

Survey of Relationship between Supply Chain Management Quality and Product Quality

(Case study: dairy products in Ardebil province)

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ABSTRACT

In today's intense competitive environment is the key to sustainable competitive advantage, in terms of supply chain and provide high quality services. Much of the recent supply chain literature has focused on different strategies used to enhance supply chain performance. In this study has been studied the impact of supply chain relationships quality that dimension is include communication, collaboration, commitment, dependence, adaptation and confidence on product quality. This research is descriptive in terms of applied researches and methods. Suppliers of dairy products are considered in Iran (Ardabil) as a statistical society. The sampling of this society is accidental and its sample is about 70 companies. The questionnaire is the tool measuring of research and the relationship between variables was evaluated through regression testing. Research findings indicate that there is relationship between the dimensions of Supply Chain Management Quality and Product Quality. Trust has the most impact on product quality.

KEYWORDS: Product Quality, Relationship, Supply Chain Management.

1- INTRODUCTION

In today's global market, a company's success will depends heavily on its coordinate ability to a complex network of business relationships among supply chain member (Keebler & et al, 1999; Anvarirostami & et al, 2004). In today's business environment is characterized by increasing competition, more forward fighting is going to win every day.(Gilaninia & et al,2011). Today the Institute with severe challenges and competitive market pressures, including globalization, competition and cooperation, diversity of customer requirements and short product life cycle and supply chain are facing as a principle has been considered (Rezvani;Gilaninia,Mousavian,2011).Supply chain management is attention field of many researchers in different fields. Supply chain was introduced in the 1990s, when was form issues related to the circulation materials . This issue allocated a wide range of articles in various newspapers and journals. In addition, it was a favorite subject of many teachers and leaders. Generally, a supply chain is consists of various activities, including logistics, inventory, procurement and purchasing of resources, production planning, and inter-organizational relationships and performance measurement (Arshinder & et al,2008,P 317). The task of Supply chain management is integrating organizational units along the supply chain and coordinates of material flows, financial and information in order to meet the final customer demand and with aim of improving competitiveness supply (Stadler, Kilger, 2000). In the global competition in today's customer demands on high quality, increased variety of products and services faster, has been caused increasing pressures on organizations That there wasn't beforehand(Heidari Ghareh Bolagh,2008). Today success of any company not only is dependent to manage its relationships with its customers but also is dependent considering on suppliers group. In this research effort that effect of supply chain management quality (SCMQ) reviewed on the quality of the products.

2-Theoretical Framework

In today's competitive world, customer satisfaction and outshine competitors is the most important point in the way of business success. So many manufacturing and service companies in the world for the optimal use of resources, reduce costs, increase productivity and flexibility... have moved towards create supply chains of goods and services so that in the present world almost all human needs are provided by the various supply chains .Activities such as supply and demand planning, material procurement, production and product planning, product maintenance and services, Inventory control, distribution, delivery and service to customer that already everyone can participate in company's level, now have been transferred the level of supply chain. A key issue in supply chain management is coordinate control and management in all of these activities. Supply chain management is a phenomenon that it does somehow customers can receive fast and reliable service with quality

products at minimum cost (Pouya, 2006). Define supply chain management by analyzing concepts into both supply chain and supply chain management terms. Supply chain consists of all activities related to circulation and exchange of goods from raw materials and product delivery. Final consumers and its informational cases Supply chain management means to integrate these activities through improving chain relationship in order to access stable competitive advantage (Gilaninia & et al, 2011; Stedler & Kilger, 2003, p.11). In general, the supply chain is composed from two or more organizations that are officially separated from each other and by flow of materials; information and financial flows are related to each other. These organizations could be firms that raw materials, components, the final products or services offer such as distribution, storage, wholesale and retail and also are included final consumer (Jafari, 2009). The current business environment is very different from the past and the competition has a special role (Gilaninia & et al, 2011). For effective management of Supply chain is essential that customers and suppliers to interact with together in a coordinated way and with full information sharing and communication. Rapid flow of information among the elements of the chain enables them that make very efficient supply chain (Naeimaei, 2009). If a company can design and create the supply chain that is responsive to market demand can converted from a small company to a large market. For this purpose, in order to meet market demand in a profitable, efficient supply chain operation plays a central role. Company should know that what and where have well the supply chain performance and then for increasing added value, Company should aware from important activities (Houges, 2008, p218). Supply chain is seek to effective ways of create more value for customers. For example, supply chain through innovation and continuous improvement, systems integration and reforms in the industry profitable levels will lead to create value for customers (Pyke, 2009, p1). To increase profits, companies must be able in minimum possible time, should select appropriate providers, and increase their Strategic relationships with suppliers and as be effective in dealing with them. Supplier relationship management systems provide tools that through them can develop interaction relations, extensive and strategic with suppliers. These systems are managed Strategic supply and procurement processes within organizations and between several organizations (Kaske, 2002)

In research with entitled "the impact of supply chain relationship quality on quality performance" by Fynes & et al, 2005 in Ireland. They developed a conceptual framework incorporating dimensions of supply chain relationships (Trust, commitment, adaptation, communication, dependence and collaboration) and quality performance. The model was tested with data collected from 200 suppliers in the electronics sector in the republic of Ireland. Our findings provide considerable support for our conceptual model.

The main question that this study deals with them are :

- (a) Is it possible to measure the multi-dimensional nature of supply chain relationships in term of higher order construct?
- (b) If so, what is the effect of supply chain relationships on quality performance?

So according to Relationships of suppliers that is presented by Brian Fayns , Conceptual model presented in this study is as follows.

Dimensions of supply chain quality management (SCQM)

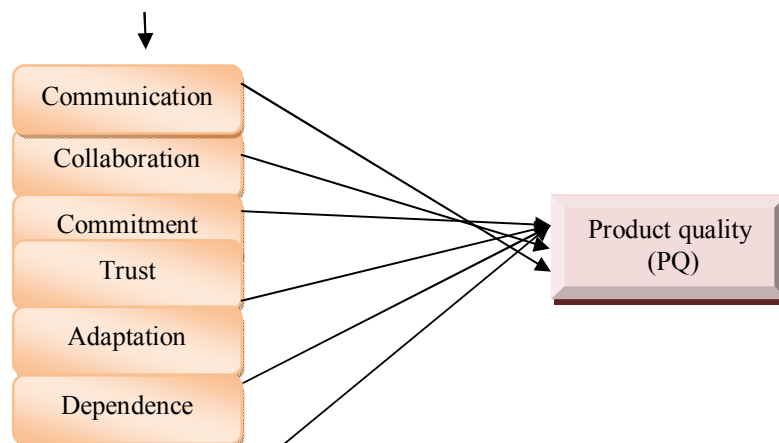


Figure 1) Conceptual model for research

Communication: communication can be defined as “the formal as well as informal sharing of meaningful and timely information between firms” (Anderson and Narus, 1990, p.45; Fynes & et al, 2005; Maboudi & et al, 2010).effective communication is therefore essential for successful collaboration (Monczka & et al, 1995).

Collaboration: collaboration refers to situations in which firms work together to achieve mutual goals (Anderson and Narus, 1990; Fynes & et al, 2005). Collaboration in exchanging information on production

schedules, new products/processes and value analysis can both reduce product costs and improve product/process innovations (Landeros & Monczka, 1989; Fynes & et al, 2005; Maboudi & et al, 2010).

Commitment: commitment refers to the willingness of trading partners to exert effort on behalf of relationship and suggests a future orientation in which firms attempt to build a relationship that can be sustained in the face of unanticipated problems (Gundlach & et al ,1995; Fynes & et al, 2005; Maboudi & et al, 2010).

Trust: trust is among the most frequently cited dimensions of supply chain (SC) relationships in the literature and has been defined as “the firm’s belief that another company will perform actions that will result in positive actions for the firm, as well as not take unexpected actions that would result in negative outcomes for the firm” (Anderson And Narus, 1990, p.45; .Fynes & et al, 2005).

Adaptation: suppliers adapt to the needs of specific important customers and that customers adapt to the capabilities of specific suppliers. Such adaptation frequently occurs by way of investing in transaction specific assets such as product/process technology and human resources (Hakasson, 1982; Fynes & et al, 2005).

Dependence: dependence refers to a firm’s need to maintain an exchange relationship to achieve desired goals (Frazier, 1983; Fynes & et al, 2005) dependence between two firms is a function of three elements. Firstly, the percentage of one firm A’s business conducted with a firm B and the proportion of firm A’s profit contributed by firm B. secondly, the commitment firm A has to firm B in term of the latter’s marketing strategies. Thirdly, the difficulty in effort and cost faced if either firm decides to exit the relationship (El-Ansary & Stern, 1972; Fynes & et al, 2005).

Supply Chain Management: Supply chain is system where in it product manufacturers namely suppliers of raw materials, production processes, product distributor and customer, by a material flow and information flow from one side are connected with each other.in fact supply chain has been defined more widely and more proactively (Taleghani,Gilaninia& et al,2011;Stevens, 1989). Supply Chain Management is as series of activities related to planning, coordinating, controlling materials, parts and finished goods from supplier to customer (Stevens, 2001).

Product quality: the most important feature of Quality is linked it with the customer. Quality is something that customer says. So customer satisfaction is dependent on the quality of goods and services. Quality is a set of characteristics and features of goods or services that provides needs and satisfaction of consumer (Scientific Society of Industrial Engineering, 2006).

- 1- There is relationship between Communication quality in SCMQ and product quality.
- 2- There is relationship between Collaboration quality in SCMQ and product quality.
- 3- There is relationship between commitment quality in SCMQ and product quality.
- 4- There is relationship between trust quality in SCMQ and product quality.
- 5- There is relationship between adaptation quality in SCMQ and product quality.
- 6- There is relationship between dependence quality in SCMQ and product quality.

4- RESEARCH METHOD

This research is descriptive in terms of applied researches and methods. Suppliers of dairy products are considered in Ardabil as a statistical society. The sampling of this society is accidental and its sample is about 70 companies. To measure variables, questionnaire was used and content approach was used to show common measurement. In making questionnaire, the views of guide and consulting masters as well as experts were regarded. Cronbach's alpha coefficient was used to examine reliability of questionnaire. For this purpose was tested an instance included 20 questionnaire. The results are listed in table1. Results show that question has appropriate and high reliability coefficient.

Table 1) some previous research

Row	Authors	Topic	Research Result
1	Won Lee, Chang & G. Kwon, Ik-Whan & Severance, Dennis (2007)	relationship between supply chain performance and degree of linkage among supplier, internal integration, and customer	Internal integration is the most important factor influencing on cost reduction, while integration with supply chain is best strategy to achieve reliable performance of supply chain. Availability of electronic systems for customers is best strategy to obtain the reliability function.
2	Rahman Seresht & Afsar (2008)	The effect of information sharing on supply performance and competitive strategies	Information Sharing with the competitive strategies of supply chain have a direct significant relationships and there is direct and significantly relationship between competitive strategy of supply chain and supply chain performance.
3	Maboudi & et al (2009)	Examine of using effectiveness of supply management on customer satisfaction in the textile industry	Supplier relationship management is directly related to customer satisfaction in the textile industry. Communication has highest effective on customer satisfaction and the dependence is lowest.
4	Cambra, J. And Polo, Y. (2008)	Creating Satisfaction In The Demand-Supply Chain: The Buyers' Perspective	There is a direct and meaningful relationship between customer satisfaction and long-term trends.
5	Cai & et al (2009)	improving supply chain performance management: a systematic approach to analyzing iterative kpi accomplishment	In his paper provide a model with emphasis on systematic way to improve key performance indicators and its implementation in supply chain may be utilized. The proposed model focuses to analyze quantitative of dependent relationships between a set of key indicators of performance. This model is able to identify costs in determining implementation of key performance indicators and performance improvement strategies for decision-makers in a supply chain.
6	Abdolvand, M.A; Shamae, A. (2009)	Evaluating of effective factors on customer satisfaction in supply chain	Trust, adaptation with expectations, communication and collaboration has meaningful relationship with the customer satisfaction. As well as industrial customers trust has direct and positive relationship with commitment of industrial customers. Satisfaction as the independent variable has a significant relationship with commitment to industrial customers.

3- Research Hypotheses

Table 2- Cronbach's Alpha coefficient of research variables

Variables	Cronbach's Alpha coefficient	The number of questions
Communication	.77	3
Collaboration	.83	3
Commitment	.78	3
Trust	.76	5
Adaptation	.81	3
Dependence	.88	4
Product quality	.79	4
Total	.80	25

5- Data analysis

Table 2) regression test between Dimensions of supply chain quality management (SCQM) and Product quality

Hypotheses	Unstandardized Coefficients		Standardized Coefficients	t	Sig	Result
	B	Std. Error	Beta			
Communication	.340	.124	.316	2.744	.008	Confirmed
Collaboration	.151	.120	.151	1.257	.0213	Confirmed
Commitment	.090	.107	.102	.848	.0399	Confirmed
Trust	.465	.138	.377	3.358	.001	Confirmed
Adaptation	.200	.137	.174	1.460	.0149	Confirmed
Dependence	.457	.181	.292	2.522	.014	Confirmed

First Hypothesis: Statistical results in Table 3 show that an amount of P-VALUE is smaller than acceptable error rate. Therefore study hypothesis based on the relationship between Communication in SCM and product quality will be confirmed at the .05 level. Correlation coefficient between Communication and product quality at a significant level of 5% is $R = .32$ and according to $R^2 = 0.10$ in result the dependent variable can predict 10 percent change of independent variables.

Second hypothesis: Statistical results in Table 3 show that an amount of P-VALUE is smaller than acceptable error rate. Therefore study hypothesis based on the relationship between Collaboration in SCM and product quality will be confirmed at the .05 level. Correlation coefficient between Collaboration and product quality at a significant level of 5% is $R = .15$ and according to $R^2 = 0.23$ in result the dependent variable can predict 23 percent change of independent variables.

Third hypothesis: Statistical results in Table 3 show that an amount of P-VALUE is smaller than acceptable error rate. Therefore study hypothesis based on the relationship between Commitment in SCM and product quality will be confirmed at the .05 level. Correlation coefficient between Commitment and product quality at a significant level of 5% is $R = .102$ and according to $R^2 = 0.10$ in result the dependent variable can predict 10 percent change of independent variables.

Forth Hypothesis: Statistical results in Table 3 show that an amount of P-VALUE is smaller than acceptable error rate. Therefore study hypothesis based on the relationship between Trust in SCM and product quality will be confirmed at the .05 level. Correlation coefficient between Trust and product quality at a significant level of 5% is $R = .38$ and according to $R^2 = 0.142$ in result the dependent variable can predict 14 percent change of independent variables.

Fifth hypothesis: Statistical results in Table 3 show that an amount of P-VALUE is smaller than acceptable error rate. Therefore study hypothesis based on the relationship between adaptation in SCM and product quality will be confirmed at the .05 level. Correlation coefficient between adaptation and product quality at a significant level of 5% is $R = .174$ and according to $R^2 = 0.30$ in result the dependent variable can predict 30 percent change of independent variables.

Sixth Hypothesis: Statistical results in Table 3 show that an amount of P-VALUE is smaller than acceptable error rate. Therefore study hypothesis based on the relationship between Dependence in SCM and product quality will be confirmed at the .05 level. Correlation coefficient between Dependence and product quality at a significant level of 5% is $R = .30$ and according to $R^2 = 0.08$ in result the dependent variable can predict 8 percent change of independent variables.

6- Conclusions & Suggestions

Increased competition in global markets and high customer expectations has caused organizations to more carefully examine the supply chain. Supply chain management is coordinating all activities with the activities of a company's suppliers and customers. Effective supply chain management prefers that Suppliers and customers work together in a harmonious style, to share in the free flow of information, to talk to each other's. Rapid flow of information between customers, suppliers, supply centers and transportation systems will enable companies to develop the supply chain. Therefore for to achieve company's strategic and macro goals, it is necessary that correct and complete implementation of the supply chain evaluate in different areas thereby identify the strengths and weaknesses and proceed to strengthen and improve or eliminate them.

Therefore according to results of this research and previous research the following suggestions are offered:

- Databases elements of the chain must be continually updated. One of the fundamentals of supply chain is use of electronic data that deals to transmit information about orders, credit accounts, sending and delivery times, credit transfer and similar and widely are used by companies and organizations. One advantage of this method is reduce transaction time, no need to document and reduce in administrative costs and the cost relevant.
- The proposed program in success of business design is possible with holding meetings between customers and suppliers in topics such as performance evaluation, product innovation and quality, and value analysis, accountability, customer relationship, information exchange and cooperation in supply network.
- Information needed updated strongly has increased and constantly changing work environment led to need of flexible software that are related as the internal. Thus a system use of information sharing in supply chain management standard, open and adaptable is needed to do business and work flow throughout the supply chain.

- Whatever cooperation between companies in supply chain may be more widespread, in result it chain easier and better to move towards success. Implementing strategies for collaboration between the companies together in process of design, manufacture and supply of services and channels to rely on information technology plays role in determining be competitive and survival in each supply chain. Preparing and implementing organizational strategies in supply chain collaboration mainly will be aimed at creating differentiation.
- Supply chain management is made based on trust and commitment. Trust and confidence can significantly help an organization to long-term stability. Trust is expressed by faith, reliance, belief or confidence to supply partner.
- Manufacturers try to use fewer suppliers and instead to maintain their relationships with suppliers use promotional privileges, such as the sale of shares of company with supplier.
- Suppliers, manufacturers need to adapt themselves are equipped with specialized tools and equipment and suppliers design Production system based on manufacturer needs

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