The Effect of Electronic Supply Chain Management E-SCM on Customers’ Loyalty in Consumer Goods

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Abstract

This paper examines the effect of electronic supply chain management on customers’ loyalty in consumer goods. The basic model of this paper is based on the integration of the models by Costabile and Ndubizi in which its architecture is based on changing mental concept of electronic supply chain management into six independent variables cost, product, order, communications, delivery, and information sharing that effect through the variables of satisfaction and trust on loyalty variable.

The studied population in the current paper is all the students studying management in the state universities and Azad universities in Tehran. The sampling method is two-stage cluster method. This research is a descriptive survey. According to the results of regression analysis between the satisfaction variable and electronic supply chain variables, it can be understood that the variables of delivery, information sharing and cost should be more considered, because they have a greater impact on customer loyalty index.

Based on the results and non-extensibility of model to the types of provided product in electronic supply chain, it is suggested that practitioners in this field focus on the strategies of improving four processes of delivery, making awareness, managing costs and resolving conflict with customers based on increasing mutual trust and attention to the target population.

Keywords: loyalty, trust, electronic supply chain management, satisfaction.
Introduction

Studying the factors which is effective in satisfaction, trust and loyalty of customers is one of the considered procedures in recent years. Customers’ loyalty is vital for the success of commercial organizations and attracting new customers is more expensive than retaining existing customers. Several researchers have expressed that loyal customers is a competitive advantage for the company and one of the important ways to increase customer retention is existing integrated relations among the members of the supply chain.

One of the most important ways to communicate with customers is using electronic tools in doing matters related to supply chain management. Implementation electronic supply chain management has different advantages for the companies and the customers. In the current study will be tried to examine the effect of electronic supply chain management on customer’s loyalty.

Loyalty is the degree to which the customer wishes to repeat purchase in the future as well as expressing positive interest towards the provider and is the only option that will be considered for future contracts (Colgate, Tong, Lee and Farley (2007), Tsai, Huang, Jaw and Chen (2006), Woisetschläger, Lentz and Evanschitzky (2011)). Loyalty with commercial brand, traditionally, is measured with behavioral criterion (repeat purchase behavior) but customer loyalty can be considered more extended and beyond than repeat purchase behavior, Claire (1998).

Chadhuri and Halberg (2001) presented a model of loyalty for commercial brand that in addition to introduce two types of loyalty (purchase loyalty and attitudinal loyalty indicates that purchase loyalty makes to increase company’s market share, while attitudinal loyalty leads to pay more (higher priced) for the commercial brand. In any case, there are some variables that effect directly or through affecting on a serious of confounding variable lead to loyalty. Then, it will be tried to introduce a set of variables affecting on the process of customer and lead to different types of loyalty. In this article we will focus on the study of attitudinal level of loyalty, because behavioral level should be continuous and an organization should be considered that is not present in the capacity of time.

Backman and Crampton (1991) explained that behavioral loyalty is the number and frequency of customer purchases, while attitudinal loyalty is an expression of customer preferences.

Koup Jac and Jonson (2003) stated that supply chain management is higher than doing and implementing the order. Supply chain management involves the entire process as designing, producing, entering product to market, improving and using product.

The definition of e-commerce is described in various ways. E-commerce can be defined as goods interaction, services, ideas, preferences or communicating through an electrical media with the aim of facilitating or conduct business (Chang et Al., 2001).

In fact, what are the factors facilitating and reinforcing customers’ loyalty?

There are different strategies that the organizations can use them to achieve their ends (loyal customers). (Relationship marketing, managing relationship with customers and …) Many
organizations have been trying to take a step to benefit advantages of customers’ loyalty by implementing strategies and different programs. No doubt, all of these projects were not successful. But whether is true or wrong, successful companies in this field have been the sample for the other organizations and the companies sometimes with regardless of characteristics in activated industry, imitate and repeat successful plans. Generally, to make loyalty among customers several models had presented in previous studies.

In the new economy, digital networks and communicational infrastructures provide a global context that through it people and organizations will be able to communicate, interact and collaborate and search information. Supply chain is one of the sectors that organizations can take step to satisfy customers by its more effective and efficient management. Many researchers believe that supply chain management can create competitive value through establishing dynamic communicate between supply chain partners.

Sustainable commercial success is no longer measured based on performance of an individual company, but is evaluated based on the competitive advantage of supply chain network (Spekmanet et al., 1994). Because the customer is the final and main judge of supply chain performance, effective and timely response to changing needs and preferences of customers is an essential element for business success. Today, companies need to be further customer-oriented along the supply change (Shapiro, 1998).

Saying this statement that «our organization is customer-oriented» is not enough.

Now the future challenge for companies is to be customer-oriented in whole supply chain network. On the other hand, simultaneously with the growth and advancement of technology using information technology in supply chain management has become very important issue for the companies. Improving relationships among the commercial participants of supply chain leads to faster fault diagnostics, suitable feedback and providing service for customers (Lancaster et al., 2006).

Electronic Supply Chain Management (E-SCM): when a supply chain in electronic form is usually managed by a web-based soft ware in which makes to automate the flow of information, it is called electronic supply chain management (Riahi et al., 2007: 541).

Customer loyalty: profound commitment of customer for regular and sustainable repurchasing goods or services that previously once it was preferable to other goods or services (Oliver, 1997: 392).

Trust: to believe that trading partner is reliable and can act out his duties (Oskour, 1985).

Commitment: the partner’s (negotiator’s) tendency to maintain a valuable relationship (Murmen et al., 1993).

Conflict resolution: conflict resolution refers to the ability of supplier in minimizing negative consequences of potential or actual conflicts. Conflict resolution is the supplier ability to avoid
potential conflicts and is resolving potential conflicts before it becomes a problem and finding a solution when the problem is created (Achler, 2002).

Competence: competence is divided to three groups: market-oriented competences, technology competences and consolidated competences which are the same organization’s competences (Fowler and others 2000).

Customer satisfaction: it is a result which is obtained from comparing expected performance by customer before purchasing with the perceived actual performance and paid cost. (Beerli, 2004:256) In the step after purchase when the product is used, then the function of product consumption occurs. The customer wants to reevaluates function of product consumption by purchasing product. The outcome will lead to satisfaction or dissatisfaction. In the behavior stage after purchasing, the image of product effects directly on customer satisfaction. For example, if a retailer advertises the product image with showing the actual function of product, the created imagination of advertised high quality may directly affect customer satisfaction (Chenyo, 2002).

Consumption goods: they are the goods that are suitable for consumption after producing and are purchased for consumption as a variety of industrial parts, consumer tools, foods, household appliances, etc. in the industrial market the purpose of buying is reinforcing production lines, but in the consumer market the purpose is meeting personal needs of customers (Schiffman, Leaon, G2007, Cunsomer behavior).

Attitude: a brief assessment of an issue (Schiffman, Leaon, G2007, Cunsomer behavior)

Relationship marketing: it is understanding and managing customers and suppliers relationships and involves commitment, trust, conflict resolution, competence and relationships (Shelby, 2000).
The proposed model in the research

The analytical model is based on a combination of Castile’s model and advantages of electronic supply chain management and relational marketing element.

The proposed model by Castile (2001) considered the process of making loyalty among customers in five stages. Castile believes that the customer after purchasing step into the second step satisfaction, this satisfaction causes to make buyer’s trust about the commercial brand (third stage), trust commercial brand makes grounds of his commitment for that commercial brand and the customer step into the forth step. Finally, this process in addition to creating satisfaction, trust and commitment guarantees customer loyalty and in this way the process is completed. In the current paper the model by Castile is used but with the difference that two variables of trust and commitment were placed out from the direct channel affecting on loyalty, because loyalty does not necessarily occur after satisfaction. Castile considers two levels of loyalty: mental (attitudinal) and behavioral, because individual may have commitment without buying that an example is individual’s feeling about homegrown products, also, it is possible the individual has adequate trust in the products that so far has not use it as a trust that person has to a particular brand. Therefore, we consider the relationship marketing element (trust, commitment, conflict resolution, competences) as a moderating variable and it is very important that I may never buy
from a company that I have mental loyalty to compare expected value with the perceived value and thus leads to satisfaction or dissatisfaction and final leads to my loyalty or lack of loyalty, but I have mental loyalty.

The studied population in this study is all management students in the State Universities (daily, night, nonprofit and payam-e-Noor) and Azad Universities in Tehran.

The sampling is a two-stage cluster method. Each university is considered as a cluster and at first stage from among the state universities as the universities of Tehran, Allameh Tabatabyi and Payam-e-Noor and from among the Azad Universities as Science and Research University and Center-Tehran universities the students were selected in terms of maximum distribution of field of the study.

In the second stage sampling is randomly.

According to Morgan table sample size will be 386 students in which based on students’ size ratio in the university after distribution and collecting the questionnaires the research was conducted.

Before the questionnaire were distributed to measure the validity and reliability of questionnaire, the initial questionnaire (pretest) were distributed among 30 students in different fields and different educational levels and then, Cronbach’s alpha of the questionnaire was measured.

In this study Cronbach’s alpha was used to measure the reliability in which range of values by this method was acceptable. Cronbach’s alpha output of introductory distributed questionnaire from SPSS software is 0.996 that indicates excellent reliability of the questionnaire and therefore, the final distribution of questionnaire among population was done.

Among the participants 31% was male and 69% was male.

Is gender a moderating variable? And is there a significant difference of average loyalty between females and males?

To know whether there is a significant difference between males and females and because sig of Levin test is zero and less than 5%, then in the probability level of 95% the claim of loyalty inequality between males and females are acceptable. Therefore, gender plays a role as a moderating variable.

Studying other correlation coefficients between variables indicates that there is a statistical significant relationship between the three advantages of electronic supply chain management of goods (delivery, information sharing and cost of ownership of goods by customer) and key variables of model as satisfaction, loyalty and trust.
Table: the summary of information shows these coefficients

<table>
<thead>
<tr>
<th></th>
<th>Satisfaction</th>
<th>Loyalty</th>
<th>Trust</th>
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<tbody>
<tr>
<td>Product delivery</td>
<td>0.231</td>
<td>0.226</td>
<td>0.226</td>
</tr>
<tr>
<td>Information sharing</td>
<td>0.107</td>
<td>0.133</td>
<td>0.326</td>
</tr>
<tr>
<td>Cost of goods’ ownership by customer</td>
<td>0.124</td>
<td>0.240</td>
<td>0.542</td>
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</table>

All the above coefficients are significant at the 99% probability level.

Thus, according to the findings of correlation analysis section modifying model is done as follow.

Also, regression model shows the model has a good fitting.

As you can see below, the coefficient of determining model is 0.147 and is away from the ideal value 1. It cannot be relied on that coefficient in analyzing objectivity of regression model based on statistical literature. Because other effective variables in the model could probably existed that were not the aim of paper, but this matter cannot be adversative of model’s explanatory power.

<table>
<thead>
<tr>
<th>Standard error of estimating</th>
<th>Determined coefficient</th>
<th>Determining coefficient</th>
<th>Multiple correlation coefficient</th>
<th>model</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.59809</td>
<td>0.141</td>
<td>0.147</td>
<td>0.384</td>
<td>1</td>
</tr>
</tbody>
</table>
The analysis result shows that the highest extensibility of satisfaction variable than the variable of product’s delivery in the chain is advantages of electronic supply. In other words, one change unit in the variable of product’s delivery makes increasing 0.2 unit of satisfaction variable. Similarly, one unit increase of information sharing index enhances 0.71 unit of satisfaction and one unit improve of ownership costs of goods by customer increases 0.16 unit of satisfaction variable.

To ensure the results of the regression and to ensure that they are not false the results of classical hypothesis test of regression was conducted.

**Summation**

This paper examines the effect of electronic supply chain management on customer’s loyalty in consumer goods. The basic model of this paper is based on the integration of the models by Costabile and Ndubizi in which its architecture is based on changing mental concept of electronic supply chain management into six independent variables cost, product, order, communications, delivery, and information sharing that effect through the variables of satisfaction and trust on loyalty variable.

This research is a descriptive and the instrument of data collection is a questionnaire with 81 close questions in Likert’s five-level spectrum in statistical population (management students in the state universities and Azad universities of Tehran).

The sampling is a two-stage cluster method. Each university is considered as a cluster and at first stage from among the state universities as the universities of Tehran, Allameh Tabatabyi and Payam-e-Noor and from among the Azad Universities as Science and Research University and Center-Tehran universities the students were selected in terms of maximum distribution of field of the study.

According to the analytical results of regression’s valid model between the satisfaction variable and variables of electronic supply chain, it can be seen that 10 units improve of the variables delivery, information sharing and costs increase 0.71, 0.65 and 0.60 units of customer’s loyalty index, respectively.

Based on the results and non-extensibility of model to the types of provided product in electronic supply chain, it is suggested that practitioners in this field focus on the strategies of improving four processes of delivery, making awareness, managing costs and resolving conflict with customers based on increasing mutual trust and attention to the target population.

**Findings**

According to the results of the research, electronic supply has an important role in individual’s attitudinal loyalty and in this chain the network members should focus on improving four processes of delivery, making awareness, managing costs and resolving conflict with customers based on increasing mutual trust and attention to the target population.
In other words, policy makers including decision-makers in this field should be noted that customer of consumer goods in the electronic supply chain is looking for desired products (including goods or services) with the most optimal cost and if ordering process of electronic supply system has adequate attractiveness and high efficiency, it causes to reinforce satisfaction, trust and consequently causes to customer’s loyalty. As the results of regression analysis indicated that one unit changing in products’ ownership costs, increases 0.16 unit of customer’s satisfaction. It is noteworthy that product ownership cost does not necessarily mean reducing the product price compared to other competitors and it can involve all costs that customer incurs for ownership of the goods from the point of ordering goods to the point of goods delivery.

Conclusion

In this paper by defining the advantages of electronic supply chain management it was tried to examine the effect of these advantages on the process of creating loyalty in the customers of consumer goods. Then, the advantages of using electronic tools supply chain management in the forms of six manifest variables were studied. Generally, it can be said that customers welcome any plans and programs that lead to their convenience. Also, any services that help increase customer’s trust in the commercial brands, finally, lead to increase customer’s loyalty. Therefore, by relationship tests between the advantages of electronic supply chain management and the satisfaction variable and by examining the effect of these advantages on customer’s loyalty the following results were obtained that is referred briefly.

- Examining the effect of advantages of electronic supply chain management on customer’s loyalty the results of analyzing showed that between these advantages, the cost advantages of relations and information sharing is more important that involves cheap delivery of products, lower prices for products, the convenience and flexibility of delivery, accessibility and existence of more various products meet customer’s satisfaction more than other advantages.
- Statistical results also indicated that the timely delivery of goods to customer, being aware of product’s delivery status and order status, delivery cost, delivery speed, being aware of company’s news and other supply chain partners’ news, product’s easier after-sale services, ability to communicate with company and suppliers of spare parts effect on customer’s loyalty.
- In general, along with all the plans, programs and strategies of customers’ loyalty, that directly and usually as incentive plans looking for creating customers’ loyalty, attention to the points that indirectly leads to increase loyalty is necessary.
- Therefore, by implementing electronic supply chain can help making-loyalty among customers and in this case improving satisfaction level is more important in making customer’s loyalty.

Suggestions based on the results (research’s findings)

The results of this study give us a clear vision for improving the existing situation that is just briefly mentioned below:
1. More attention of policy-makers like decision-makers to this matter that the customer of consumer goods in electronic supply chain of goods is looking for desired products (goods or services) with the most optimal costs of product ownership and if ordering process of electronic supply system has adequate attractiveness and high efficiency, it causes to reinforce satisfaction, trust and consequently causes to customer’s loyalty.

2. Policy-making and attention to facilitating and effectiveness of goods delivery process by using advantages of system

3. Electronic supply chain which is based in terms of competitive advantage of quick, accurate and dynamic recycle of data should can provide some parts of required information of customer that helps increase satisfaction, trust and loyalty of customers as clearer and smoother.

4. Capitalizing on enhancing and improving the process of possible conflict resolution among customers and providing services in goods’ electronic supply chain is more important and by the process of conflict resolution as managing electronic and dynamic relationship with customer or by other existing methods, the customer’s trust should be improved in provider chain that within it human resources have less role and electronic resources have more prominent role.

Any company (profit or non-profit) needs attention to its customers for its survival in today’s competitive environment, because these are the customers that cause to revenue, growth and company’s progress by preferring goods and provided services in a company over other companies. Accordingly, any plan and program that is in order to retain existing customers and to attract new customers along with increasing numbers and amount of purchase, it can contribute towards the survival and growth of the company. Therefore, providing required fuel of plans and strategies of loyalty and feeding these plans by studying on factors that can be effective (whether positive or negative) in this case (making customers’ loyalty) is more important. Thus, in following by enjoying the results obtained from consultation with experts the general suggestions are presented below which is hoped to be useful.

1. Correct and efficient implementation and deployment of electronic supply chain management based of local needs of country and tailored to ethnic and regional beliefs of customers from the beginning to the end of the chain that create added value in the chain. As it was mentioned in several studies, achieving customer loyalty is a multi-step goal and process. In fact at first step, customers’ satisfaction and their positive perception of company and of supply chain, especially electronic supply chain should be provided to in next stage after this stage of satisfaction, it will be a reason for repeating purchase and continuing customer’s collaboration with company and thus loyalty fields will be achieved.

2. By implementing E-SCM, we achieve a series of advantages which are not equally and with the same coefficient effective in the variables of satisfaction and loyalty and to create and increase customer satisfaction and to make them loyal, the effectiveness difference of these advantages should be considered in decisions and in implementing loyalty strategies which is required to continuous monitoring and evaluation of customers and beneficiaries.
3. Combination of retailers in the virtual space increases responding speed and causes to improve one of the most important that is «product delivery». Also, attention to the matter of cost seems to be more critical, because based on the obtained results the cost advantages such as cheap delivery, cheap after-sale services and lower prices are more effective in customer satisfaction than other advantages. As well as timely delivery in shorter time, flexible delivery and delivery quality should be considered to increase customer satisfaction.

4. Establishing experimental electronic supply unit for new business entrants to enter goods’ electronic supply chain recycle by few investments.
References


