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Impact Of Inventory Management By Smartphone Manufacturing Companies On Customer Satisfaction

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Abstract: The intention was to explore the relationship between inventory management and customer satisfaction in the downstream of manufacturing firms in Vadodara, Gujarat, India. A quantitative research design was used to found the said relationship. The study consisted of total sample size of 160 respondents with 100 respondents from retailers and 60 were from distributors. The findings of this research specified a significant positive relationship between customer satisfaction and inventory management.The Pearson correlation coefficient values for retailers and distributors were .889** with p <0.01 and .801** with $p < 0.01$ after using the variables named customer satisfaction and inventory management respectively. Inventory management had significant influence on customer satisfaction and this was also shore up by the value of adjusted R square. The adjusted R square value indicated that independent factors anticipated the dependent factors by 71 %. In conclusion, this research discovered that chain members required using enhanced and superior information systems for better inventory management and well coordinated customer collaboration consequently leading to higher levels of customer satisfaction.

IndexTerms - **Inventory management,customer,satisfaction,customer collaboration**

I. INTRODUCTION

The research on inventory is to be indeed necessarily done as the inventory is becoming more sophisticated part of business. It involves major costs in the form of raw materials, work in progress holding and caring costs. The collaboration which helps in the sense of feedback is very necessary for higher inventory turns, repeat purchases, customer loyalty and delivery of quality products on time with minimum lead times after maintaining the inventory levels for higher levels of customer satisfaction. Distributors and retailers are the major stake holders in the chain of manufacturing firms which are differentiated as extended and unmitigated chains of middlemen, which mean extended chains among consumers and members of chains (Bibangambah, 2002). These chains are called downstream chains (Krausse. et al., 1998). Clients are interested in the provisioning of the items and the capacity which a firm has for fulfillment the needs of the customers on time (Gunaskaran .A. et al., 2001). Customers formulate their decisions to purchase again and again depending on the offered services from associated partners of the chain (Hashmi, 2016).

II. Non-availability of inventory has terrible impact on customer satisfaction with in the downstream chain for this reason it leads to profit loss (Vander .Y. et al., 1996).

NEED OF THE STUDY.

To know the impact of inventory management over customer satisfaction in downstream of Manufacturers, is the main objective of the research. For downstream chains inventory management and customer satisfaction are critical features. By means of inventory management and customer satisfaction the firms endeavor to match demand with supply. However, Manufacturers face problems of inventory management which is consequently affecting its capability to satisfy loyal consumers. This research required to explore the relationship in downstream of Manufacturers between customer satisfaction and inventory management.

3.1Population and Sample

Morgan and Krejecie (1970) were used to draw sample size and also used by (Hashmi, 2016). The sample was taken from population of distributors and retailers located at Vadodara city. Morgan and Krejecie (1970) were used to draw sample size. The sample was taken from population of distributors and retailers located at Vadodara city. The sample of 60 was drawn from distributors and 100 were from retailers with total sample size of 160. Total distributed questionnaires were 191 but out of these numbers 160 respondents successfully filled and returned back to researcher for analysis. The successful response rate was 83.76 %.

Table: 1 Total population, respondents' count and sample size

Type of Business	Respondents	Sample size
Retailers	100	120
Distributors	60	71
Total	160	191

3.2 Data and Sources of Data

Researcher implemented stratified sampling design. Stratification is segregation of population into subgroups, which are retailers and distributors. Among every stratum then random sampling was used which represents the whole population with equal probability of selection (Hashmi, 2016). Structured questionnaires were used. The questionnaires were distributed in respondents after that researcher collected filled questionnaires from respondents. A five point Likert scale was used with 1 for strongly disagrees to 5 for strongly agree.

*Primary Data Sources***:** Primary data acquired from respondents by utilizing structured questionnaires to acquire data on study variables.

*Sources for Secondary Data***:** For this research variables secondary data was taken, while using case studies, internet browsing and reports to support the findings obtained in primary data.

3.3 Theoretical framework

The researcher measured inventory management by applying Patel and Gunasekaran (2001), customer satisfaction by applying Vazquez (2004) and Mentzer .J.T. (2002).Inventory management measures consisted of inventory levels, order lead time and inventory turns. Customer satisfaction measures consisted of repeat purchases, customer loyalty, on time delivery, flexibility and quality. The tool used for this pretest consisted of variables which have already been used by the researchers and for this reason have recognized validities and reliabilities. On the other hand the reliabilities of the variables, which have been used, were again reestablished. Retailer's constructs have reliability of .94 and distributor's constructs have reliability of .88. Reliabilities of variables which were used by researcher were greater than 0.7 and demonstrating that the relevant items have realistic internal consistency and reliability. More than a few research journals acknowledge if one or two variables have the alpha in the range of 0.70 to 0.95 (Mohsen.T., 2011). (Hashmi, 2016)

Table: 2 Test of Reliability / Validity

Retailers' Cronbach's Alpha	**Distributors' Cronbach's Alpha**
.940	.888

RESEARCH METHODOLOGY

The methodology section provides how the research take place. This topic was divided as design of research, design of sample, measurement of variables, population for targeting, size of sample, research instruments as well as sources of data collection, analysis of data as well as confronted limitations while conducting this research. As design of sample already discussed in topic population and sample, measurement of variables we will discuss in coming section.

Research design: The method was based on the research questions that how the questions can be answered for this purpose researcher implemented stratified random sampling designs. For gathering of primary data, structured questionnaires on 5 point Likert scale were used. Secondary data was taken while using case studies, internet browsing and reports to support the findings obtained in primary data. Data obtained from respondents was sorted according to its nature. This was done to change the available information into a more acceptable form then data analysis done with the aim of finding the nature of relationships among variables by using Microsoft Excel and SPSS software.

Target Population: Distributors and retailers located at Vadodara were chosen which are downstream members and major players in supply chain of Manufacturers. Questionnaires were distributed and filled by managers of the retail stores and distribution centers not considering whether they were proprietor or just managers of those businesses. The researcher restricted himself to Vadodara because it has edge of being a strategic business hub where corporations are located as well as enriched with cultural diversity as compared to other cities of India.

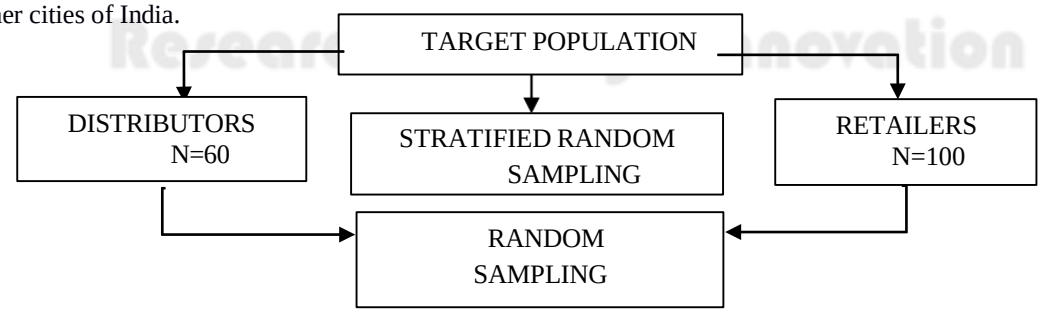

Figure: 1 Target population and sampling techniques (Hashmi, 2016)

3.4Statistical tools

This section elaborates the proper statistical. Here, we will discuss about response frequencies trough tables and figures, correlation analysis, descriptive statistics, regression analysis, T tests and analysis of variance test (ANOVA). The study tested the objectives. The detail of methodology is given as follows.

3.4.1 Descriptive Statistics

Descriptive Statics has been used to find the standard deviation, variance, mean and normally distribution of the data of all the variables of the study. Normal distribution of data shows the sensitivity of the variables towards the periodic changes and speculation. When the data is not normally distributed it means that the data is sensitive towards periodic changes and speculations which create the chances of arbitrage in inventory management and customer behavior. In figures 3 and 4 the mode of retailers' and distributors' (respectively) responses on 5point likert scale against variables were taken to test whether the responses are significantly supporting the hypothesis to reject or accept. Here the percentage values are significantly supporting to reject the null hypothesis.

Ho1: Active consideration of effective inventory management at retailer and distributor has no effect on customer satisfaction.

Model Description/ Discussion on hypothesis: As the effective and efficient inventory management at downstream chains of manufacturers satisfies the customers in a better way. Improved inventory management decreases surplus inventory, improved product projections, enough capacities, assurance in planning of production and due to superior service accessibility of goods, (Lee .H. and Cheung, 2002). Improved management of inventories brings satisfaction for clients in better way with better flexibility which lead to customer satisfaction (Suh and Kwon, 2004; Ratinasingam .P. et al., 2002).

3.4.2 Response Frequencies: In figures 2 and 3 the mode of retailers' and distributors' (respectively) responses on 5 point likert scale against variables were taken to test whether the responses are significantly supporting the hypothesis to reject or accept. Here the percentage values are significantly supporting to reject the null hypothesis.

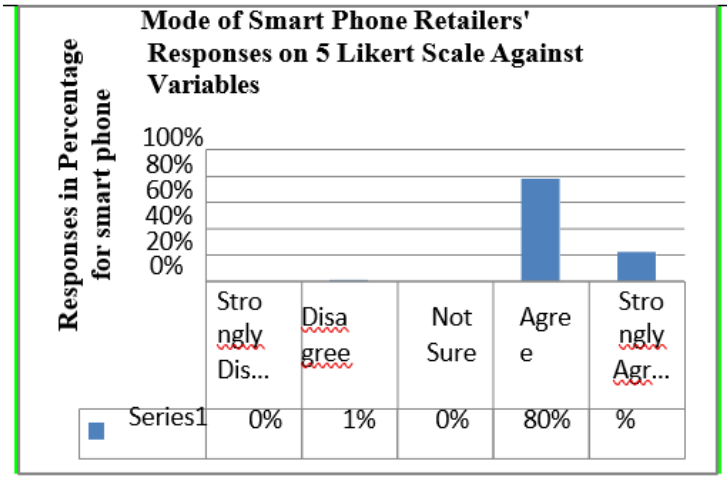

Figure 2:

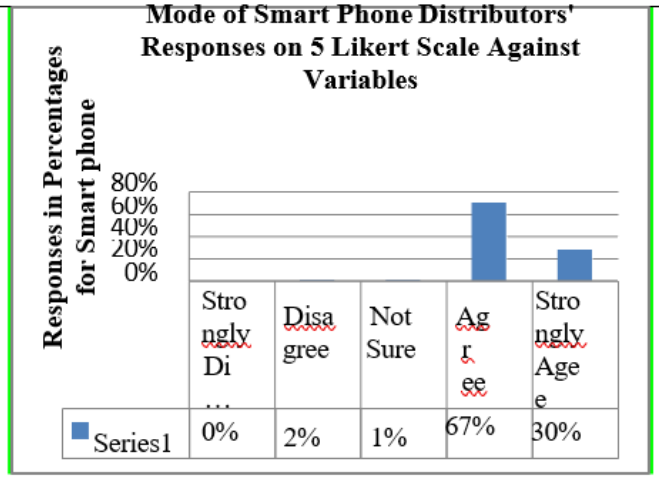

Figure 3:

3.4.3 Pearson correlation. Uniqueness of the variables was tested through Bivariate Correlation by taking the correlations of all the constructs on one to one basis. The inter item correlation results suggests that the data fulfill Correlation validity requirement, which are presented in Table 3. The hypothesis were tested in light of stated correlation which state the under mentioned trends.

Null Hypothesis Ho1: Active consideration of effective inventory management at retailer and distributor has no effect on customer satisfaction.

Null Hypothesis testing Ho1: In table 3 for retailers, we found significant positive correlation among customer satisfaction and inventory management with Pearson value of .889** (M=4.19, SD=.430, N=100 p=0.0<0.01) while Pearson coefficient of .801** (M=4.2933, SD=.51745, N=60 p=0.0<0.01) for distributors. These values are suggesting that decreases or increases in one variable relate to decreases or increases in other variables directly. It rejects the null hypothesis and proves that active consideration of inventory management improves customer satisfaction. (Hashmi, 2016)

Table 3: Correlation Matrix

Retailer (N=100)				
Variables			Inventory Management	Customer Satisfaction
	M	SD		
Inventory Management	4.19	.430	1	.889**
Customer Satisfaction	4.23	.458	.889**	1
Distributor (N= 60)				
Variables			Inventory Management	Customer Satisfaction
	M	SD		
Inventory Management	4.29	.517	1	.801**

Customer Satisfaction	4.23	.481	.801**	1
**Correlation Significant at 0.01 level 2-tailed test				

(Hashmi, 2016)

Significance of constructs: Table 3 showed the relationships were significant at the level of 0.01 (2-Tailed). In the research all variables are significant enough with the value of 0.000. This value is less than .01. Because of this, we can conclude that there is a statistically significant correlation among all stated constructs and have significant impact.

3.4.4 Regression Analysis

Table 4: Regression Analysis

Variables		N	Mean	Standard Deviation	Model Summary		ANOVA	Coefficients			
					R	Adjusted R Square	F	Sig.(1 tail)*p*	∑St. Beta Coefficient	t	Sig. (1 tail)
Inventory Management	Retailer	100	4.19	0.430	0.889	0.788	368.567	0.000	0.889	19.198	0.000
	Distributor	60	4.29	0.517							
Customer Satisfaction	Retailer	100	4.23	0.458	0.801	0.635	103.479	0.000	0.801	10.172	0.000
	Distributor	60	4.23	0.481							
Standardized Beta Coefficient (Dependent Variable = Customer Satisfaction)											

(Hashmi, 2016)

In our table 4 the results showed the distributors comprised a higher mean score in inventory management with a mean score of 4.29 (N=60) whereas retailers comprised the lowest mean score of 4.19 (N=100). In customer satisfaction the retailers and distributors comprised the same mean scores with a mean score of 4.23 (Retailer' N=100, Distributor's N=60).

Retailers' and distributors' model summary gave R values (.899), (.801) and Adjusted R square values (.788), (.635) respectively. Thus, these models are predicting 79% and 64% of the variance in customer satisfaction respectively. These are good models as these are meeting our assumptions.

ANOVA values expressed F=368.567, $p<.001$) for retailers and F=103.457, $p<.001$ for distributors and these values are significant enough and predictors significantly predict customer satisfaction.

The retailers' and distributors' Coefficients expressed that Standardized Beta give a measure of the contribution of each variable to the model. Large values of inventory management which are 0.889, 0.801 respectively indicated that a unit change in these predictor variables have large impact on the customer satisfaction. The t=19.198, 10.172 and Sig (p) < .001 values for retailers and distributors respectively, give a rough indication of the impact of each predictor variable – a big absolute t value and small p value suggests that inventory management is having a large impact on the customer satisfaction. Hence inventory management is the variable which is significantly adding anything to the prediction. (Hashmi, 2016).

Conclusion The results of this research discovered a strong positive significant relation among inventory management of smart phone and customer satisfaction which expresses that effective and efficient inventory management is necessary to get superior customer satisfaction among chain members.

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References

[1] Scannel, T.v., Handfield. and Krausse, (1998). "An empirical research on supplier development", Operations Management Journal, Vol. 17, pages. 39-58.

[2] Tirtiroglo .E, Gunaskaran .A, and Patel, (2001). "Performance metrics and measures in supply chain environment", Operations Management Journal, Vol. 21, Pages. 71 - 87.

[3] Donselaar, Verwijmeren and Vander Yoist,(1996). "Supply chain management serializing", International Journal of Logistics Management and Physical Distribution, Volume. 26 (6).

[4] Eckert, (2007). "Inventory management and its effects on customer satisfaction" Journal of Public and Business Policy,(I), pp. 3.

[5] Wang and Lee, (2000). "The importance of customer collaboration in a two level supply chain" Management Science Journal, vol. 46, pp. 626-643.

[6] Donselaar, Verwijmeren and Vander Yoist,(1996). "Supply chain management serializing", International Journal of Logistics Management and Physical Distribution, Volume. 26 (6).

[7] Davidson .A. (2001). "A model for quality self assessment", Journal of Managerial Auditing, Volume. 19 (7), Pages. 859 - 868.

[8] Tirtiroglo .E, Gunaskaran .A, and Patel, (2001). "Performance metrics and measures in supply chain environment", Operations Management Journal, Vol. 21, Pages. 71 - 87.

[9] Tachizawa and Ginemez, (2005). "Drivers and sources of supply flexibility", An exploratory study. Retrieved from http://www.recercat.catlbitstream/2072/16 70/1/889. pdf.

[10] Lee .H. and Cheung, (2002). "The benefits of stock rebalancing and shipment coordination in supply chain", Journal of management science, volume. 48, pp. 300-306.

[11] Romano (2003). "Co-ordination and integration mechanisms to manage logistics processes across supply networks Received 4 June 2001; revised 9 July 2002; accepted 14
February 2003; Available online 15 November 2014.

[12] Ndubisi .N. (2005). "Manufacturing flexibility and management strategies and supplier selection", Enterprise Information Management Journal, Volume. 18 (3), Pages.330–349.

[13] Ayad, (2008). "Optimizing store results and inventory in retail environment", International Journal of Distribution Management, Volume. 36 (3), pages. 180 - 191.
(Published in 2008).

[14] Corsten .D. and Gruen .T.W, , (2002). "Retail out of stocks: An examination of rates, consumer responses and causes", American Grocery Manufacturers, Washington.

[15] Agarwal, (2007). "Contemporary Issues in Supply Chain Management : A case study", New Century Publications, , pages . 152 - 165.

[16] Davidson .A. (2001). "A model for quality self assessment", Journal of Managerial Auditing, Volume. 19 (7), Pages. 859 - 868.

[17] Agarwal, (2007). "Contemporary Issues in Supply Chain Management : A case study", New Century Publications, , pages . 152 – 165.

[18] Amini, (2005). "Quality in Logistics and Supply Chain Management" Production Economics Journal, Volume. 96, 3, Pages 367-380. (June, 2005).

[19] Lee and Kleiner, (2001). "Inventory management in the women's retail and clothing industry", Volume 24. Retrieved fromhttp://www.stanford.edulgroup/scforum/welcome/ white%20papers/demand%20chain%0~20-%20Evant%

[20] Stuart .J, (2005). "Through improved returns processing reducing costs", International Journal of Logistics & Management Physical Distribution, Volume. 35 (7), Pages. 468 - 480.

[21] Lee .H. and Cheung, (2002). "The benefits of stock rebalancing and shipment coordination in supply chain", Journal of management science, volume. 48, pp. 300-306.

[22] Suh .T and Kwon .G. (2004), "Factors affecting the commitment and trust in supply chain relationships", Supply Chain Management Journal: Global review of supply and purchasing.

[23] Ratinasingam.P, Pavlou.p and Hau Tan.y (2002). "Importance of technology trust for b2b commerce electronic". Retrieved from http://www.bledconference.orglproceedings.nsf/0/3eddOcb3dfa76aa6cl56e9f0037a3da
$FILE/ratnasingam.pdf.

[24] Vazquez, R. (2004). "Distribution channel relationships", International Journal of Distribution, Retail & Consumer Research Review, Volume.15, Pages. 125 - 150.

[25] Mentzer, J.T. (2002). "The inter-firm partnering nature in supply chain management", Journal of Retailing, Volume. 76 (4), Pages. 549 - 568.

[26] Mohsen .T., (2011). "Making sense of Cronbach's Alpha" International journal of Medical Education, Pages. 53 - 55. (Published in 2011).

[27] Eckert, (2007). "Inventory management and its effects on customer satisfaction" Journal of Public and Business Policy,(I), pp. 3.

[28] Bibangambah (2002) Review of information on marketing, processing and storage of Uganda' s agricultural commodities
http://www.foodnet.cgiar.org/SCRIP / docs&databaseslifpri studies- U G-nonScri p/pdfslmore-reportslmarket%20review%20consultancy"1020report%20PMA%20 subcommittee, %20 May"102020. Pdf.

[29] Wilding (2003) The 3ts of highly effective supply chains journal of Supply Chain Practice. 5. 3.

[30] Wang (2002) How to implement Customer Relationship Management system in third party logistics companies http://www.bschool.nus.edu.sg/staff/bizteocp/jonathan.doc

[31] Arnold, Maltz & Elliot (2008) Customer service in the distributor channel empirical findings Journal of Business Logistics.

[32] Gunasekaran.A, Patel .C and Tirtiroglu.E, (2001) Performance measures and metrics in a supply chain environment International Journal of Operations & Production Manageme1ll Vol. 21, pp: 71-87.

[33] Blatherwick.A (1996) The supply chain balancing act - stock and service at a profit Logistics Journal of Information Management Volume 9. Number 6. 1996. pp. 24-26.

[34] Koumanakos.P (2008) The effect of inventory management on firm performance International Journal of Productivity Performance Management Vol. 57 No.5, pp. 355-369.

[35] Noble, David, Buck and Diana (2000). Metrics for Evaluation of Cognitive Architecture Based Collaboration Tools. Phase 1 SBm Final Report. Evidence Based Research, Inc.

[36] Daren S.; Moore; Daniel S.; David S., Yates, (2008) The practice of statistics for AP.

[37] Gunasekaran.A and Ngai .E.W.T (2004) Virtual supply chain management Journal of Operations Management, Vol. 11, pp. 289-311.

[38] Gunasekaran.A, Patel .C and Tirtiroglu.E, (2001) Performance measures and metrics in a supply chain environment International Journal of Operations & Production Manageme1ll Vol. 21, pp: 71-87.

[39] Wang (2002) How to implement Customer Relationship Management system in third party logistics companies http://www.bschool.nus.edu.sg/staff/bizteocp/jonathan.doc.

[40] Ellram.etal. (1999), Retail logistics, International Journal of Physical Distribution & Logistics 54 Management, Vol. 29 No. 7/8, pp. 477-49.

[41] Anonymous. (1998). "Discount Stores ". Chain Store Age, pp.l0A-llA.

[42] Krejcie, R.V. & Morgan, D.W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30, 607-610.