IMPACT OF STRATEGIC SUPPLY CHAIN MANAGEMENT ON ORGANIZATIONAL PERFORMANCE

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ABSTRACT

This research sets out to develop a comprehensive research model to investigate the supply chain management as a dimension of business strategy. The research seeks to investigate if the supply chain management adoption as a business strategy leads to positive outcomes.

The paper develops the construct of strategic supply chain management and seeks to investigate its impact on internal operations of the firm and supplier functioning. Further, the paper seeks to explore if the enhanced internal operations and supplier functioning lead to improved organizational performance. The paper uses operations management literature on performance, including the Supply Chain Operations Reference (SCOR) model, for developing comprehensive measure of organizational performance. The questionnaire and interviews from the top decision makers in supply chain management provide the basis for testing of the research framework. Finally, the paper outlines analysis and recommendation through appropriate data analysis and hypotheses testing through the use of SPSS and structural equation modeling technique using AMOS.

INTRODUCTION

This study's objective is to investigate the relationship between strategic supply chain management, internal functioning of organization, organization's influence on functions of its partners, and performance of the buying organization. Previous literature on supply chain management, interviews from practitioners and academia, and sufficient number of responses on questionnaire provide basis for developing valid and reliable constructs. Survey based research is used and data is collected from sufficient number of respondents. Software namely SPSS and Analysis of moment structures (AMOS) are used for data compilation, analysis and hypotheses testing.

RESEARCH FRAMEWORK

Supply chain management (SCM) is the idea of managing the complete chain starting from raw material to the delivery of final product. Functions of the partner firms cannot be overstated in managing firm's supply chain. Building on the previous literature on SCM this study develops a comprehensive research model (Figure 1). Some of the constructs used in the model have been discussed in literature. However, there is lack of comprehensive model studying supply chain management as a dimension of business strategy. The current research presents a framework to partially fill the gap in theory of supply chain management.

The current model proposes that in organization where achieving SCM objectives is part of business strategy, such organizations focus on both internal functions, and external functions (supplier

functioning). The model further proposes that focus on internal functions and external functions plays a positive role in enhancing organizational performance.

The following sub-sections present the construct used for quantitatively testing the model.

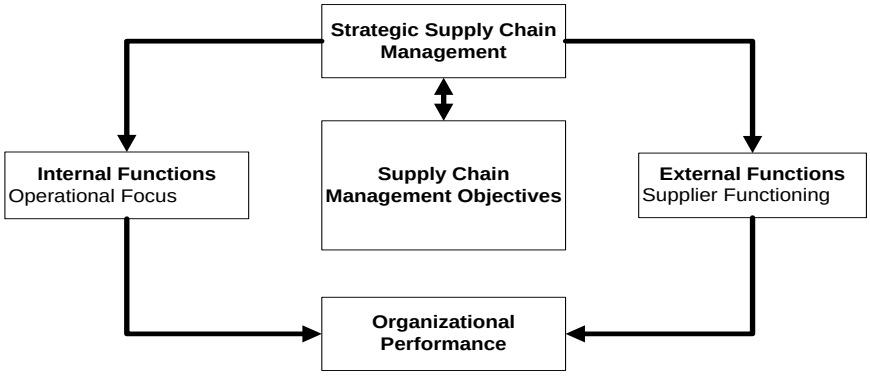

Figure 1 Macro model for strategic supply chain management

Strategic Supply Chain Management (SSCM)

Supply chain management as part of business strategy has not been widely discussed in the literature and there are limited studies that tangentially deal with strategic supply chain management. However, there is realization that supply chain management is growing as a strategic tool for improving on quality, cost, and customer responsiveness for competing in twenty first century's business markets [1]. Yeung [2] argues for including supplier focus as part of business strategy and finds a positive relationship between strategic supply management and both time based efficiency and cost based efficiency. Although Yeung use supplier focus at strategic level but we think that scope of strategic supply chain management should be more comprehensive than is argued in the previous research. Therefore, the current research includes strategic focus, customer responsiveness, and supplier focus as second level constructs for measuring strategic supply chain management.

Strategic Focus: Research shows that better service at lower cost is a source for gaining competitive advantage over competing firms [3]. Moreover, quality of product/service has positive impact on customer satisfaction, retention, market performance, and financial performance [4]. Therefore, the current research includes focus on reducing cost and improving quality in strategic focus.

Customer Responsiveness Focus: Customer responsiveness focus is reflected in internal functions of the organization in improving flexibility, agility, new product development time, and lead time. Sa´nchez and Pe´rez [5] state that supply chain flexibility has two dimensions: product flexibility and process flexibility. According to Swafford [6], supply chain flexibility is internally focused competency that enables firms to develop externally focused supply chain agility. Visionary people such as Stalk [7] also see time to reach market as a competitive dimension in the contemporary markets.

Supplier Focus: Recent research highlights that supplier base reduction has benefits, such as cost effectiveness due to increased economies of scale [8], enhanced performance [9], and reduced transportation costs [10]. Due to reduction in number of suppliers, cross functional teams are becoming common in supply chains [11]. Hoegl and Wagner [12] highlight the benefits of integrating suppliers in the new product development process, and business and strategic planning.

Internal Functions

For measuring the construct of operational focus, the current research uses four second level constructs. An organization's focus on the latter constructs has implications on organizational performance.

*Product or Service Design: T*horough review, quality and cost, interdepartmental communication, and attention towards manufacturability are critical factors in product or service design [13].

Process Management: Product or service design and process management go hand in hand and the latter has impact on business performance, quality performance, and cost reduction through the use of statistical process control [14].

Information technology (IT): Research shows that sharing of information within supply chain management influences the latter in many ways. For example, Hendrick [15] find evidence that use of enterprise resource planning (ERP) helps organization improving its profitability. Lack of information sharing leads to bullwhip effect and the latter is considered as contributor in increased cost [16].

Manufacturing technology (MT): The benefits of investment in computer aided manufacturing (CAM), flexible manufacturing systems (FMS), and robotics leads to enhanced quality with flexibility, cost reduction, and increased reliability [17].

Suppliers Functioning

There is a broad consensus among researchers that collaboration between firm and its supplier is important in supply chain management. The current study suggests that organizations committed for achieving strategic supply chain objectives seek for suppliers who demonstrate strong emphasis on (1) cost, (2) quality, (3) flexibility, (4) reliability, (5) IT, and (6) supply chain management.

Cost effectiveness: Supplier cost has direct contribution on the price of final product/service. Firms collaborate with their suppliers for cost reduction efforts and latter is a primary determinant in supplier selection process [18]. Firms having cost effective suppliers can outperform in achieving supply chain objectives. Moreover, literature argues that quality should be preferred over cost [4].

Quality practices: There is broad consensus that quality practices of suppliers have positive impact on buyers' product/service design, efforts on reducing inventory, process' improvement [4] [19].

Process flexibility: The construct of flexibility is much visible in manufacturing research, but relatively lesser attention has been paid to supply chain flexibility [20]. An empirical study shows that flexibility is positively related with firm performance [5].

Delivery reliability: An organization's ability to deliver on time and with minimum lead time plays important role in satisfaction of its customer [21]. Research argues that buyers of reliable suppliers maintain reduced inventory levels in supply chain [22].

Use of IT: Use of IT is important for increasing flexibility and agility [23] in supply chain operations by information sharing and collaboration [24]. IT helps the partner organizations to collaborate and research shows that the latter is related to higher quality product in new product design process [25].

Suppliers' commitment: As mentioned earlier, commitment of top management is necessary for success or failure of a strategic action [26].

Organizational Performance

Generally, performance measurement is defined as the practice of quantifying effectiveness and efficiency of an action [27]. Balance scorecard approach is also for this purpose [28]. The idea is that use of one measure of performance can betray managers' attention from the remaining performance measures. Using the balance scorecard approach the current research proposes a comprehensive construct for organizational performance, which includes operational performance, quality performance, market performance [4], and financial performance [13]. The research also benefits from supply chain operations reference model (SCOR) for developing construct of organizational performance.

RESEARCH METHODOLOGY

Item Generation for Questionnaire

Previous literature on operations management, interviews from practitioners and academia, and a pilot study provide basis for developing valid and reliable measures. Some of the measures have been adopted from previous research. However, further effort is put in to make them more comprehensive. The items for variables which have not been used previously are developed after reviewing the relevant literature. There are five sections (A-E) of the questionnaire. Section A asks general information about the respondents and sections B-E contain items relating to the constructs being investigated in the study.

Sample and Data Collection

Potential respondents are selected from the membership list of Supply Chain Association of Pakistan (SCAP), and list of addresses on Jalal's yellow pages. SCAP is a visible association among supply chain related professionals in Pakistan. Jalal's yellow pages are widely acceptable among management researchers in Pakistan. The target respondents' designations are supply chain managers, operations manager, and manufacturing plant managers and so on.

Survey instrument is distributed by post/email with cover letter explaining purpose of research. An analysis of non-response bias is carried out and significant differences among profiles (such as seniority, industry, local/foreign) of respondents are estimated. Minimum number of return surveys should not be less than prescribed for factor analysis [29, p. 239]. For increasing generalizability of the study and for trans-region comparison we collect data from a developed country too.

Validity, Reliability and Data Analysis

The data is managed in statistical analysis software namely SPSS. SPSS is widely used software for data analysis in management research. Below we explain tests of validity and reliability of the constructs.

Content and Face Validity: Content validity is a non-statistical form of validity that entails "the systematic examination of the test content to determine whether it covers a representative sample of the behavior domain to be measured" [30]. Face validity of the constructs is ensured by taking opinions of expert (practitioners and academia) of the fields about the validity of the instrument.

Convergent Validity: Convergent validity is ensured by the convergence of the measures of the same construct. This validity is assessed by significant correlation of the items of the same construct.

Discriminant Validity: Discriminant validity is ensured by showing that measures of different constructs do not show significant positive correlation with each other.

Nomological Validity: Nomological validity shows that logical relationship between the constructs is also reflected in the correlations of their measures. Our study satisfies this validity by showing respective expected correlations among items of different constructs.

Reliability: Confirmatory factor analysis used for examining dimensions of the constructs. Value of Cronbach's α greater than 0.70 shows satisfactory internal consistency of the constructs. A low value of Cronbach's alpha indicates that items poorly capture the construct and vice versa [31] [32].

Data Analysis: The research model is developed on analysis of moment structures (AMOS). The data is further analyzed to find out insights. AMOS is widely acceptable software for structural equation modeling in management research. Hypotheses are tested using structural equation model on AMOS.

RESEARCH SIGNIFICANCE

The current study attempts to partially fill a gap in academic research in area of supply chain management. Practitioners can also benefit from the model presented in this study. Managers can use the model for improving organizational performance through strategic supply chain management.

Moreover, comparison of results from two countries, one developing and one developed, can make research more insightful. The results of the current study may confirm the existing findings obtained from data on developed countries or challenge them.

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