The Relationship between Differentiation Strategy and Firm Performance: a Mediating Role of Quality Management

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Abstract: *In order to sustain long-term performance, the importance of competitive strategy has been well recognised in many organisations. This paper examines the impact of competitive differentiation strategy on firm's performance and the mediating role of quality management (QM). Study results found no direct relationship between differentiation strategy and firm performances, but, QM entirely mediated their relationship. Empirical results concluded that (i) design and development and (ii) information and analysis are the two components of QM which are successful in mediating the relationship between differentiation competitive strategy and firm performance. Thus, for a firm pursuing differentiation competitive strategy a clear understanding and the emphasis on these two components of QM is crucial to maximising profits and hence the competitiveness.*

Keywords: *Keywords: Competitive strategy, differentiation, firm performance, quality management.*

I. Introduction

In globalised world firms from both developed and developing countries are competing at international level. Coping with risk at an international scale, executives, managers and policy makers, in general, are facing difficulties in making strategies at the different standard of an organisation. Paying attention to it, the importance of competency, knowledge-based school and strategic management have increased [1], and their significance has been well understood by disciplines including economics, industrials, finance, market, military and tactics. The technical specialist argued to develop firm's level strategy based on skills and continuous learning to catch up with current business pressure [2]. Among other, (e.g., Mckiernan; Mintzberg, Ahlstrand and Lampel) Michael Porter has been regarded as a founding father of the strategic management discipline. His work contributes to the understanding of firm's level competitive positioning and planning approach. His two books competitive strategy (1980) and competitive advantage (1985) identified as a revolution in the field of strategy and competitive advantage [3; 4]. These books explained the development of three linked concepts framework namely five force, generic strategy and value chain [5].

In the 1980s the structure had been regarded as a primary analytical framework of competitive positioning and still lives at the heart of most business establishments and come under strategy courses in major business schools. On the evidence of forces involved in the framework, Porter explained that a firm could generate a generic competitive strategy of "cost leadership" or "differentiation" and might deliver better performance through a proper contour and coordination of its value chain exercises [6]. According to Porter, usually, a firm chose only one out of these two whereas the differentiations can be mean for a firm to achieve overall low-cost structure. On the other hand, since the 1980s, to gain competitive advantage companies have begun to adopt various productivity enhancement programs like TPM, CBM, RCM, etc. Quality management (QM) has been considered as a most reliable performance improvement program among others [7; 8; 9].

This study is an attempt to investigate the relationship between competitive differentiation strategy and firm performance and the mediating role of QM in their relationship.

II. Literature Review

The literature study is presented in three sections. Section 1 deals with the relationship between QM and organisational performance Section 2 shows the relationship between differentiation strategy and components of QM. Finally, section 3 explains the relationship between differentiation strategy and firm performance.

2.1 Quality Management And Organisational Performance

In an extent review of the literature covering the association between QM and firm performance, we identified two main arguments. The first case submits that quality practices establish a system and working culture which creates a fertile atmosphere for an organisation to be innovative (10; 11; 12). Whereas the second

and opposite argument believes that implementing quality practices could prevent the organisation from doing innovative [13; 14]. The rationale is clear as tracking customers focused view as the QM core principle, organisation traps into a limited market where they just focus on existing clients and see the market demands only through their regular customer's eyes. As a result, these firms could fail to encourage the research for innovation [15].

Therefore, after thoroughly studying the theoretical, empirical and practitioner literature [7; 8; 9; 24], the QM factors we framed in the research questionnaire were:

(i) Information and analysis;
(ii) Continuous improvement;
(iii) supplier management;
(iv) Design and development and;

The firm's performance measures were:
(i) Product quality improvement and
(ii) Process improvement.

2.2 Differentiation Strategy And Quality Management

There are very few studies which have discussed the relationship between competitive differentiation strategy and QM practices [20; 22]. This is because some researchers (7; 8; 16] have provided high support to the view that QM itself must be adopted as a strategic model for an organisation. Therefore, the quality philosophy has been successfully evaluated from the operational level to strategic level. In their study authors (17; [18] suggested that from the strategic management aspect, QM is more concern with strategy implementation, or pursuing rather than as a core strategic choice. Therefore the object of this research is to investigate how QM is associated with differentiation.

2.3 Differentiation And Performance

Differentiation is the capability of a firm to produce some product lines or many variations in a line [20]. The manufacturing functions which provide the broad range of products with minimum changeover cost are preferred. Scholars have highlighted the impact of computer and process technologies on manufacture flexibility, and product verifies which involves the applications of CAM, CAD, CAPP, FMEs [8]. The flexibility in the production system support differentiation and variation in product's features, it helps in maintaining customer loyalty, which is crucial for the small manufacturing industry as many of them are producing the similar products which increased their competition [25]. The extent to which differentiation competitive strategy impacts on firm performance is investigated in this study.

III. Research Framework And Hypothesis

During the literature reviews on the relationship between three latent variables (namely: competitive differentiation strategy, QM and firm performance) authors observed support as well as controversies [10; 11; 14]. This background intimated a need for an empirical study to unravel the confusions by testing these relationships using primary data collected. We believed that this study is important as it examines the mediating role of QM in the context of differentiation strategy and firm performance relationship. After a thorough literature review, three set of hypotheses were developed. Set 1 is a concern with the association between four components of QM (i.e., information and analysis, continuous improvement, supplier management, and design and development) and differentiation strategy.

Hypothesis 1. *There is a positive and significant relationship between differentiation strategy and quality management.*

The second set presents the hypotheses related to the relationship between differentiation strategy and two indicators of firm's performance (product quality improvement and process improvement):

Hypothesis 2. *There is a positive and significant relationship between differentiation strategy and firm performance.*

The third set of research hypotheses was intended to integrate first two established by examining the role of quality components in mediating the relationship between differentiation strategy and firm performance. Using the third set of hypotheses, we examined the degree to which the elements of QM systems mediate the relationship between differentiation strategy and firm performance. So, we developed following hypothesis:

Hypothesis 3. *The components of QM practices fully mediate the relationship between differentiation strategy and firm performance.*

To support this research hypothesis at least one of the elements of QM practices must fully mediate the relationship between any one component of firm performance. To fulfil this purpose a research framework, as shown in Figure 1 was developed.
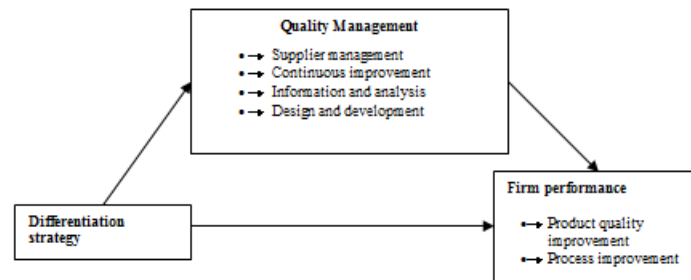

Figure 1. Research framework

IV. Research Instrument And Data Collection

4.1 Questionnaire Design

A field study using questionnaire method was conducted on micro, small and medium enterprises (MSMEs) operating in various sectors namely — mechanical, automobile component, electrical and electronics, and textile, etc. The survey instrument (questionnaire) for obtaining data was designed after extent review of the literature. Since the primary objective of this study is to test the above-stated research hypotheses we focused on previously reviewed works which have been pre-tested relevant constructs to ensure the reliability and validity of measuring instrument. In the end, the suggestions after discussion with the group of experts from industries and academia to highlight the major issues of concern were incorporated. Further, pilot testing of the instrument was accomplished, and suggestions from 15 recognised ISO-9000 certified MSMEs were included in the instrument.

4.2 Sample Size Determination And Survey Administration

The primary data were collected from the MSMEs situated in the State of Himachal Pradesh India. The total population of such MSMEs working in various manufacturing sectors was about 39,512 units. The sample size was determined by using Cochran formula at 95% of confidence interval; it comes out as 380.47 firms. Thus, the accepted sample size (n) is taken as 381 units. Questionnaires were administered through personal visits, using postal services and online through email, etc. A total number of 248 (192 face to face interviews, 34 online and 22 postal) usable responses were obtained, with a response rate of 65.1%.

V. Analysis And Results

Two steps were involved in data analysis: first, the sampling adequacy test and data reduction process and in the second step structural model was prepared.

5.2.1 DATA ADEQUACY

For data adequacy, Kaiser-Meyer-Olkin (KMO) measure was carried out on thirty-five items representing seven constructs of three primary variables (i.e., differentiation strategy, QM and firm performance). The results of KMO test was found adequate as 0.82 which is greater than recommended value (e.g. 0.60), indicates sufficient inter-correlation and also the Barlett's test of sphericity was considered significant as $\chi 2 = 14954.508$; df $= 351$ at $p < 0.001$ [21; 22]. Hence based these tests, it is assumed that all thirty-five measures (items) are suitable for applying factor analysis.

5.2.2 DATA REDUCTION

Factor analysis (FA) and confirmatory factor analysis (CFA) were done to bring seven constructs - each consists of three to four items. Out of these seven composite variables, one represents differentiation strategy; four represents QM, and rest two represents firm performance, as depicted in Figure 1. The summary of FA, CFA, correlation coefficient (r) and reliability test is presented in Table 1.

Table 1. EFA, CFA and Reliability analysis

Variables	Total Number of items				Cronbach's Alpha	Range of Correlation Coefficient*
	Original	Deleted during factor analysis	Deleted during CFA	Remaining		
Differentiation	5	1	1	3	0.7245	0.416**–0.722**
Supplier Management	5	1	1	3	0.7048	0.141*–0.830**
Continuous improvement	5	1	1	3	0.7441	0.309**–0.764**

Information and analysis	5	1	0	4	0.6475	0.441*–535**
Design and development	5	2	0	3	0.7721	0.423**–0.830**
Process Improvement	5	1	0	4	0.7838	0.328**–0.822**
Product Quality improvement	5	1	0	4	0.7360	0.423**–0.822**
Total	35	11	4	24		

5.3 STRUCTURAL MODELS AND HYPOTHESES TEST RESULTS

We tested our research hypotheses by constructing structural models using SEM. The SEM models in simultaneously representing the causal relation between differentiation strategy (independent variable), firm performance (dependent variable) and QM components (mediating variable). Figure 2 accounts for the only those standardise beta (β) values which are statistically significant.

Concerning first hypotheses H1, four significant paths coefficients (β) state that there is a direct relationship exists between differentiation strategy and QM practices (i.e., supplier management, continuous improvement, information and analysis and design and development). From Figure 2 the direct effect of differentiation on information and analysis (β=0.53); on continuous improvement (β=0.24); on supplier management (β=0.51); and on design and development (β=0.68).
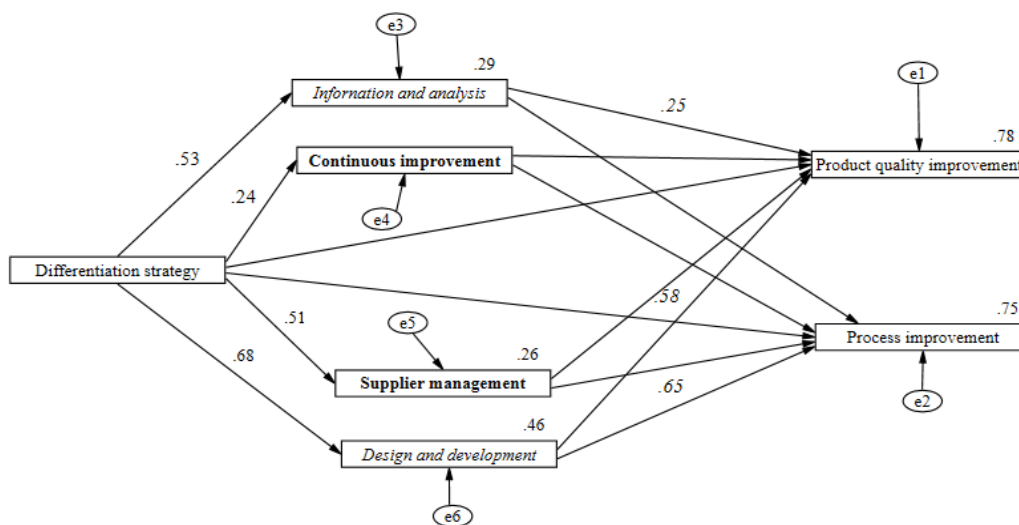

Figure 2. Structural Model between differentiation, quality management and firm performance

These results indicate that differentiation strategy has a direct and significant effect on QM hence H_1 is supported. These findings support the previous findings of Sharma and Kharub [23]; Kharub and Sharma [9]. Concerning the second hypothesis, it requires that a positive and significant path exists between at least one of the firm performance indicator and differentiation strategy. The results indicate that both paths were not significant at $p > 0.05$ (unstandardized). In Figure 2, no path coefficient (β) has been shown by arrows representing the relationship between differentiation strategy and firm performances. In other words, the regression weight for differentiation strategies in the prediction of firm performance is not statistically significant. These results indicate H_2, which states that differentiation strategy has a direct positive influence on firm performance, is not supported. The study results support previous findings of Amoako-Gyampah and Acquaah [20].

In the case of the third hypothesis, this states that QM fully mediates the relationship between differentiation strategy and firm performance. To support this, it requires at least one statically significant path exist between the components of QM and firm performance indicators. Study results indicate that out of four components of QM only two [i.e., design and development (β= 0.58 and β= 0.65) with both and information and analysis (β= 0.25) with only first component of firm performance have statistically significant effect] fully mediate the relationship between differentiation strategy and firm performance. Results show that the effect of a differentiation strategy is greater in the presence of these two components of QM practices, hence supporting H3. All fit indices satisfy the recommended cutoff values [7]. These findings support the previous findings of Dangayach and Deshmukh [25].

VI. Discussion

This study aimed to examine the effect of QM practices on the association between competitive differentiation strategy, and firm performance. From the previous literature, it has been noted that QM practices

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help in the realisation of the aim of implementing the competitive strategy. The empirical results obtained from structural models are discussed as follows:

Expert in the field suggested that if a firm wishes to apply a differentiation strategy, it must emphasise innovative design and flexible manufacturing system to produce differentiation in products or manufacturing process of existing products. The study results confirm the assumption. For example, From Figure 2 among four QM components, the differentiation strategy provides the strongest link with design and development (i.e., $\beta=0.68$). The results indicate that it is equally important not to ignore the other QM components. The emphasis on information and analysis is also equally essential as shown by links (i.e., $\beta=0.53$). According to Sharma and Kharub [23; 9], new product design based proper information and analysis provides goods and process with improved features and capabilities respectively. The emphases on process design and development enable a firm to adjust process parameters rapidly, hence reduces the requirement of excess capacity and thus a reduction in changeover cost that can translate to price reduction and the attainment of a flexible manufacturing system.

Our results show that the impact of a differentiation strategy is greater in the presence of quality. Design and development appear to have the maximum association with a performance followed by information and analysis. Study results noted that adequate informants and proper analysis have a significant impact on product quality whereas efficient design and development enhance both product quality and process improvement.

VII.   Conclusion, Limitation And Future Direction

Study results found that QM represents one of a means through which the goal of differentiation strategy can be accomplished. Survey results noted the significant relationship between differentiation competitive strategy and components of QM. We did not find any direct correlation between cost leadership competitive strategy and firm performance. However, study results observed that differentiation strategy influences firm performance through the components of QM.

The data collection for this study was confined to the state of Himachal Pradesh hence the results cannot be generalised. However, the findings are consistent with previous studies included sample all over the country. In that sense the results are relevant. The survey is confined to manufacturing companies, in the future study it might be interesting to collect date from the service industry to see the role of QM in their strategy.

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