Enhancing the Logistic Performance in Manufacturing Industry

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Abstract- *The manufacturing industry is experiencing price volatility that equally affects contractors and transportation agencies. While part of this phenomenon can be attributed to instability in cost of fuel and other construction materials, large differences in unit bid items for different projects and among different regions indicate that the problem is more complex. The aim of this Project is to investigate the larger context of this phenomenon from the perspective of transportation agencies. More specifically, the two main objectives are to (a) reduce the transportation cost and (b) assess potential impacts of the identified methods on project performance measures such as cost, schedule, and quality. The study results indicate that a number of methods have a potential to reduce cost. In general, the methods implemented earlier in the project development are perceived to be more cost-effective than the ones implemented in the latter phases of project development. Further, this project also helps to reduce the inventory level by reducing the transportation time.*

Keywords- Total logistics cost, Breakdown, Inventory, JIT, Facility network, Materials handling and packaging, why- why analysis, Root cause analysis

I. INTRODUCTION

Freight transportation is a key supply chain component to ensure the efficient movement and timely availability of raw materials and finished Products (Crainic, 2003). Demand for freight transportation results from producers and consumers who are geographically apart from each other. Following trade globalization, the conventional road mode is no longer an all-time feasible solution, necessitating other means of transportation (and their combinations). In this regard, in 2010 about 45.8% of total freight transportation in European union countries were transported via road, 36.9% via sea, around 10.2% via rail, and 3.8% via inland waterways (EUROSTAT, 2012). The freight transportation market has witnessed several trends. In many parts of the world, new markets are rising and the customer base is growing. Furthermore, several trade regulations encourage easier and smoother international trade. Following the economic crisis in 2008, many Industries browse their business Processes in order to decrease their costs and increase performance. As a consequence, shippers, carriers.

Functions in logistics

- Processing
- Inventory
- Transportation
- Warehousing
- Materials handling and packaging
- Facility network

According to the authors, these areas together create the capabilities, which are needed to be able to achieve logistical value. However, Johnson (2008, pp. 32-33) offers a slightly different definition for the Logistical functions. He also considers

Customer service, transportation and storage as Logistics-related functions, but divides transportation into transport planning and freight transport.

The transportation management is aiming for lowest cost per distance per ton, which results to higher volumes, which increases the inventory in turn. With these illustrations the main aim of this study is seen clearly to identify the effects of transportation time to inventory.

Frazelle (2002) and Bowersox et al. (2010) stressed the importance between inventory availability and customer service. Jonsson (2008, pp. 9-10) made the same statement that especially within finished goods stock, the level of inventory has important effects on customer service. The aim of inventory management is to achieve the customer service level needed.

He categorizes total logistics cost into following cost types:

- Transportation and handling cost
- Packaging cost
- Inventory-carrying cost
- Administrative cost
- Ordering cost
- Capacity-related cost

Different types of categorizations for the total logistics cost but the most important thing is not to include any of the cost twice into more than one different category.

Bentz offers a narrower view of total Logistics cost which is also more relevant to this particular study where the main concentration is only on transportation and inventory. Bentz defines the total logistic

Total logistics cost = Transportation + Warehousing + Administration + Inventory Carrying cost.

When looking at the logistics cost, the main interest in this study is on the transportation and inventory cost created by the relation of transportation time and inventory. In this study, the total logistics cost consist of transportation cost and inventory carrying cost and Warehousing costs are included into the inventory carrying cost.

II. PROBLEM IDENTIFICATION

The RML theme of this decade "Profitable, Accelerated Growth" RML Continuously focusing on enhancing profitability through many activities, such as

1. Fixed Cost reduction
2. Variable Cost reduction

Further Variable cost classified in to 2 categories

- Selling variable cost
- Manufacturing Variable cost

2.1 Total Manufacturing variable cost of year 2014-15 to the % to sale

Fig.2.1 manufacturing variable cost of Year 2014-15 to the % to sale

The fig 2.1 shows the Company they are spending manufacturing variable cost in the year 2014-15, it include labour cost 4.90%, subcontracting cost 3.07%, power cost is 3.20%, stores and spares cost will be 1.90% and inward freight cost is 0.98% observing this fig freight cost is the high expensive factor and this freight cost is the major issue for increase in variable cost so focused on freight cost.

Manufacturing variable cost of 13.17 % to the % of sales

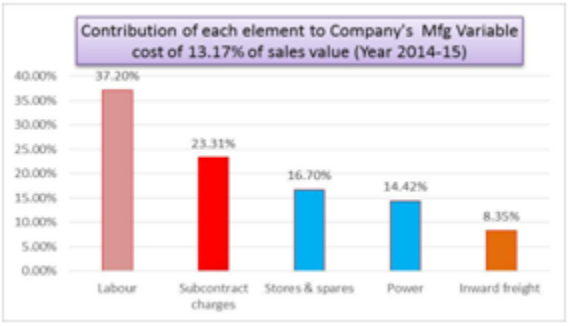

Fig2.2 manufacturing variable cost of 13.17 % to the %

The fig shows the manufacturing variable cost will be 13.17% of sales, in RML plant focused on the reduction of freight cost to minimize the manufacturing variable cost by reducing the freight cost by suitable method, and by reducing the transportation time inventory also reduce.

From the forgoing discussions, the

Following problems are identified.

1) High inwarding freight cost in the RML Company from the south zone.
2) High manufacturing variable cost (13.17% of the % of sales).

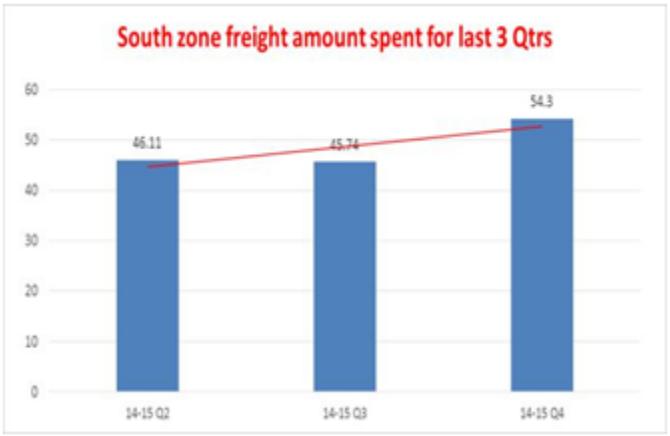

Fig.2.3 Freight cost spent in the south zone

The above Fig. 2.3 shows that RML spending the % of total freight spent in the south zone is in increasing tread, since decided to do more analysis and reduce the material invading freight cost in south zone of India.

III. TABLE REPRESENT THE DETAILS OF ARRIVING AT THE SIGNIFICANT OR IN SIGNIFICANT ACTION EXISTING IN THE CURRENT SYSTEM

The causes outcomes of brain streaming is analyses through Adequacy-compliance-Effectiveness (ACE), this ACE model will helps to validation of existing system as significant or in-significant.

Table 3.1 Details of significant or in significant action

Adequacy- Compliance - Effectiveness (ACE) Model for Validation existing system						
Sl	Out come of Brain	Current	A	C	E	Validatio
1	Un planned local	Individual buyers are ordering for collection	×	✓	×	Significant
2	Bill submission period (monthly	Transporters are waiting for POD receipt at their head Office for billing	✓	✓	×	Significant
3	Wrong weight	Bills being passed based on weight mentioned on the LRs	×	✓	×	Significant
4	More Number of bills	Each LR should contain only one Bill	✓	✓	×	Significant
5	Product improvements (VAVE etc.,) not Updated	No practice of weight master updating in SAP for revision	×	×	×	Significant
6	Using premium modes	SOP is in place, & followed	✓	✓	✓	In-Significant
7	Duplication billing	SAp accounting system is not controlled by LR numbers, only controlled by Bills Nos.	×	×	×	Significant
8	Hamali charges (unloading charges).	Cost per kgs is included the hamali charges	✓	✓	✓	In-Significant
9	Long payment terms	Freight contract is released after agreement of terms	✓	✓	✓	In-Significant
10	Storage charges	No Extra charges are allowed as per contract	✓	✓	✓	In-Significant
11	Waiting charges are billed	No waiting charges are allowed as per contract	✓	✓	✓	In-Significant
12	Rejection returns freight to RML account	Same transporters being used for sending the rejections to suppliers.	×	×	×	Significant
13	Usage of one time transporters frequently	RML is not having regular transporters (Gudur & Tirchy)	×	×	×	Significant

The current system is which is satisfy the ACE model then the current system is considered as insignificant and which is not satisfy the ACE model then current system is considered as significant.

3.1 Cause and Effect of brain storming

Outcomes of ACE model which causes was significant, classified as system related and planning related in the Fig. 4.1, planning related causes are unplanned local collections and usage of one time transports frequently. Fig 4.1 represents Cause and Effect diagram.

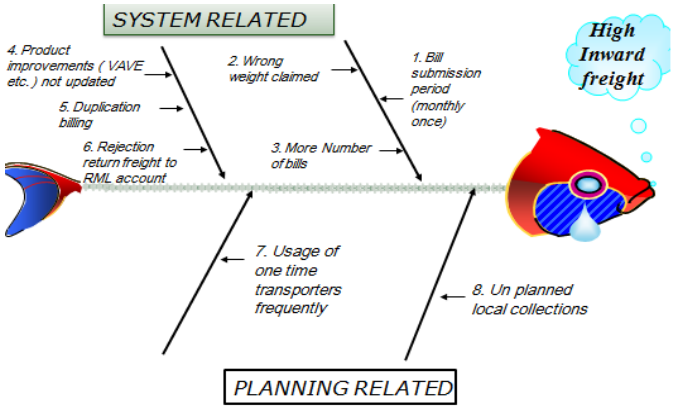

Fig. 3.1 Cause and Effect diagram

Unplanned local collections cause will increase the number of bills, by this bill payment process will get delay to the transporters. And usage of one time transporters cause will increase the freight charge, because some time special vehicle has to arrange from suppliers.

System related causes are the wrong weight measuring, number of bills, and duplication of bills, product improvement not updated, this causes will also increase fright charges and delaying the bill payment process, By applying the correct counter measure for the significant factor total freight can be reduced.

IV. RESULTS

As per 2015-16 AOP,
Sale value: 239Cr
0.91 % = Rs.218 Laths (total freight)
54% of total freight: Rs. 117.7Lakhs
40% of total freight: 87.2Lakhs
Hence the savings in 7 months: (117.7-87.2)/12*7= Rs. 17.79Lakh

V. CONCLUSION

Savings in Freight cost of 17.79 Lakhs has been achieved in 7 months, by reducing transportation cost, profit can be increased, Inventory level and production breakdown has been reduce

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