their relations and inherently recognise that innovation is often a transmission tool between quality routines and performance-related outcomes [14], [15]. The recent studies using SEM also support the mediation-type frameworks (e.g., quality practises to innovation-related capability constructs to performance outcomes), which supports the argument that innovation is not an outcome itself but a mechanism of how CQI can be strategically useful. The literature on mediation claims is full of underpowered mediation claims (small sample), lacks robustness cheques (indirect effects bootstrapping), and does not consider common method bias. SEM/PLS-SEM is to undergo a rigorous test which incorporates clear measurement validation and bootstrapping of the indirect effects.

H4: CQI practises mediate the connexion between innovation outcomes and competitive advantage.

3. Conceptual Framework

This paper suggests a theoretically based conceptual framework that implies the implementation of Continuous Quality Improvement (CQI) initiatives, the results of innovations, and competitive advantage in the united lenses of the Dynamic Capabilities Theory and the Resource-Based View (RBV). The model theorises CQI practises in a manner that it is an organisational capacity that designs the innovation performance and eventually leads to sustained competitive advantage. The research model proposed is shown in Figure 1. CQI practises are set as the independent variable, which means that it is organised routines in the organisations directed at the constant process and performance improvement. The outcomes of innovation are directed as a mediating factor that includes product and process innovation. The ultimate dependent variable that is modelled is competitive advantage which can be described as a superior positioning of a firm compared to the competitors. According to the framework there are two ultimate directions (1) CQI practises that affect the outcomes of innovation and (2) CQI practises that

affect competitive advantage. Furthermore, it is assumed that the results of innovation have a direct impact on the competitive advantage. The mediation framework presupposes that CQI will reinforce competitive positioning not by direct operational enhancements only, but also indirectly by more advanced innovation capacity. This model builds on previous studies by empirically investigating innovation as a vehicle of transmission between quality improvement practises and competitive advantage, and thus brings the less complete explanation about how operational routines translate into strategic performance consequences.
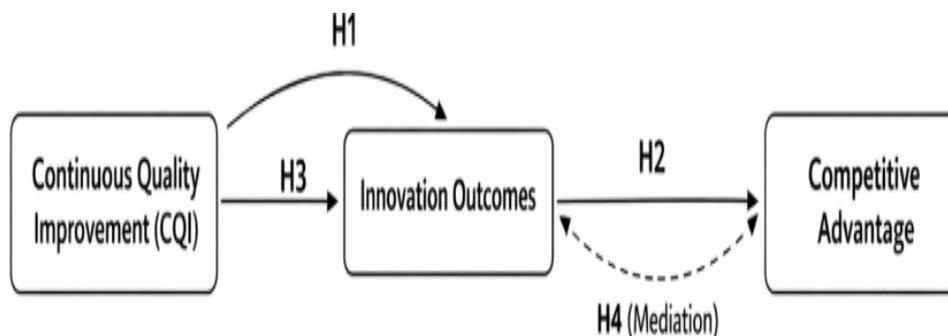

Fig. 1. Proposed Research Model

Hypothetical model that depicts the postulated connexions among Continuous Quality Improvement (CQI) practises, innovation outcomes (mediator), and competitive advantage, including direct (H1 -H3) and indirect (H4) impacts.

4. METHODOLOGY

4.1 Research Design

The research design adopted in this study was quantitative, cross-sectional research design because of the need to empirically test the relationships between Continuous Quality Improvement practises, innovation outcomes, and competitive advantage. A survey process was chosen as it allows gathering the necessary perception and organisational data in a large sample of firms to model the structure and perform a mediation analysis. The method is deductive research design, wherein the hypotheses developed of the research based on the RBV and Dynamic Capabilities Theory were statistically analysed with the use of Structural Equation Modelling (SEM). The cross-sectional design of the study can be used to compare the relationship between constructs of firms in a dynamic competitive setting. Despite the fact that longitudinal designs will give much better causal inferences, cross-sectional SEM is accepted in the management research when the theoretical reasons give directional relationships.

4.2 Sample and Data Collection

The empirical data used in this study were obtained through the companies involved in the manufacturing and service industry in Malaysia. The research sampled the small and medium-sized enterprises (SME-s) and mid-sized companies in terms of employee size, i.e. those companies whose employee count fell between the range of 50 and 500, since it is more probable that these companies possess formalised quality management and innovation systems. The stratified sampling design was used because it was necessary to have representation of the manufacturing sector and service industry. The sampling frame was a database of registered firms that were obtained using industry associations and business directories. The key informants were categorised as senior managers in charge of quality management, operations, innovation or strategic planning because they know about CQI implementation and competitive positioning. The online questionnaire was developed as a structured one and used to collect the data between March 2023 and June 2023. The questionnaires were sent to participants through email and follow up was done after every two weeks. 432 parent questionnaires were being sent out. Having filtered the responses based on completeness and response consistency, 268 useable responses were retained, which resulted in a response rate of 62. In order to measure the possible non-response bias, the group of early and late respondents was compared on the significant demographic variables and on the average final construct scores, and at the end, there were no statistically significant differences ($p > 0.05$), which led to the conclusion that non-response bias cannot affect the results.

Table 1. Sample Profile

Category	Classification	Frequency (n=268)	Percentage (%)
Industry Type	Manufacturing	156	58.2
	Services	112	41.8
Firm Size (Employees)	50–100	84	31.3
	101–250	109	40.7
	251–500	75	28.0
Firm Age	< 5 years	36	13.4
	5–10 years	82	30.6
	> 10 years	150	56.0
Respondent Position	Quality/Operations Manager	98	36.6
	Innovation/R&D Manager	72	26.9
	Senior Executive/Director	63	23.5
	General Manager/CEO	35	13.0

4.3 Measurement Instruments

Validated multi-item scales were used to operationalize all constructs to measure the content validity. Academic experts and practitioners in the industry were involved in pre-testing the questionnaire as this helped to refine language and make questions clearer. CQI activities were estimated by a five-item scale that covered the leadership focus on quality, participation of the employees in the quality improvement practises, process standardisation, data-based decision-making, and the continuous monitoring systems. These products indicate the soft and tough quality management aspects. The six items used to quantify the outcomes of innovations found two dimensions, i.e., product innovation and process innovation. The products innovation items evaluated the introduction of a new or substantially better product and service whereas process innovation items evaluated the betterment of production modes, work operations, delivery systems in the service. A competitive advantage was measured by five items perceptions on relative performance in terms of compared market share growth, cost efficiency, differentiation ability, customer satisfaction and general competitive positioning with reference to the competitors. Everything was rated on a 7 points Likert scale starting with 1 (strongly disagree) and 7 (strongly agree). The seven-point scale is used and this increases sensitivity and variance in responses. In order to eliminate the common method bias, the respondents were guaranteed to remain anonymous and that there were no right or wrong answers. Randomization or separation of items as well as clear differentiation between constructs were also procedural remedies.

4.4 Data Analysis

Analysis of the data was done through Structural Equation Modelling (SEM) using AMOS software. SEM was chosen due to its fact that it is possible to estimate both measurement and structural model, errors of measurements are taken into consideration and it suits mediation relation testing. Analysis was done in two phases. To examine the measurement model, first, a Confirmatory Factor Analysis (CFA) was conducted. The reliability was assessed based on the Cronbach Alpha and composite reliability (CR), where a high acceptable level was taken to be over 0.70. Factor loadings (greater than 0.60) and Average Variance Extraction (AVE greater than 0.50) were the measures of convergent validity. The Fornell-Larcker criterion and cross-loading comparison were used to study the discriminant validity. Several fit indices, including Chi-square/degrees of freedom ratio (χ^2/df), Comparative Fit Index (CFI), Tucker Lewis Index (TLI) and Root Mean Square Error of Approximation (RMSEA) were considered in assessing model fit. Tolerable limits were based on accepted SEM. The structural model was put to test in the second stage so as to test the hypothesised relationships among the constructs. Maximum likelihood estimation was used to estimate path coefficients and their statistical significance. Bootstrapping using 5,000 resamples was also used to approximate indirect effects and confidence intervals to test mediation effects. The test of mediation was accepted in case the bootstrapped indirect effect was significant and the confidence interval was not close to zero. Also, a single-factor test as well as variance inflation factor (VIF) diagnostics provided by Harman were implemented in order to evaluate possible common method bias and multicollinearity problems. Findings showed that the common method variance was not a significant endangerment of the research validity.

5. RESULTS

5.1 Measurement Model

To measure internal consistency reliability, convergent and discriminant validity, the

measurement model was assessed with the use of Confirmatory Factor Analysis (CFA).

Reliability and Convergent Validity

Table 2 shows the standardised factor loading, composite reliability (CR), Cronbachs alpha ( ) and Average Variance Extracted (AVE).

Table 2. Measurement Model Results

Construct	Item	Standardized Loading	Error Variance	α	CR	AVE
CQI Practices	CQI1	0.78	0.39	0.88	0.90	0.62
	CQI2	0.82	0.33			
	CQI3	0.71	0.50			
	CQI4	0.84	0.29			
	CQI5	0.76	0.42			
Innovation Outcomes	INN1	0.88	0.23	0.91	0.93	0.69
	INN2	0.81	0.34			
	INN3	0.79	0.38			
	INN4	0.84	0.29			
	INN5	0.74	0.45			
	INN6	0.86	0.26			
Competitive Advantage	CA1	0.73	0.47	0.87	0.89	0.58
	CA2	0.81	0.34			
	CA3	0.69	0.52			
	CA4	0.77	0.41			
	CA5	0.83	0.31			

The standardised factor loadings of all are above the recommended point of 0.60 and are statistically significant ($p < 0.001$), which means that the indicators are very reliable. The alpha and composite reliability scores of the tool stand at greater than 0.70 which proves internal consistency. The values of AVE are greater than 0.50, which proves adequate convergent validity.

Discriminant Validity

Fornell-Larcker criterion was used to measure discriminant validity. There was sufficiently good discriminant validity of the completed square root of AVE of each construct over the inter-construct correlations.

Table 3. Discriminant Validity (Fornell–Larcker Criterion)

Construct	CQI	Innovation	Competitive Advantage
CQI	**0.79**		
Innovation Outcomes	0.63	**0.83**	
Competitive Advantage	0.48	0.57	**0.76**

Note: The values in the diagonal indicate square root of AVE.

Model Fit (Measurement Model)

There was a satisfactory fit of the measurement model:

- χ^2/df = 2.11
- CFI = 0.94
- TLI = 0.92
- RMSEA = 0.048

These values fall up to the recommended thresholds which show that the measurement structure is a sound representation of the data.

5.2 Structural Model

Maximum likelihood estimation was performed on the structural model after it was determined that the measures are valid.

Structural Model Fit

The indices of fit of the structural model were also acceptable:

- χ^2/df = 2.18
- CFI = 0.93
- TLI = 0.91
- RMSEA = 0.051

The values imply that the hypothesised structural relations are maintained in the data.

Explained Variance (R^2)

The model explains:

- R^2 = 0.40 for Innovation Outcomes
- R^2 = 0.46 for Competitive Advantage

This shows that the practises of CQI contribute to 40% of the variance in the outcomes of the innovations, and both CQI and innovation contribute to 46% of the competitive advantage. These values demonstrate moderate-to-strong

explanatory power in organisational research studies.

Hypothesis Testing

Table 4 contains path coefficients standardised.

Table 4. Structural Model Results

Hypothesis	Path	β	p-value	Result
H1	CQI → Innovation	0.63	<0.001	Supported
H2	Innovation → Competitive Advantage	0.57	<0.001	Supported
H3	CQI → Competitive Advantage	0.28	<0.01	Supported

Mediation Analysis

To test the indirect effects, bootstrapping (5,000 resamples) was used. The CQI-focused impact on the competitive advantage through the innovation outcomes was strong (-0.36, p < 0.001), and it is not within the range of 95% confidence interval of zero. Partial mediation is proven as both direct and indirect effects are important.

5.3 Mediation Analysis

Two-tailed bootstrapping (5000 resamples) was to test the indirect effects. The indirect impact of CQI on the competitive advantage through the results of innovation was high:

Indirect effect β = 0.36, p < 0.001

The 95% Confidence Interval was not equal to zero.

As the direct and indirect routes are both still important, the results on innovation mediate the correlation between CQI practises and competitive advantage to some degree. This indicates that CQI creates competitiveness in 2 processes namely improvement of operations (direct effect) and development of innovation capabilities (indirect effect). The magnitude of the indirect effect (0.36) is more than the direct effect (0.28) and that means that innovation is the transmission factor that is prevailing. Figure 2 can be used to compare the visual effects of the effects on the competitive advantage of CQI; the direct, indirect, and total effects are all standardised.
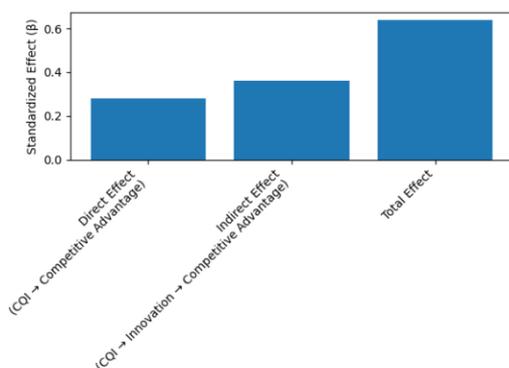
Fig. 2. Direct, Indirect, and Total Effects of Continuous Quality Improvement on Competitive Advantage.

The indirect effect (β= 0.36) is stronger than the direct effect (β= 0.28), which implies that innovation results are the main transmission channel of CQI that leads to a competitive advantage.

5.4 Robustness and Diagnostic Tests

Harman single-factor test was used to test common method bias (CMB). Exploratory factor analysis showed that the factor with the first loading, was 38.4 percent of total variance which is less than the critical value of 50, showing that common method bias is not likely to be a severe problem in the research. Also, the variance inflation factors (VIF) were tested in order to determine possible multicollinearity problems. The values of VIF fell within the 1.42 to 2.76, which is much lower than the conservative value of 3.3 indicating that there is no multicollinearity or common method bias to the validity of the structural model estimates.

6. DISCUSSION

The results can be used as a good empirical evidence of the thesis that Continuous Quality Improvement practises are dynamic organisational capabilities, rather than only operational instruments. The high value of the relationship between CQI and outcomes of innovation (=0. 63) is consistent with the existing literature that indicates that systematic learning activities and data-driven process of improving strengthen organisational flexibility and innovative reactions to issues. These findings are build-up to previous research findings of quality management that have mostly focused on cost cutting and streamlined processes, showing that CQI can positively influence innovation performance. The quality of the CQI-innovation relationship is in support of the literature that may give us reports about positive relations between the TQM/Lean systems and the innovation capacity. The fact that the outcome of innovation has a significant impact on the competitive advantage (= 0.57) adds weight to the Resource-Based View point of view which portrays innovation capabilities as resources that are difficult to imitate and are of high value. The size of this coefficient shows that innovation is an important determinant that guarantees sustained competitiveness in the manufacturing and service environments. This is especially important to the mediation analysis. The result of the discovered

partial mediation proves that CQI can directly and indirectly lead to the competitive advantage, yet the mediated indirect way via innovation is more influential. This implies that when organisations consider CQI as a strategic innovation enabler, the benefit that accrue turns out to be sustainable as compared to when the tool is only meant to create efficiency. The paper offers a more detailed structural explanation on how quality routine translates into competitive positioning than other empirical studies that have tested direct relationships only. It explains how the CQI-performance relationship works and reinforces theoretical approaches to the concept of quality management and innovation literature.

7. Theoretical Contributions

This research contributes in some significant ways to the literature of quality management, innovation and strategic management.

To start with, the research builds upon the Resource-Based View (RBV) by providing a practical evidence that Continuous Quality Improvement (CQI) practises are the sources of competitive advantage in innovation-mediated strategies. Although RBV points to the fact that valuable and inimitable resources are considered as basis of sustained advantage, previous studies have tended to view quality management practises as operation tools and not strategic tools. This study can be used to explain the development of quality routines into strategic capabilities by demonstrating that CQI is a huge contributor to innovation results that, in turn, leads to better competitive advantage. The findings empirically prove that when organisational routines entrenched in CQI systems are combined with innovation processes, they can turn into valuable capabilities and difficult-to-copy.

Second, this study places CQI in the context of the Dynamic Capabilities Theory. Instead of considering CQI as a tool to control the processes and to decrease the number of defects, the findings reveal that CQI is a dynamic capability that facilitates the constant learning, adaptation, and integration of the knowledge. The theoretical hypothesis that structured improvement routines promote reconfiguration of internal competencies to environmental change is supported by the strong positive correlation between CQI and the outcomes of innovation. This re-packaging helps to lead the divide between the quality management literature and the dynamical capacity scholarship.

Third, the research paper has methodological relevance as it illustrates the partial mediation effect of the outcomes of innovation through Structural Equation Modelling (SEM) that is bootstrapped. Past research often analysed direct correlations between quality practises and firm performance by not testing channels of mediation formally. This study gives a more comprehensive account of how operational routines transform strategy results in a more thorough way compared to how the literature dealt with the paper by empirically validating innovation as a transmission channel between CQI and competitive advantage. The mediation analysis improves causal interpretation and integration of theories in domains.

All of these contributions contribute to the knowledge base on how continuous improvement systems go beyond the efficiency gain to attain the creation of sustainable competitive positioning.

8. Managerial Implications

The results of this research have significant implications in the eyes of managers who experience the need to increase their competitiveness in the ever-changing markets.

To begin with, managers ought to consider CQI programmes as part and parcel of organisational innovation strategy and not to stand as independent operational programmes. The findings indicate that the CQI indirect effect on competitive advantage due to innovation is stronger in comparison to the direct operational one. This means that companies get more strategic advantage when the quality improvement systems are organised in line with the product development process, process redesigning, and strategic renewal endeavours.

Second, companies ought to enhance inter-functional teamwork in CQI programmes. When departments have knowledge recombination, innovation is likely to emerge. Already inculcating the practise of continuous improvement within cross functional teams can boost the idea generation rate, experimentation rate and also accelerate the rate of implementation. Managers are thus supposed to come up with CQI systems that make knowledge sharing in different operation, R&D, marketing, and strategic planning units easy.

Third, quality improvement must be a medium-term strategic investment but not a short-term cost-cutting tool. Companies that use CQI just as a tool to achieve a higher level of efficiency can get fast short-term operational benefits but cannot use it to its full potential as an innovation tool. The latter empirical results indicate that the more a firm incurs CQI in the innovation capability building, the higher the likely chances of sustained competitive advantage.

Lastly, leadership buy-in on the senior level is of the essence. CQI strategic repositioning needs managerial insight, allocation of resources and cultural focus. Leaders need to convey the message that quality improvement is not a compliance or

productivity programme but an essential ability to be innovative enough to compete.

In conclusion, CQI is a strategic platform that ought to be seen by managers as a platform of sustained innovation, flexibility and value creation over the long term.

CONCLUSION

The research was aimed at investigating whether Continuous Quality Improvement (CQI) practises are limited in scope by operational efficiency to the higher level of strategic drivers of innovation and competitive advantage. Based on the Resource-Based View and Dynamic Capabilities Theory, the study hypothesised and empirically could be based on a structural model that CQI practises directly and indirectly contribute to and affect competitive advantage through the outcomes of innovation. Analysing the survey results of 268 companies and Structural Equation Modelling allows concluding that the CQI practises improve the product and process innovation greatly and that they have a positive impact on the competitive advantage. The mediation analysis affirms that the results of innovation partially convey the influence of CQI into the competitive positioning with the indirect impact of CQI being stronger than the direct influence. These findings indicate that the strategic value of CQI is not directly on the gains in efficiency and probably more on its ability to develop the ability to innovate that generates long-term competitiveness. The study adds to the literature by redefining CQI as an adaptable organisational capability and not merely an operational instrument and giving empirical data on innovation as one of its fundamental means of transmission between quality practises and competitive advantage. Through the incorporation of the quality management and innovation outlook practise into a single structural framework, the research contributes to the growth of theoretical knowledge regarding the emergence of the routine-based improvement system into a strategy-performance engine. SEM and bootstrapped mediation analysis also enhance the strength of the findings and provide a more detailed account of the CQI performance relationship as compared with other direct-effect models of the same. Nevertheless, regardless of these contributions, there are some limitations that should be considered. The research design is limited to the cross-sectional research design which limits the ability to thoroughly infer causality based on the temporal sequencing of CQI implementation and innovation outcomes. The common method bias might also be caused by the use of self-reported measures of perceptions, but procedural substitutions were developed. Future studies need to take into account longitudinal designs as the way to identify the dynamic development of CQI and innovation with time, to introduce objective performance measures wherever possible, and to investigate possible controlling variables, including environmental dynamism, the degree of the digitalization of transformations, or the size of the firm. Specialised comparisons concerning industries can also help to learn more about contextual diversities of the CQI-innovation-competitiveness relationship.

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