

Distribution Management for a Retail Chain "Shwapno"

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Abstract— The proposal is to address the distribution management of a retail chain in Bangladesh known as “Shwapno”. Shwapno is operated by the company ACI Logistics Limited. Shwapno handles more than 30000 stocks keeping units (SKU) in the whole chain which includes perishable items such as vegetables, fish, meat, and grains (VFMG). One of the crucial factors of these VFMG products is their life cycle. VFMG products have the shortest life cycle comparing to other products. For this reason, supplying an effective number of perishable items as well as non-perishables from the central warehouse to stores is also challenging. So, this research paper covers Distribution management system of Central Distribution Center and their current policies for transportation across the country and finally, a different method is suggested based on a pilot experiment held among the outlet situated inside the capital city of Bangladesh.

Index Terms— Distribution strategy, distribution channel, transportation, transportation method, retail chain, perishable item, life cycle, Milk-run, full truckload, less than truckload.

1 INTRODUCTION

THIS paper has been prepared on Managing Distribution of a Retail Chain named “Shwapno” under the company ACI (Advance Chemical Industries) Logistics Limited. “ACI Logistics made entry into retail in 2008 as “Shwapno” and become the largest retail chain in Bangladesh. With 56 outlets across Dhaka, Chittagong, Sylhet, and Comilla, with a total retail space of 310,000 square feet and a workforce of over 2,500”. [1] Distribution connects every step of the supply chain. From collecting goods from suppliers then storing them in a central warehouse. Again, distributing them to consumers as per their demand. Considering these factors, it can be assumed that distribution is a key factor to transform the company into a profitable organization as it focuses on both costs for the supply chain as well as the experience of the valued customer. [2] Shwapno has 56 stores across the country and follows versatile models of distribution focusing the complexity management and physical management of thousands of SKUs in the whole chain. Most of the stores have small inventory known as “safety stock” to avoid a sudden shortage of products which causes another crucial factor regarding distribution management in terms of local inventory. That is why, different modes of distribution have been discussed such as carrying goods by own vehicles, 3P vehicles etc. focusing on cost aspect ratio. The key challenge for a retail chain is to distribute all the products from warehouse to the stores at right time at a right place with ensured quality. It is also found from report analysis that existing distribution flow cost is on the higher side which needs to be optimized to make the business profitable. Experiment for comparing the methods outlets inside Dhaka only considered. The values were obtained by interviewing people from ACILL, direct involvement with Supply Chain department. Physical inspection and visit at different stores etc. Here distribution policies for perishables are discussed in chapter 2 and distribution channels and methods have been discussed in chapter 3.

2 MANAGING PERISHABLES

Shwapno handles thousands of SKUs (stock keeping units) including grocery products. Among the grocery products, there are vegetables, fish, meat, and grains which can be categorized as VFMG products. These items are perishable items. The word perishable means a certain type of products which have fixed lifetime and when the lifetime is over they must be discarded such as food, medicine etc.[3] Moreover, retail inventories contains a large number of perishable items including all types of foodstuffs, pharmaceuticals, fashion goods, electronic items, periodicals, digital products and these products lose their value with respect to time due to deterioration; this is why retailers who are dealing with perishable products must notice the fact that short life cycle and the sales volume dependency determines the amount of inventory to obtain an optimal procurement policy.[4] So, it is a big challenge for distribution department to supply these goods with expected quality. As Shwapno stores have food and grocery and selling proposition include perishables items like Fish, Meat, Vegetables and Grains, so distribution nature is quite different from products to products. As products are perishable and there is uncertainty in demand, purchase and distribution become more important in the supply chain. [5] Hence, Shwapno follows a different strategy for perishables.

These products are divided into three categories as highly perishables, regular perishables and slow perishables. Considering their shelf life and sourcing points obtained distribution strategy is shown in table 1.

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Table 1: Perishables Distribution Strategy for Dhaka Metro

Type of Perishables	Shelf Life	Possible Sourcing Points	Supply Strategy
Highly Perishables (Spinach, silverbeet, & Meat)	24 - 36 hours	Around Dhaka (Savar, Munshigonj, Kawranbarazar, Jatrabari & Khilkahet)	Daily Basis Procurement & Replenishment
Medium/Regular Perishables (Bitter gourd, egg-plant and Fish etc.)	48 hours	Nimsar, Narshindi, Trihsal, Palshbari, Mahastangor, Sitakunda and Jessore.	Daily Basis Procurement & Replenishment
Slow Perishables (Potato, garlic, ginger, onion, Wax Gourd etc.)	Equal or more than 7 days	Where the items are in abundance	Seasonal buying & storage & replenishment twice in a week

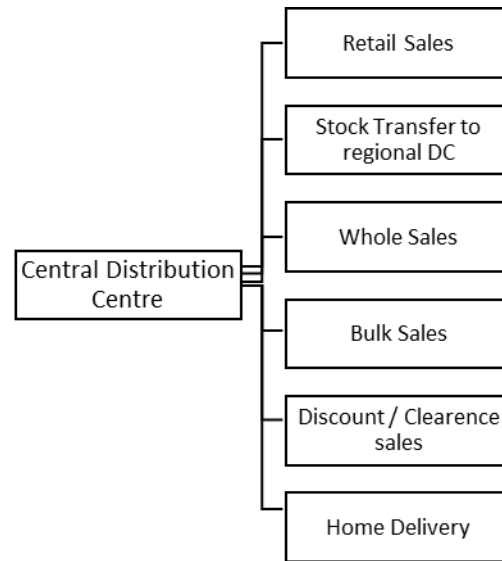


Figure 1: Distribution Channel

When products are distributed from warehouse to retailers or consumers it is called as outbound logistics and most of the time freight is made by trucks following two types of freight either full truckload (FTL) / (TL) or less than truckload (LTL).[6] Comparatively, FTL is cheaper because the charged for the full truck is not dependent on the amount of load to be carried on the other hand, cost depends on both amount of loads to be carried as well as the distance to be covered.[6]



Figure 2: Full truckload distribution. [13]

3 DISTRIBUTION CHANNEL AND METHOD

The distribution channel is the channel through which the products and services reach the customers. Shwapno follows different distribution channels inside Dhaka. Products are supplied to different channels from one main distribution center. So, Distribution structure forms based on Central Distribution center, divisional Distribution center, sales unit & retail outlet etc. For this reason, one sales channel has several distribution channels to sell articles and services differently. There are six distribution channels to distribute the goods from Central Distribution Center (CDC) to retailer customers, Home delivery sales, wholesale customers, institutional customers, clearance sales and internal sales or stock transfer as shown in Figure 1.

Furthermore, the main advantage of direct shipment is it does not have any intermediate warehouse which makes operating network very simple and decisions come from local stores without influencing other shipments. [7] Therefore, Shwapno uses Direct Distribution to minimize cost with FTL where each truck goes to the different store. Although this model requires less time to deliver products, it increases the total transportation cost. The amount of required time and cost is shown in Table 2.

Table 2: Required time and cost for direct distribution

Outlet No	Vehicle no	Time to Deliver (Hours)	Cost (BDT.)
1	V1	4	1700
2	V2	2	1200
3	V3	6	1900
4	V4	3	1500
			Σ 6300

But sometimes in emergency cases, they must send the product in LTL. But this happens very few times. If TL carrier is used due to its high fixed cost for each truck causes an increase of inventory on the other hand LTL requires low inventory as well as high transportation cost and delivery. [8] MILK-RUN shipment method will be useful considering the issues mentioned above. Ricoh Express introduced the “milk run” method, by which one truck travels around to multiple suppliers to pick up cargo. To operate the milk run system effectively, the company developed a system to optimize vehicle routing, by checking shipment volumes with suppliers prior to collection, by telephone or dedicated network.[9] Furthermore, cyclic goods taking also known as Milk-run originates from the north pasture of the United Kingdom is a kind of transportation and delivery way, which was created for eliminating the problems of transportation of milk delivery, trucks deliver milk filled in the bottle to each predetermined places and also collecting the empty bottles when returning to central warehouse.[10] The main advantage of the Milk-run model is it ensures full use of vehicle’s space to its predetermined stations.[11] Several other advantages of milk run method are found.

They are:

1. The improved load factor of the vehicle
2. Elimination of empty space in vehicles.
3. Shorter distance to cover with the help of effective path planning.
4. Reduction of time waste as there is no plan to return goods and
5. Saves transportation cost. [12]

4 RESULTS

To save the perishable products Shwapno must follow the supply strategy focusing the Procurement & Replenishment. Again, for choosing a suitable distribution method a Comparison between both distribution method is illustrated. Which addresses that Shwapno can move from their direct distribution method to a new one. If Shwapno uses the milk-

run method, they can use the whole space of the vehicle as well as total transportation cost can be minimized. Their FTL policy will not be changed and a number of vehicles can also be reduced which is another key factor. One vehicle from central warehouse will deliver products to certain locations and small vehicles or carts will come at the collecting point for collecting the products for each store. To find out the worthy method an experiment was held. Four outlets were chosen, and a same number of products were delivered to these outlets. After obtaining the results a comparison was made be-

Distribution Model	Delivery time for 4 outlets (Hours)	Number of vehicles	Manpower
Direct distribution	2-6 [individual]	4	8
Milk-run	9 [total]	1	2

two existing methods. In Table 3 a comparison between existing

g method and proposed method has been shown.

Table 3: Comparison between existing and proposed distribution method

Here we can see that existing method or direct distribution method requires a higher number of vehicles as well as manpower. This leads to higher total cost as maintenance cost for the vehicle, fuel cost and remuneration cost for manpower increases with the increase of number. So, the comparison

with respect to cost between two methods is also illustrated in the following graph. Where we can see that direct distribution requires almost twice the money than milk-run method requires.

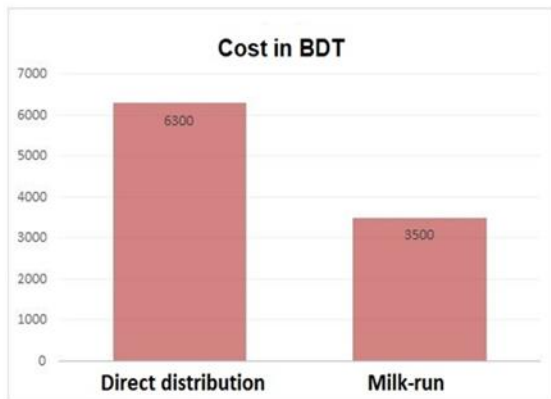


Figure 3: cost comparison between direct distribution and Milk-run method.

5 DISCUSSIONS

This paper addresses two key factors for managing the distribution of a retail chain which contains perishable items and uses direct distribution method. An effort is taken to analyze the policy followed by this retail chain whether they cover profit margin. Again, an alternate policy for distribution strategy has been suggested which can be worthy based on cost aspect ratio. Further research can be carried out by identifying an optimum distribution route to supply products from the distribution center to outlets. Fuel cost monitoring tools could be automated through even using excel file and another recommendation is to capture distribution cost in ERP systems "SAP" then optimization procedures will be expedited as visibility will be increased.

6 CONCLUSIONS

The operation of the supply chain is a continuous process. Where distribution is considered as a relay race. If one supply takes extra 1minute then the whole system will take extra 100minutes. So, from the planning phase to procurement to Distribution center to Logistics, everything should go hand in hand. Otherwise, the whole chain will be broken down. For the smooth operation of this kind of business, Distribution Center should be operated very efficiently. That is why creating an appropriate distribution strategy is mandatory to survive in the competitive market. Distribution management always addresses one thing that, if any organization loses while they are purchasing then there is no point to extract profit out of it. As the process is all about buying and selling to the ultimate consumer group so setting parameters to ensure the quality of the product, as well as customer's satisfaction, is a must.

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