Dabbawala: Efficient and Economical Lunch Delivery SCM

Submitted by

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Paper to be presented at NATIONAL CONFERENCE – BIG 2004 to be held in Kolkata, India during June 11-13, 2004.

ABSTRACT

The principle behind supply chain working in a manufacturing organization for complete operation and a service provider organization remain identical. This indicates that their problems are similar. Over the next 10 years, India needs to use technology to solve these problems. It has to start working on products and services for the Indian conditions.

Operational planning is all times difficult in total supply chain cycle. The co-ordination of time bound activities requires dedication and speedy operation without wasting a single minute.

In MUMBAI, to provide lunch delivery on time no sophisticated Software or Computers are needed. However, you need logical network of people and handcarts / bicycles. The workforce is not even educated to the secondary level.

Here is a classic example that demonstrates the effects of precision planning in SCM with no more sophisticated resources. There are approximately 4500 dedicated workmen delivering fresh home-cooked lunch from 1.75 lakh houses to people's office desks with individualized accuracy, never lunch switched for another. The service charge is very economical about Rs. 150 – 300 per month.

Dabbawala group drawing an estimated Rs. 50 crore in revenue. The quality of service remains consistent. The service will stop if and only if Mumbai's trains stop. The geographical pattern helps most of office-goers who live in the suburbs and work down town. There are local trains connecting the two points, which form hubs for sub-networks.

The entire system works on a military discipline based on a shared agenda and a common protocol. In this paper we shall examine different SCM models and try to understand it's working.

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1. Problems of SCM Process:

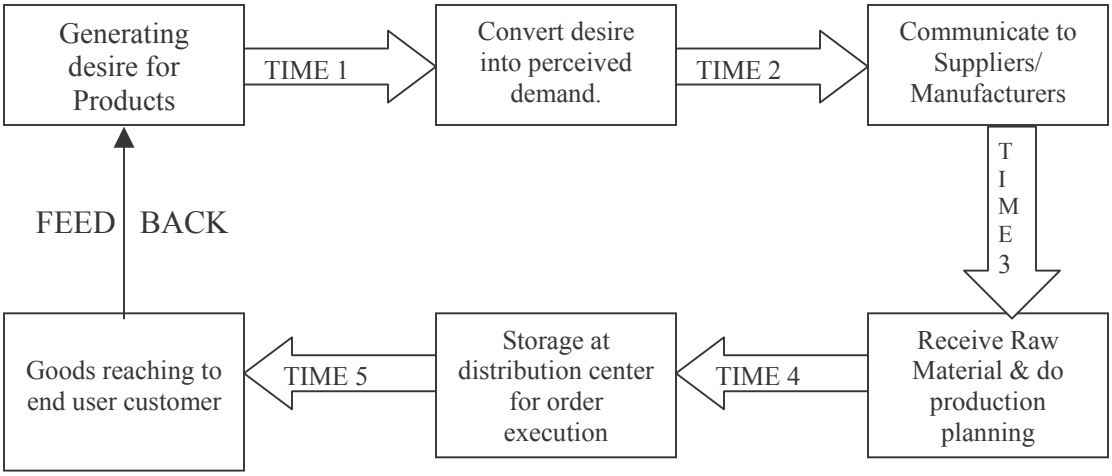
Let us examine the basic problems with any SCM process. Movements of goods through the supply chain will involve multiple parties.

- One or more suppliers with different products.
- One or more levels of local warehouses.
- One or more levels of local and retailer distribution centers.

This complexity requires the co-ordination of Production, Distribution, Capacity planning and Transportation etc.

SCM Models:

Every manufacturer performs five basic activities or processes within a supply chain: **Buy, Make, Move, Store and Sell**. With better information, supply chain planner can get visibility into the future market conditions.



Generic SCM Model

Time 1 – Delay for decision in converting desire to demand.

Time 2 – To meet perceived demand, time require for operational & capacity planning. Close contact with suppliers through communication.

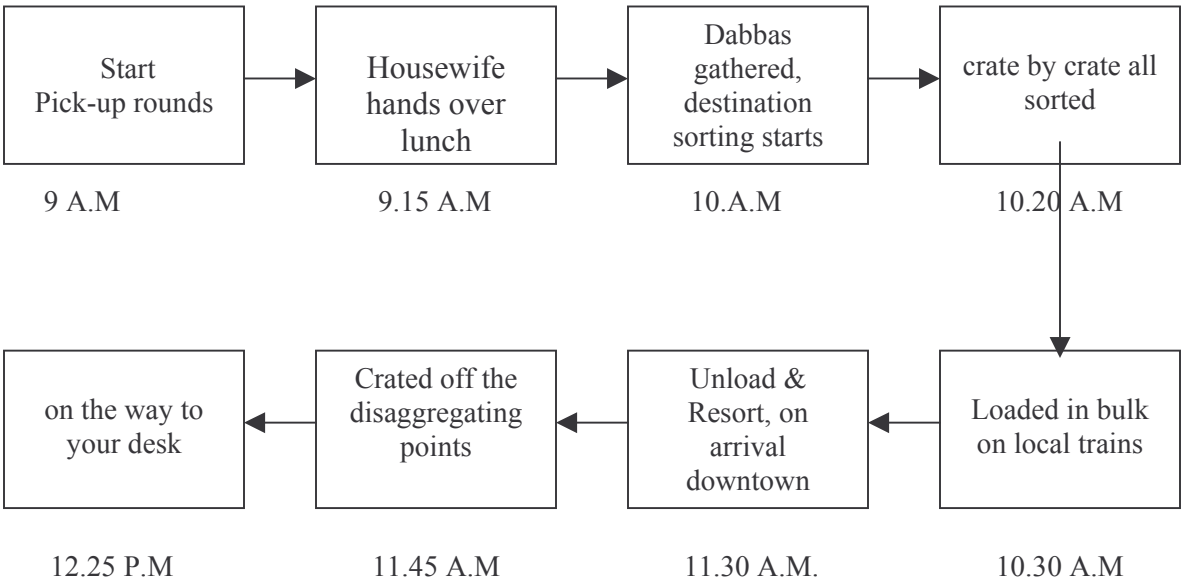
Time 3 – Transportation time, advance information to load and unload goods.

Time 4 – Allocation of goods to distributors/customers with close contact with transporters to communicate last moment altered dispatch plan.

Time 5 – Actual purchase by end-user customer.

2. SCM Model of Dabbawala:

Dabbawala performs five basic activities or processes within a supply chain: **Collect, Sort, Move, Re-Sort and Deliver**. These processes work two ways in a day.



SCM Model of Dabbawala

It can be seen from above models that except Time 3 which is Transportation time all other Time 1 to Time 5 are eliminated and no need for storage during the entire process. These are big savings.

The following problems may be noticed in SCM model of Dabbawala. They may be identical in different manner.

(1) There are too many problems in preparing and executing dispatch schedule. Here items are ready and mode of transport are known in much advance but it is restricted by the vehicle capacity.
(2) Many times the vehicle (carrying weight and size capacity) planned for transportation gets altered and create last moment critical problem.
(3) There is a possibility of execution of several dabbas in the same transportation vehicle for the same destination or nearby location. Grouping of dabbas with quantity under capacity is again a challenging problem.
(4) In case of multiple destination dispatch vehicle route planning is absolutely necessary.

Despite these problems, the perfect SCM operation is working on logistical success of clockwork efficiency. The system has been around for 120 years. Work starts in the morning with dabbawalas going door-to-door to collect the lunch pack and brought to the nearest local station.

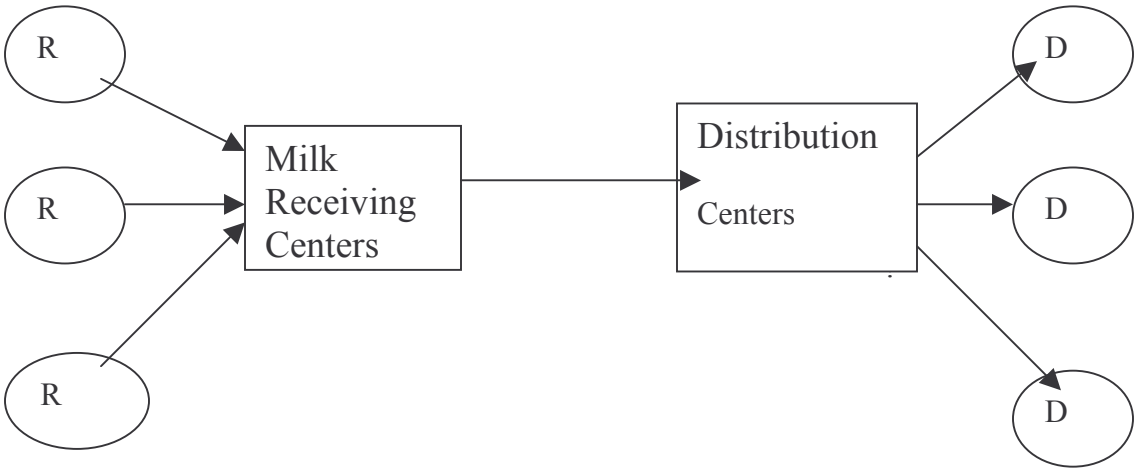
At local station, the sorting process takes about 20 minutes and get loaded onto trains towards downtown. By the time one is hungry for home food, the lunch pack reaches you and sent back in a precise reversal of the process. It is highly information-rich network.

This example is a corporate role model demonstrating the strength of centralized planning and decentralized implementation. It is also good method for advertisement medium to reach the mass people for creating desire about any product and services.

Most of the above listed problems in entire SCM process get improved by restless working and desire to achieve pre-decided goal to maximize clients' satisfaction.

The milk collection and distribution system of AMUL is another example of fine SCM process. The co-operative model remains a powerful grass roots-level tool to empower the masses and generate value. The mahila griha udyog "LIJJAT" papad units are all working on these principles. Thus, people earn extra money for their mankind utilizing spare moments.

The activity can be represented as below:



3. Agro-based Products:

India is the largest producer of tea and milk, the second largest producer of fruits, vegetables and wheat. But its exports is still low. One can fix the supply chain and India's agro sector can turn into a big export earner.

The simple reason behind the low export is the absence of an effective supply chain from the farmer to the consumer. There are multiple intermediaries but few cold chains leading to wastage. In order to improve upon, India need more food processing centers particularly for fruits and vegetables as there exits a large potential market for it.

It is learn that food processing industry is now growing. The processed foods industry, comprising farm products and consumer goods is the future for Indian Market conditions. If all players in this segment of industry follow the principles of self disciplined working

with utmost accuracy, planning and dedication as in the case of dabbawala servicing, the resulting effects will be much healthy and profit making.

4. Recommendations:

Use the following THREE sigmas: maximize satisfaction, minimize time for movements and minimize cost of movements. If this can be achieved than working of both models will yield greater contribution in human life and add moral values.

$$\text{Let } F1 = \sum_{i=1}^{n} Si \quad \text{Where n – number of customers}$$

$$F2 = \sum_{j=1}^{m} Cj \quad \text{where m – number of cost components}$$

$$F3 = \sum_{k=1}^{l} Tk \quad \text{where l – number of stages in goods movement}$$

Apply weightage to each factors and you will find

$$W1*F1 + W2*F2 + W3*F3 = \text{SCM improvements.}$$

Here F1 is to be maximize, F2 and F3 are to be minimize.
Our observations in the cited example indicates that F1 is highest, F2 is affordable and F3 can not be eliminated. We recommend to establish such models to study the chain effect of the various processes in business operation and decide course of actions.

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