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Order Processing Process in Physical Distribution Adopted by Small Scale Cements Manufacturing Firms

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Abstract

Order processing is generally the process that is associated with the picking, packing and delivery of the products to the shipping carrier. If an order is received by an organization, it should be immediately and accurately processed by the organization. If processing is done efficiently and effectively, both the organization as well as the customer are benefitted. The present research paper focuses on the steps adopted by the small scale cements manufacturing units or by the cements industry with the collection of primary data obtained from eight small scale cement firms functioning in SIDCO & SICOP, registered under DIC (District Industries Center) in District Udhampur of Jammu & Kashmir State. The various steps that are adopted by the eight small scale cements manufacturing units are "Receiving of order", "Recording of order", "Filling of order" and "Assembling orders for transportation". The results of the ranking table revealed that the variable "Receiving of order" scored the highest mean rank as it perceived to the first and foremost step of order processing. The factor "Recording of order" scored second rank. Consequently the variable "Filling of order" materialized with rank three and finally the variable "Assembling orders for transportation" emerged with fourth rank. Further, the results of regression analysis revealed that proper order processing leads to effective fulfillment of orders as represented by its significant value. The study however is restricted to the small scale manufacturing units operating in the one District only.

Keywords: Order, Processing, Distribution, Cement industry, SSI's (Small Scale Industries)

Introduction

The starting point of physical distribution activities is the processing of customers' orders. In order to provide quicker customer service the orders received from customers should be processed within the least possible time (Mintzberg, 1979). Order processing includes receiving the order, recording the order, filling the order, and assembling all such orders for transportation, etc. the company and the customer are benefited when these steps are carried out quickly and accurately (Bertrand, Wortman, & Wijngaard, 1990).

The error committed at this stage at times can prove to be very costly. For example if a wrong product or same product with different specifications is supplied to the customer, it may lead to cancellation of the original order (apart from loss in the credibility of the firm). Similarly, if the order is not executed within a reasonable time, it may lead to serious consequences. High speed data processing techniques are now available which allow for rapid processing of the orders like EDI. There are many ways of submitting an order like:

By Mail, By Telephone, Through Salesperson, Through computer and EDI.

In some areas orders are generated by suppliers for their customers. When an order has been received, it should be quickly and accurately processed by the organization. When processing is done effectively, both the organization as well as the customer are benefited. Now-a-days sophisticated computerized order processing system is used by most of the companies that speeds up the cycle of the order, shipping and billing. For example a company named XYZ uses a computer based system in which when a receipt of the customer order is received by the system, it checks the credit standing of the customer as well as the identification of the required stock. Then a set of internal orders is generated by the system like an order to ship,

an order to bill and a production order, etc. all of these systematic activities happen within 15 seconds.

Therefore, Order processing is the procedure or work-flow related with the picking, packing and deliverance of the packed objects to a shipping carter. Order processing is the catalyst of order completion. Order processing maneuver or facilities are generally called "distribution centers" **(**Konijnendijk, 1992).

Order processing is done with the assistance of order processing systems. These order processing systems now-a-days have developed technologies to grant attractive means of receiving, tracking and transporting customers' orders (De Leeuw, 2000). Advanced order processing systems can extent numerous continents to road and aid international commands, shipments and returns for an extensive array of product lines and consumer segments. An order processing system collects order data from customers, stores the data in a vital database and remits order information to the accounting and shipping units (Daugherty, Stank, & Rogers, 1992). Order processing systems imparts tracking statistics on orders and inventory all the times. Traditionally all the order processing systems were manual comprising hand-written notes with manual filing systems and reminders (Nauta, De Vries, Van der Vaart, & Wijngaard, 1998). Contrary to this is the Modern order processing systems that are largely technological in nature and imparts everything automotive (Donaldson, 2001). For example architect businessmen can have his offices in several countries, for example, is likely to accept orders online, where they are stored by a specialized order processing software package and sent automatically to a third-party manufacturer in another country. The manufacturer afterwards can connect the order sheet to the product (if it is tangible) when shipping, or it may ship the product straightly to the customer using shipping information system. An order processing system is a refined system of capturing order/data from the customers directly or from customer service employees, stores the raw data in a vital database and remits order information to the accounting and shipping departments if deals with shipping of goods. Order processing systems includes data tracking on orders and inventory for every step of the data processing way. Contemporary order processing systems are moreover technological in nature and demand. A boutique hat designer with various outlets in different countries, for example, is probable to accept online orders, where they are captured and detained by a specialized order processing software package and is remitted automatically to a third-party manufacturer in some another country. The manufacturer may then attach the order sheet to the product when shipping it to the hat shop, or it may ship the hat directly to the customer using shipping information from the system. Having a solid order processing system in place creates a win-win situation for businesses and their customers. Customers experience more reliable deliveries and accurate order fulfillment. Businesses can maximize their profitability by not misplacing or misreading orders, not to mention the long-term revenue boost that comes from consistently satisfying customers.

Order processing is a key element of Order fulfillment. Order processing operations or services are usually called "distribution centers". "Order processing" word is generally used to describe the method or the work flow connected with the picking, packing and delivery of the packed item to a shipping carrier (Parente, 1998). The specific "order fulfillment process" or the operational procedures of distribution departments are justified by many factors. Each distribution center has its own exceptional necessities or precedence. There is no "one size fits all" process that commonly imparts the most competent operation (de Vries, 1999). Some of the factors that decide the explicit process flow of a distribution center are: The nature of the shipped product – shipping vegetables and shipping apparels require varies completion processes The nature of the orders – the number of varied items and quantities of each item in orders The nature of the shipping packaging – cases, totes, envelopes, pallets can generate process variations Shipping costs – consolidation of orders, shipping pre-sort can change processing operations Accessibility, cost and productivity of workforce – can make trade-off choice in automation and manual processing operations (Hoekstra & Romme, 1992; Crittenden, Gardiner, & Stam, 1993).

Review of Literature

The ordering process is described and explored comprehensively within the logistical surveys and in its literature. In many studies the expressions regarding the ordering process is somewhat perplexing and unclear. The ordering process is sometimes also referred as "order processing", "order management", "demand management" and "order fulfillment process". Many authors had attributed differences in the terminology and the scope of order processing. According to Lin and Shaw (1998) the ordering process initiates with the receiving of customers' orders and confines to the delivery of the finished products. Other authors take this on the broader perspectives. Ample of authors highlight that there are many time specific activities that are taken into consideration within the order processing. Demand Forecasting, promising the delivery time

(Vollman, Berry, & Whybark, 1997), planning the material and capacity to be delivered (Lin & Shaw, 1992) are some main activities that are given emphasis in particular. Ballou (1992), on contrary, stresses on the more corporeal activities whereas Shapiro, Rangan, and Sviokla (1992) are largely concerned in the harmonization and interface activities amid sales and production. Thought numerous authors have different opinions regarding the various activities to be included in the order processing but all of them are of the viewpoint that comparing the market demand and its factors and manufacturing competencies is an elementary facet of the ordering process. This harmonization of market demand (customer value, customer satisfaction, customer comfort and customer wishes) and manufacturing competencies is considered as vital for any organization. Therefore, in the existing literature the authors focus on the ordering process as the process wherein customer orders are deciphered into production orders (Bowersox, Closs, & Helferich, 1986). By good means of the ordering process, the business and customers generate a commitment concerning product specifications, order magnitude and quantity, and the delivery timing which is most important. Therefore, the logistical performance of the organization to a high extent is dogged by the way that the ordering process is prepared.

Objective of the Study

To explore the order processing steps in physical distribution of goods designed and adopted by small scale cements manufacturing firms.

Testable Hypothesis

The following hypothesis is developed in order to make the study more reliable and responsive.

HYP 1: Proper order processing leads to effective fulfillment of orders.

The Research Methodology/ Framework

Sampling and Data Collection

Udhampur District in Jammu and Kashmir, India, comprises of DIC (District Industries Centre) under which two corporations are working SIDCO (Small Industries Development Corporations) and SICOP (Small Industries Corporation). For exploring the study in detail and making it meaningful primary data is required. The firsthand data, i.e., primary data for the research and study were collected from the eight small scale cement units operating in SIDCO and SICOP, Udhampur, in order to fulfill the objectives of the study. All the eight efficient small scale cements manufacturing units were registered with DIC (District Industries Centre), Udhampur. The names of the units are: M/s Associated Cements, Zenith Cement Industry, Shivalik Cements, M/s Continental Cement Industry, Wullar Cements, M/s Shri Nath Industry, Uma Cement Industry and Kashmir Cement Industry.

The Survey Instrument

The survey instrument is data collection form which acts as ground for collecting primary data. The questionnaire for the study (a self-prepared questionnaire) was developed with the help of existing literature and its review and later on was shared with experts, academicians and scholars to take down their view point who were having abundance knowledge of the subject. The data collection form was duly confirmed by academicians in order to incorporate necessary amendments, variations, delectable advices and so on. The questionnaire or the survey instrument of the study comprised of general information regarding the respondents and some statements of order processing so as to arrive at the process adopted by the small manufacturing firms. Statements in the questionnaire were in ranking, open ended and five-point Likert scale form.

Data Collection

The most imperative task in research is data collection and that too purely. The primary data for the study were collected from the owners/managers of the small scale cements manufacturing units. They were approached and were requested to support the research purpose. The questionnaires were handed over to them with a brief address as to how to fill it and to response purely, beyond this they were given an ease of answering the same as it was made understood to them in their local language too and were directed to remit it back as per their feasibility and time. Effective and utmost care was taken to collect the data/information and the cements units were visited from three to four times in order to attain suitable and reliable information. Census method was applied to gather response/data from the respective respondents (owners/managers). The secondary data also acts as the imperative part of research, therefore, the secondary information relevant to the study were obtained from meticulous sources such as physical books, existing reflective empirical papers published in famous journals.

In the present study various statistical tools were applied such as Mean, Mode, Standard Deviation, Regression and ranking methods. Ranking tables were used for making the study more meaningful and cognitive and for imparting genuineness of research. The data so collected was properly analyzed with the assistance of SPSS (Version 16.00) for cleansing the data and for checking validity and reliability of the data. Ranking tables were used to extract consequential retort from the data so collected.

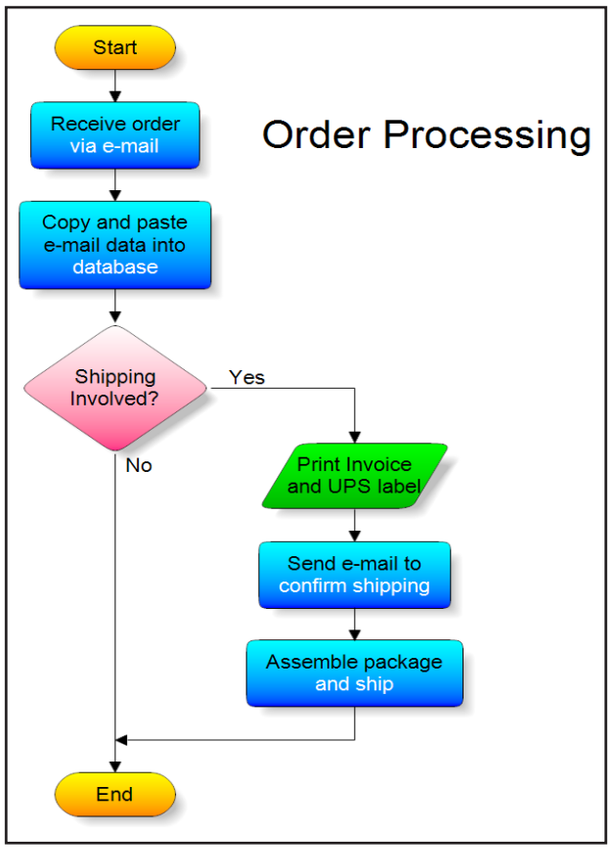

Diagram 1: An Example of Order Processing Steps.

Data Analysis and Interpretation

The data so collected for the study was effectively analyzed and were resulted into a table (Table 1) which divulges the various variables involved in order processing and their mean score actually formulating and resulting into the steps adopted by the small scale cements manufacturing firms. In DIC (District Industries Centre), the total number of registered small scale cement manufacturing firms were eight in number functioning under SIDCO and SICOP, in District Udhampur of J&K State. The response from each and every cement firm was taken into account with due care in order to know and explore the process adopted by these cements firms for their order processing. The central theme of the study was to congregate the data in order to come up with rational approach(s) and inferences which could be supporting other businessmen and industrialists. The main order processing variables adopted by the small scale cements firms are "Receiving of order", "Recording of order", "Filling of order" and "Assembling orders for Transportation". On the whole, the factor "Receiving of order" achieved highest mean rank as it seem to be the first step in case of order processing. The variable "Recording of order" arrived at rank two subsequently followed by "Filling of order" with third rank. The variable "Assembling orders for Transportation" obtained forth rank as the firms considered this factor to be taken care of at the end of order processing. The classification of the small scale firms with their respective ranking regarding the variables is understated below:

M/s Associated Cements

M/s Associated Cements is having good reputation among small scale cements firms which was established in the year 2000. The small scale firm mean ranks related to their order processing in terms of physical distribution of goods was that it assigned the first rank to the variable

"Receiving of order" as the firms depicted it to be the first and main step of order processing. "Recording of order" was ranked second by this small scale unit as the firm fits fine with recording the order followed by its receiving. "Filling of order" was assigned the third rank as the firm was of intent nature of filling the order as soon as they have completed with the recording part. Another important factor which was considered lastly by this small scale unit was "Assembling orders for Transportation" as transportation presumes to be the imperative aspect of order fulfillment now-a-days and it had proved to be a precious instrument to disseminate the product all over the world. So, M/s Associated cements connoted the order processing steps they follows in order to combat healthy and viable distribution in the economy.

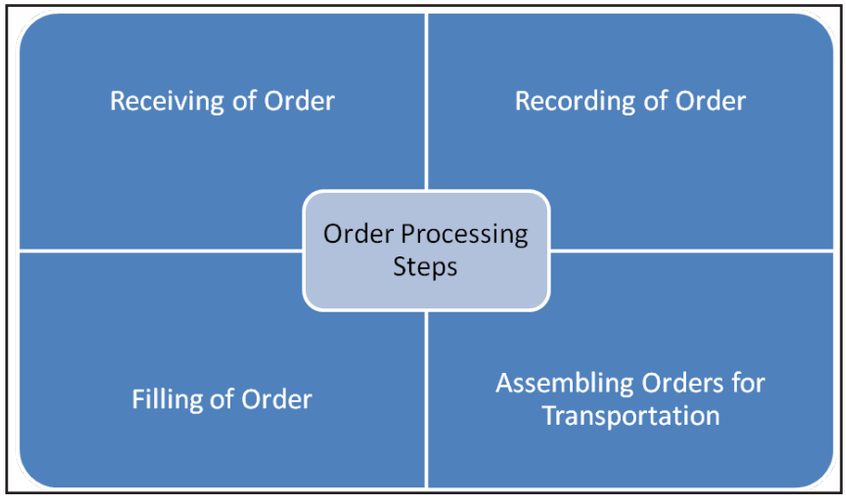

Fig. 1: Diagrammatical Representation of the Order Processing Steps Applied by the Small Manufacturing Firms

Zenith Cement Industry

The second most small scale unit producing cement was Zenith Cement Industry functioning under SIDCO (Small Industries Development Corporation). The mean ranking of order processing method adopted by this small scale unit is that it endorsed rank one to "Receiving of order" as this variable was perceived to be the main and first step of order processing. The firm assigned second rank to the variable "Recording of order" as the order so received should be promptly recorded. The third rank accorded by this firm was to the variable "Filling of order" and ultimately it designated last and fourth rank to the variable "Assembling orders for transportation" (Table 1).

Shivalik Cements

Among the eight small scale cements manufacturing units another popular unit operating in SIDCO Udhampur (Jammu & Kashmir) is Shivalik Cements meeting the major chunk of prospective customers. This small scale cements manufacturing firm considers "Receiving of order" as the main or the very first step of order processing, so it accorded rank one to this variable. The second rank was scored by the variable "Recording of order" as the firm connoted that after receiving the order its required to be properly recorded. Third rank was accorded to the variable "Filling of order" as this firm contoured this variable to be the crucial aspect of order processing. The last and fourth rank is scored by the variable "Assembling orders for Transportation" as assembling of order seems to be the crucial aspect in terms of order processing. So, Shivalik cements follows a very stringent process in terms of order processing starting from receiving of orders and ultimately to assembling orders for transportation.

M/s Continental Cement Industry

M/s Continental cement industry situated in SIDCO Udhampur is the next and fourth most prominent small scale manufacturing unit and it represents a magnitude aspect of the firms operating in cements industry. The mean ranking of order processing steps adored by this manufacturing unit is that it advocated rank one to "Receiving of order" as the first step of order processing as it seems to this firm to the foremost and appropriate step. The second mean rank of this firm was addressed to the variable "Recording of order". The third rank was acquired by the variable "Filling of order" and the last or fourth rank was gained by the variable "Assembling

orders for Transportation". So, it was clear that M/s Continental cement industry follows a very straight order processing steps to maintain full platform of the orders In hand and in future (representation in the Table 1).

Wullar Cements

Another effective and prospering unit operating in the SIDCO Udhampur Wullar Cements and this firm seems to be more tempting to the customers, wholesalers, retailers and other residents of Jammu and Kashmir. As far as the mean ranking related to order processing steps adopted by this small manufacturing firm is concerned this small firm devote rank one to the variable "Receiving of order" as this variable defined itself as the most superior among all the other related variables. The variable "Recording of order" scored second rank due to its importance being justified by the firm portraying that recording of everything in terms of orders received and recorded gives justification and clarity on the part of firm even related to its calculations. Taking the third prominent rank into consideration the variable "Filling of order" was connoted with this rank as the firm states that the order so received should be filled in subsequently and promptly in order to avoid delays and complaints. The fourth and the last rank was contoured by the variable "Assembling orders for Transportation" as the firm considers that the order so filled should be ready for delivery to the respective places.

M/s Shri Nath Industry

M/s Shri Nath Industry is the next imperative and older firm operating in the cements industry in SIDCO since 2001. The mean ranking related to the order processing steps adopted by this small scale firm was like this:

rank one to "Receiving of order",

rank two to "Recording of order",

rank three to "Filling of order" and

finally rank four to "Assembling orders for Transportation".

So, this unit reveals that receiving of orders and assembling orders for transportation as the main and the last step in terms of order processing steps adopted.

Uma Cement Industry

SIDCO even comprised of another small scale manufacturing cements unit named Uma cements industry which is the seventh significant cements manufacturing firm in the overall cements industry in District Udhampur of Jammu and Kashmir. This unit is referred, reputed and had received enormous benevolence depicting the radiance of the industrial units in the District Udhampur of Jammu and Kashmir. This unit believes and figured rank one to the variable "Receiving of order" as it concentrates more on the orders to be received and the so received should be processed accordingly and immediately. The firm further experienced and affirmed that "Recording of order" is the next important step when talking of the order processing. The variable "Filling of order" was accorded rank three by the firm and subsequently the last and the fourth rank was finally devoted to the variable "Assembling orders for transportation" as per the firms' ratings. All the stated mean rankings are exhibited in Table 1.

Kashmir Cement Industry

Kashmir Cement; another well versed small scale manufacturing firm stood as the eighth supporting cement unit enlisted in the list of cements industry in SIDCO (Small Industries Development Corporation). This small scale cement unit is also very popular among the clients of Jammu and Kashmir especially in the District Udhampur and the mean ranking position related to the order processing steps adopted by this small scale unit was that it ensued rank one to the variable "Receiving of order" as this firm stated that the receipt of the order is the main and the foremost step in terms of order processing which commensurate the order of the client and gives opportunity to the business to further process the order. The variable which was accorded rank second was "Recording of order" as the firm commented that the order so received should be they have confidence in their demand forecasting and they have wide experience in this matter for the past 24 years. The variable "Filling of order" was given third rank by this firm and the variable "Assembling orders for transportation" was accorded rank four which was the last step of the order processing of this firm (Table 1).

Regression Analysis

Table 2 denotes the output from regression analysis in order to access the impact of order processing on fulfillment of order. The linear regression model summary (Table 1) reveals values of R, R^2, Adjusted R^2, Standard error of estimate, ANOVA value, Beta value, t value and significance level. The model summary is explained below:

R = .761 i.e. 76% association between order processing and filling of order.

R^2 = .675 i.e. 67% of variation in order processing can be explained from the variable filling of order.

Adjusted R^2 = .649 i.e. if another independent variable is added, the value of R^2 will improve.

β = .602 i.e. significant relationship of independent variable with dependent variable.

F = 49.724 i.e. significant at 5% confidence level.

t = 10.113 i.e. acceptable & significant value.

Significance level = .000 i.e. $p < .05$.

Hypothesis = accepted i.e. "Proper order processing leads to effective fulfillment of orders".

Conclusion

Order processing is a method that is related with the picking, packing and delivery of the products to the carriers (Ships, rails, trucks, small carriers etc.). Order processing acts as key element of order completion and the order processing services mainly known as distribution centers are very much imperative in order to make the products available to different corners of the world. Effective order processing operations performs various crucial functions of the businesses such as providing customer satisfaction, providing value to the customers, providing comfort to the customers, customers all time free services, customers feedback and recognition, customers tastes and preferences etc. The present research paper paves new insights and conclusions from the empirical study undertaken in the small scale cements manufacturing units working in District Udhanpur of Jammu and Kashmir State. The paper contours the various steps adopted by the small scale manufacturing units in for effective order processing in physical distribution and the ranks acquainted by the eight small scale cements units. The present research explores and states the steps followed in terms of their order processing in the eight small scale cements industries operating in SIDCO & SICOP, under DIC (District Industries Center) in District Udhampur of Jammu & Kashmir State. These small scale cements units however adopts the same steps for their order processing's as those adopted by the large scale units which shows and makes the way for small scale units and acts as guide for small scale units. The various steps that are adopted by the eight small scale cements manufacturing units are "Receiving of order", "Recording of order", "Filling of order" and "Assembling orders for Transportation". The variable "Receiving of order" scored the highest mean rank as it perceived to the first and foremost step of order processing. The factor "Recording of order" scored second rank. Consequently the variable "Filling of order" materialized with rank three and finally the variable "Assembling orders for Transportation" emerged with forth rank. Further, the present study so conducted on eight small scale cements manufacturing firms depicted that proper order processing leads to effective fulfillment of orders as revealed by the regression results (Regression Model Summary) whose results were acceptable, significant and appreciable.

Limitations of the Study

The present study perhaps is not free from limitations. First, the study is explored in a small District or town i.e. District Udhampur of Jammu & Kashmir State, the outcomes of which may not be acceptable with the industries that are working in other parts of the States and District and Nations working with dissimilar milieu, generosity and mores. Secondly, the consequences of the study are supported on the basis of the response gathered from the owners/managers of small scale cements manufacturing units, though, intense apprehension had been taken into preview to attain response by making them the research purpose clear and comprehensible to them in their local vernacular, but an constituent of prejudice cannot be ruled out which adds to the limitations.

Future Research

Future research could be done taking into consideration the medium and large scale industries and other business streams could also be incorporated in that such as chemical industries, furniture industries, food industries, electric transformers & gensets, medicine industries, utensils, information communication, technological industries and even some service sectors could be included too.

Table 1: Unit-Wise Mean Ranking of Order Processing Steps Adopted by Small Scale Cements Manufacturing Firms

Cement Units	Receiving of Order	Recording of Order	Filling of order	Assembling orders for transportation
M/s Associated Cements	1	2	3	4
Zenith Cement Industry	1	2	3	4
Shivalik Cements	1	2	3	4
M/s Continental Cement Industry	1	2	3	4
Wullar Cements	1	2	3	4
M/s Shri Nath Industry	1	2	3	4
Uma Cement Industry	1	2	3	4
Kashmir Cement Industry	1	2	3	4
Mean & Rank	1.00 (I)	2.00 (II)	3.00 (III)	4.00 (IV)

Note: Where 1 denotes "highest rank" and 4 denotes "lowest rank"

Table 2: Regression Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of Estimate	F value ANOVA	Sig. level	β	t	Sig. level
1.	.761	.675	.649	.3887	49.724	.000	.602	10.113	.000

a. Predictor: (Constant), Filling of order

b. Dependent Variable: Order Processing

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