



A STUDY SHOWING EFFECT OF CUSTOMER SATISFACTION MEASURES ON A SUPPLY CHAIN

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**ABSTRACT** Effectiveness and performance of an organization in today's world depends on customer satisfaction. A satisfied customer is valuable asset of an organization The Paper deals with the customer satisfaction requirements in a supply chain. A survey is conducted and analyzed to formulate a model which emphasizes on the effective satisfaction measures of the customers on supply chain. The decisions made here help to determine the profit provider satisfaction measures.

**KEYWORDS :** Customer satisfaction; supply chain

**Introduction:**

The outputs from one system are the inputs of the other systems. Need of the hour is to develop an integrated system which integrates the supply chain from the supplier through the manufacturer to the retailer to facilitate the smooth flow of information money and goods among members, and collective strategies can be designed to optimize the system's joint objectives. While the efficacy of achieving integration in the supply chain is generally well apperceived, for authentic-world applications designing a sophisticated integrated system is an arduous task. Few firms are so effective that they can manage the entire supply chain so as to drive individual members to a superimposed integrated objective (Lee, 2007). A fundamental transmutation in the global competitive landscape is driving prices to levels that in authentic terms are as low as they have ever been. One result of this has been overcapacity in many industries (Greider, 1998). Over-capacity implicatively results in excess of supply against demand and hence leads to further downward pressure on price. A further cause of price deflation, it has been suggested (Marn et al., 2003), is the Internet which makes price comparison so much more facile. The Cyber World has withal enabled auctions and exchanges to be established at industry wide levels that have withal inclined to drive down prices.

While the trend has brought benefits in the businesses and have been able to concentrate on their strengths and focus their main assets in concrete areas, this strategic orientation withal has incremented the necessity to collaborate and integrate activities between the different partners in the supply chain. Consequently, most of the partners today, endeavor to establish relationships with their partners in the supply chain rather than concentrating on purchasing (Narayandas and Rangan, 2004). This development is further fortified by today's business relationships offering one of the most efficacious remaining opportunities for paramount cost reduction and value amendment (Christopher and Gattorna, 2005). However, Frazier et al. (1988) observes that these opportunities mainly depends on the proximity of the relationship. In this sense, suppliers in particular have cultivated business relationships for years by investing in their customers with a view to safeguarding subsequent business dealings from out-suppliers (Jackson, 1985). However, there comes a point where making business relationships more proximate is only possible when both the supplier and the customer are yare to invest in this special type of collaboration, as relationships in which the reason for staying in are solely determined by investments made on the component of the supplier are unstable by their very nature. As soon as competitors offer comprehensive benefits in alternative business transactions, there is an economic reason for customers to switch suppliers (Bonner and Calantone, 2005). This denotes that further investments will only become financially viable from the supplier's perspective if the customer is additionally prepared to put himself into a position of some dependence on the supplier. Taking the situation into consideration where a market or branch has completely switched into SCP, the utilization of our concept will no longer dispose of our verbally expressed over all advantage. In this situation, it can surely amount to nothing more than the aversion of competitive disadvantage (Rokkan et al., 2003).

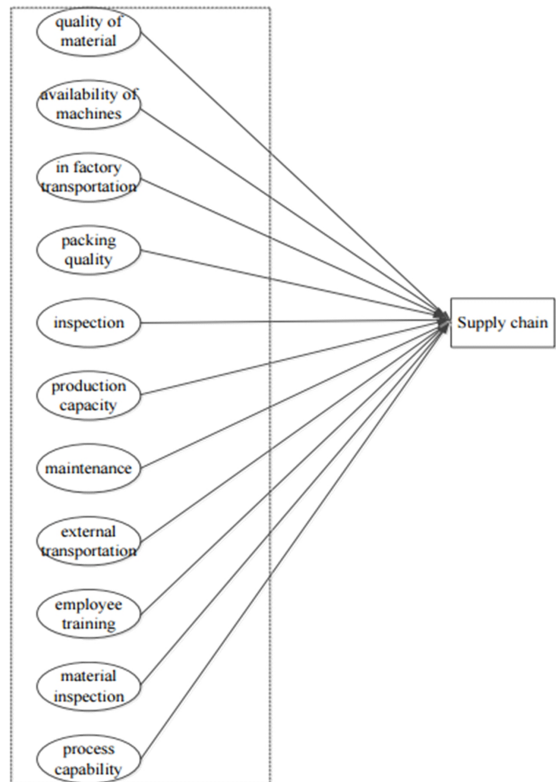
**Modeling the problem**

This work studies the customer satisfaction measures in a multi-layer

supply chain to find the effective items on the supply chain. The dependent variable is supply chain and the independent variable is the list of customer satisfaction factors. The aim is to determine the effective satisfaction measures on the multi-layer supply chain based on customers' opinions. To do that, a study is conducted and the related statistical tests are reported. The research model is shown in Figure 1.

**Survey study**

Here, we determine the population to be studied. The responses of the respondents are the satisfaction measures and the answers ranges from very good to very bad (5 items likert spectrum). The questions are also the hypothesis to be tested by statistical tests. If a hypothesis is rejected then the corresponding satisfaction measure is realized to be not important in customers' viewpoint. The satisfaction measures and the likert spectrum are given in Table 1.



**Table 1. The questionnaire**

Satisfaction measures	1	2	3	4	5
Quality of material					
Availability of machines					
In factory transportation					
Packing quality					

Inspection					
Production capacity					
Maintenance					
External transportation					
Employee training					
Material inspection					
Process capability					

**The hypotheses**

The hypotheses made here are:

- H1: Quality of material increase customers' satisfaction
- H2: Availability of machines increase customers' satisfaction.
- H3: In factory transportation increase customers' satisfaction.
- H4: Packing quality increase customers' satisfaction.
- H5: Inspection increase customers' satisfaction.
- H6: Production capacity increase customers' satisfaction.
- H7: Maintenance increase customers' satisfaction.
- H8: External transportation increase customers' satisfaction.
- H9: Employee training increase customers' satisfaction.
- H10: Material inspection increase customers' satisfaction.
- H11: Process capability increase customers' satisfaction.

The aim is to test the hypotheses using statistical tests and to determine the ones accepted employing the data collected from the customers

**Table 2. The Descriptive Statistics**

Satisfaction measures	Number of samples	Min.	Max.	Mean	Standard deviation
quality of material	384	1.00	5.00	3.5833	.98200
availability of machines	384	1.00	5.00	2.9427	1.07030
In factory transportation	384	1.00	5.00	3.4714	.93898
packing quality	384	1.00	4.00	2.4245	.87287
inspection	384	1.00	5.00	3.4297	1.08407

production capacity	384	1.00	5.00	2.5625	1.08455
maintenance	384	1.00	5.00	3.3255	1.16555
external transportation	384	1.00	5.00	2.2266	1.10457
employee training	384	1.00	5.00	3.3359	1.21314
material inspection	384	1.00	5.00	3.6823	1.10451
process capability	384	1.00	5.00	2.3073	1.00876

In this study 384 samples were collected according to the following hypotheses. Also, note that the significance level is 1% and Pearson correlation test is employed for accept/reject purpose. The results are shown in Table 3.

- H1: quality of material increase customers' satisfaction. (accept)
- H2: availability of machines increase customers' satisfaction. (accept)
- H3: in factory transportation increase customers' satisfaction. (accept)
- H4: packing quality increase customers' satisfaction. (reject)
- H5: inspection increase customers' satisfaction. (accept)
- H7: maintenance increase customers' satisfaction. (accept)
- H8: external transportation increase customers' satisfaction. (accept)
- H9: employee training increase customers' satisfaction. (reject)
- H10: material inspection increase customers' satisfaction. (reject)
- H11: process capability increase customers' satisfaction. (accept)

As shown in the tests hypotheses 1, 2, 3, 5, 7, 8, and 11 are accepted and therefore are considered as effective customer satisfaction measures.

**Table 3. The Kolmogorov-Smirnov test**

	quality of material	availability of machines	in factory transportation	packing quality	inspection	production capacity	maintenance	external transportation	Employee training	material inspection	process capability
Number of samples	384	384	384	384	384	384	384	384	384	384	384
Mean	3.5833	2.9427	3.4714	2.4245	3.4297	2.5625	3.3255	2.2266	3.3359	3.6823	2.3073
Standard deviation	.98200	1.07030	.93898	.87287	1.08407	1.08455	1.16555	1.10457	1.21314	1.1045	1.0087
Most Extreme Differences	Absolute	.203	.177	.210	.275	.203	.198	.195	.219	.185	.219
	Positive	.203	.177	.210	.275	.151	.198	.138	.219	.133	.219
	Negative	-.185	-.162	-.195	-.191	-.203	-.157	-.195	-.133	-.185	-.155
Kolmogorov-Smirnov Z	3.976	3.460	4.123	5.392	3.982	3.880	3.824	4.297	3.616	3.587	4.284
Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

**Conclusions**

We conducted a case study in a supply chain to determine the effective satisfaction measures on customers. In any supply chain customers are the most significant sector since they influence the profit resulted from all activities within the supply chain. Thus, we determined the satisfaction measures being more effective on the customers based on the data and using the statistical tests. The management of the supply chain now should concentrate on the obtained satisfaction measure to fulfill the customers' requirements and at the same time gain more profit.

**References**

- Chang Hwan Lee 2007, 'Coordination on stocking and progressive pricing policies for a supply chain', *Int. J. Production Economics* 106, pp. 307-319.
- Marn, M. V., Roegner, E. V., & Zawada, C. C. 2003. 'The power of pricing'. *McKinsey Quarterly*, 1, pp. 27-39.
- Greider, W. 1998. One world, ready or not. Simon & Schuster.
- Narayandas, D., & Rangan, V. K. July 2004. 'Building and sustaining buyer-seller relationships in mature industrial markets'. *Journal of Marketing*, 68(3), pp. 63-77.
- Frazier, G. L., Spekman, R., & O'Neal, C. October 1988. 'Just-in-time exchange relationships in industrial markets'. *Journal of Marketing*, 52(4), pp. 52-67.
- Christopher, M., & Gattorna, J. 2005. 'Supply chain cost management and value-based pricing'. *Industrial Marketing Management*, 34, pp. 115-121.
- Bonner, J. M., & Calantone, R. J. 2005. 'Buyer attentiveness in buyer-supplier relationships'. *Industrial Marketing Management*, 34(1), pp. 53-62.
- Jackson, B. 1985. *Winning and keeping industrial customers*. Toronto: Lexington Books.
- Rokkan, A. I., Heide, J. B., & Wathne, K. H. 2003. 'Specific investments in marketing relationships: Expropriation and bonding effects'. *Journal of Marketing Research*, 40(2), pp. 210-225.