ANALYSIS AND COMPARISION OF VENDOR MANAGED INVENTORY & ORDER DELIVERY PROCESS (A CASE STUDY-Coca Cola)

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Abstract : In this study, the benefits of VMI in a supply chain consisting of a single retailer and a single capacitated supplier under stochastic demand was analyzed . A model for VMI was comparing the vendor managed system with the traditional system to quantify the benefits of VMI. In proposed VMI system, the retailer shares the inventory level information with the supplier, which was not available in traditional system; and the supplier was responsible to keep the retailer's inventory level between the specified minimum and maximum values, set by a contract. The benefits of such a VMI system for each member and for the overall chain were analyze under different system parameters. In present research work, Reduction in Re-order Point results in saving of 4 Crore 12 lakhs, Increase in response time by 25%.

IndexTerms **– Supply Chain management, Vendor managed Inventory**

I. INTRODUCTION

In the era of globalized economy, with the rapid development of the internet and different means of improving both the competitiveness and effectiveness of companies, the globalization of market has enforced the companies to rethink themselves about their traditional methods of inventory systems. Internet is today the need of our because all information is shared at very faster rate within reasonable cost but the development of Internet has brought a revolution in the market, companies are not dependent on local purchasing only. The e-business revolution has affected supply chain management drastically and is changing how companies integrate business processes, both inside and outside the company. These developments introduce new business tactics, technical challenges and spotlight existing business processes and supporting enterprise systems that revolve only around the supply chain management. Recent approaches to supply chain management attempt to organize the supply chain as a network of cooperating intelligent agents, each performing one or more supply chain functions and each coordinating action with one another. The common characteristic among supply chain leaders in all the industry segments is the extent to which the various supply chain constituents engage in supply chain collaboration. Organizations need to break the traditional paradigm of looking at the supply chain as a set of interconnected constituent .There is an urgent need to employ systems thinking to supply chain management.

Logistics Management deals with the flow and storage of goods and related information. All` the processes of planning, implementing and controlling the efficient, cost to effective flow and storage raw materials, in-process inventory, finished goods and related information from point-of-origin to point-of-consumption are for the purpose of conforming to customer requirements.

But our study is focused only on supply chain management and its related concerns. In a supply chain, the flow of material begins from different suppliers. They send raw materials (components) to a factory. The factory does the required operations or processes on them and sends the finished products to warehouses or to distribution centers where they are to store. Supply chain consists of a manufacturer, which could be one or more suppliers, distribution centers and retailer owned warehouses all serving the various downstream customers.

In the present research work response time of different raw materials has increased and re-order point of inventories has been reduced.

II. RESEARCH METHODOLOGY

The methodology has been adopted for study by comparing vendor managed inventory with traditional system of inventory control to get optimise solution. Before studying the methodology the understanding of few relating concepts is must as mention below.

2.1 Reorder point

The reorder point is the level of inventory when an order should be made with suppliers to bring the inventory up by the Economic order quantity. The reorder point for replenishment of stock occurs when the level of inventory drops down to zero. In view of instantaneous replenishment of stock the level of inventory jumps to the original level from zero level.

2.2. Response time

Response time is the time a system or functional unit takes to react to a given input. In SCM Response time is time takes by the vendor to give response to customer.

2.3 Steps for Calculating Response Time (RT) & Reorder Point (ROP)

The values of response time and reorder point were calculated from well established formulas Kumar (2005).

2.3.1. Determine the Safety Stock (SS)

SS = (MLT - NLT) x AD

2.3.2. Find the Service Level (SL)

SL = (No. Of orders per year - No. of Stock out) / No. of orders per year

2.3.3. Calculate the Standard Deviation (SD)

SD = Safety Stock (SS) / Safety factor (Z)

Where Z is obtained from the normal table against service level

2.3.4. Determine the Mean Absolute Deviation of Demand (MAD)

MAD= $\sqrt{\frac{2}{\pi}}$ * SD

2.3.5. Calculate the RESPONSE TIME (RT)

RT = PI {SS / Z (1.25 * MAD)} ^{2} – RI

2.3.6. Calculate the REORDER POINT (ROP)

ROP = Safety Stock + [(Average demand / day) * NLT]

2.4 Research Methodology Flow chart

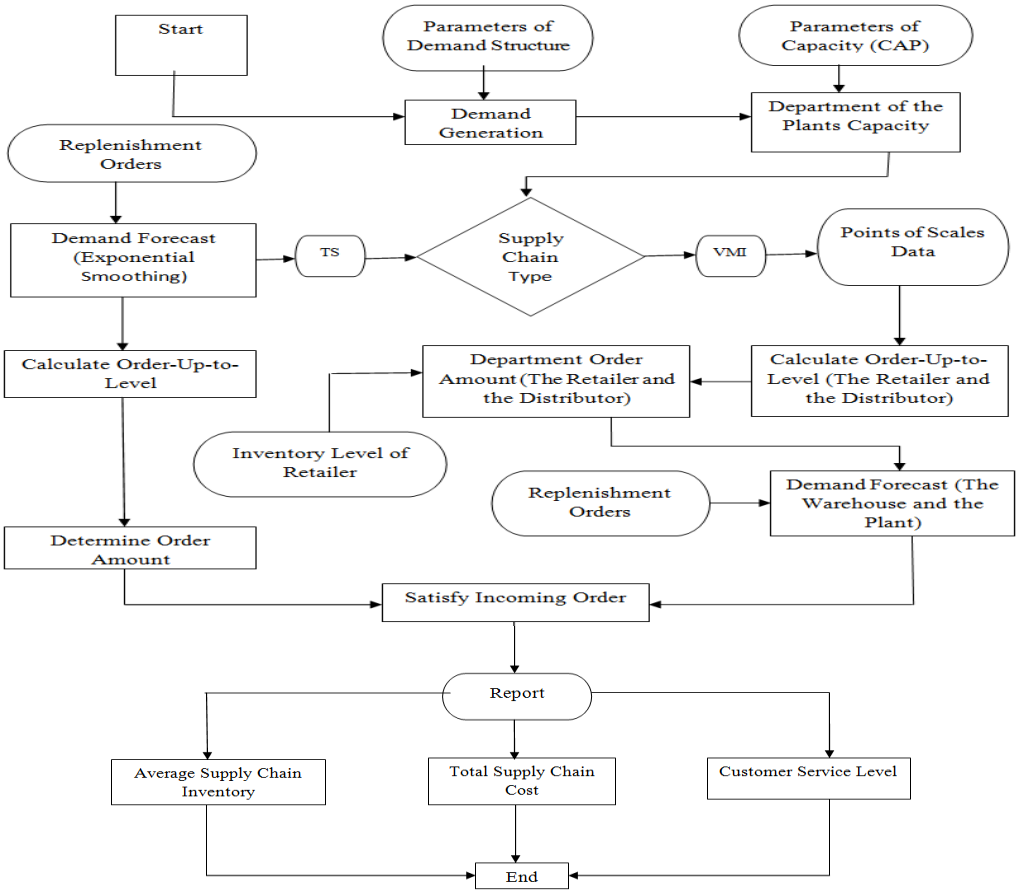

Fig. 1:flow chart of research methodology

The fig no 1 shows the process adopted for the reasearch of comparision between vendor managed inventory with Order Delivery Process of inventory control to get optimise solution

III. RESULT AND DISCUSSIONS

3.1 Comparison between ODP & VMI for Response Time & Reorder Point

The calculated values for different raw material with Order Delivery Process and Vendor Managed Inventory were compared, as shown in table no. 1.

Table. 1: Shows comparative results increase in RT and reduction in ROP after VMI Implementation

Product	Response Time (RT) with ODP	Response Time (RT) with VMI	Reorder Point (ROP) with ODP	Reorder Point (ROP) with VMI
Coke Non-Alcholic Beverage Base	4.03	5.02	56300	56150
Fanta Non-Alcholic Beverage Base	4.03	5.02	40240	40120
Limca Non-Alcholic Beverage Base	4.03	5.02	48280	48140
Maaza Non-Alcholic Beverage Base	4.03	5.02	42220	42110
Thums Up Non-Alcholic Beverage Base	4.03	5.02	16100	16050
Sprite Non-Alcholic Beverage Base	4.03	5.02	20930	20865
Kinley Soda Non-Alcholic Beverage Base	4.03	5.02	24090	24045
Minute Maid Nimbus Fresh Non-Alcholic Beverage Base	4.03	5.02	1106	1103
Mango Plup Alphanso	4.03	5.02	1148000	1144000
Mango Plup Totapuri	4.03	5.02	2830000	2815000
Lemon Juice Conc.	4.03	5.02	16600	16550
Coca Cola Crown Cork	4.03	5.02	885000	882500
Fanta Crown Cork	4.03	5.02	387300	386150
Limca Crown Cork	4.03	5.02	804650	802325
Maaza Crown Cork	4.03	5.02	442650	441325
Thums Up Crown Cork	4.03	5.02	1126600	1123300
Sprite Crown Cork	4.03	5.02	663650	661825
Sugar	4.03	5.02	251600	250800
Co-2 Gas	4.03	5.02	1105360	1102650

Filter Paper	4.03	5.02	166000	165500
Furnance Oil	4.03	5.02	5323000	5301500
H.S.D	4.03	5.02	1530000	1525000
Calcium Chloride	4.03	5.02	64320	64160
Ferrous Sulphate	4.03	5.02	112600	112300
Lime	4.03	5.02	643300	641650
Salt	4.03	5.02	1206600	1203300
Caustic Soda Flakes	4.03	5.02	966500	963250
B/Washer Rinse Additive Divo-Le	4.03	5.02	110450	110225
Divoultra Vb-10 B/Washer Additive	4.03	5.02	88400	88200
Polelectrolyte Powder	4.03	5.02	2762	2756
Calcium Hypochlorite	4.03	5.02	96330	96165

The comparison showed that, the value of response time was increased and reorder point was decreased with Vendor Managed Inventory for different products. Therefore VMI is far more better option as compare to ODP.

3.2 Graphical Interpretation of Response Time

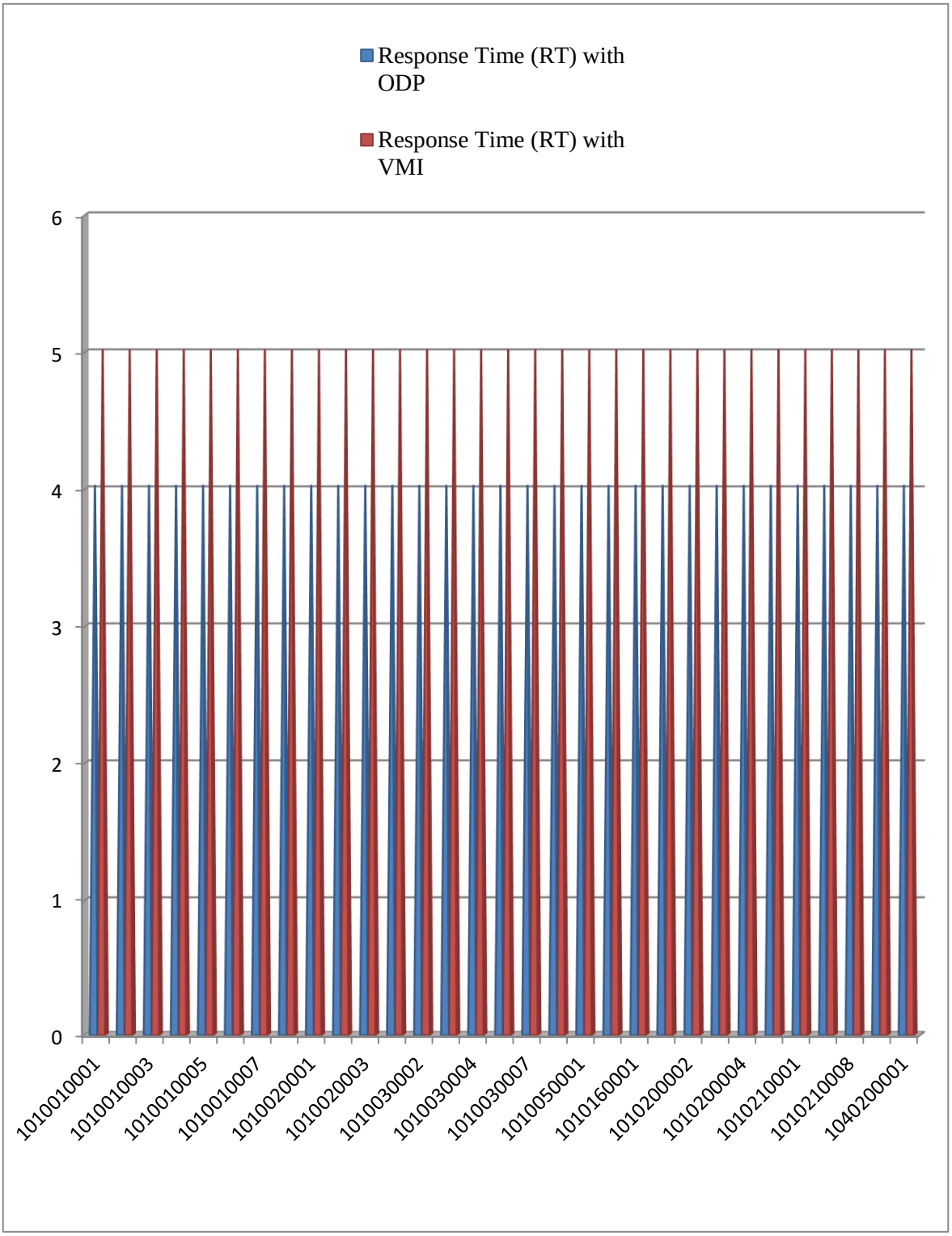

Fig 2: Show Response Time difference between **ODP** and **VMI**

The Fig no. 2 shows the comparison of response time between Order Delivery process and Vendor Managed Inventory. Comparison showed that value of response time was less for ODP as compared to VMI.

3.3 Graphical Interpretation of Reorder point

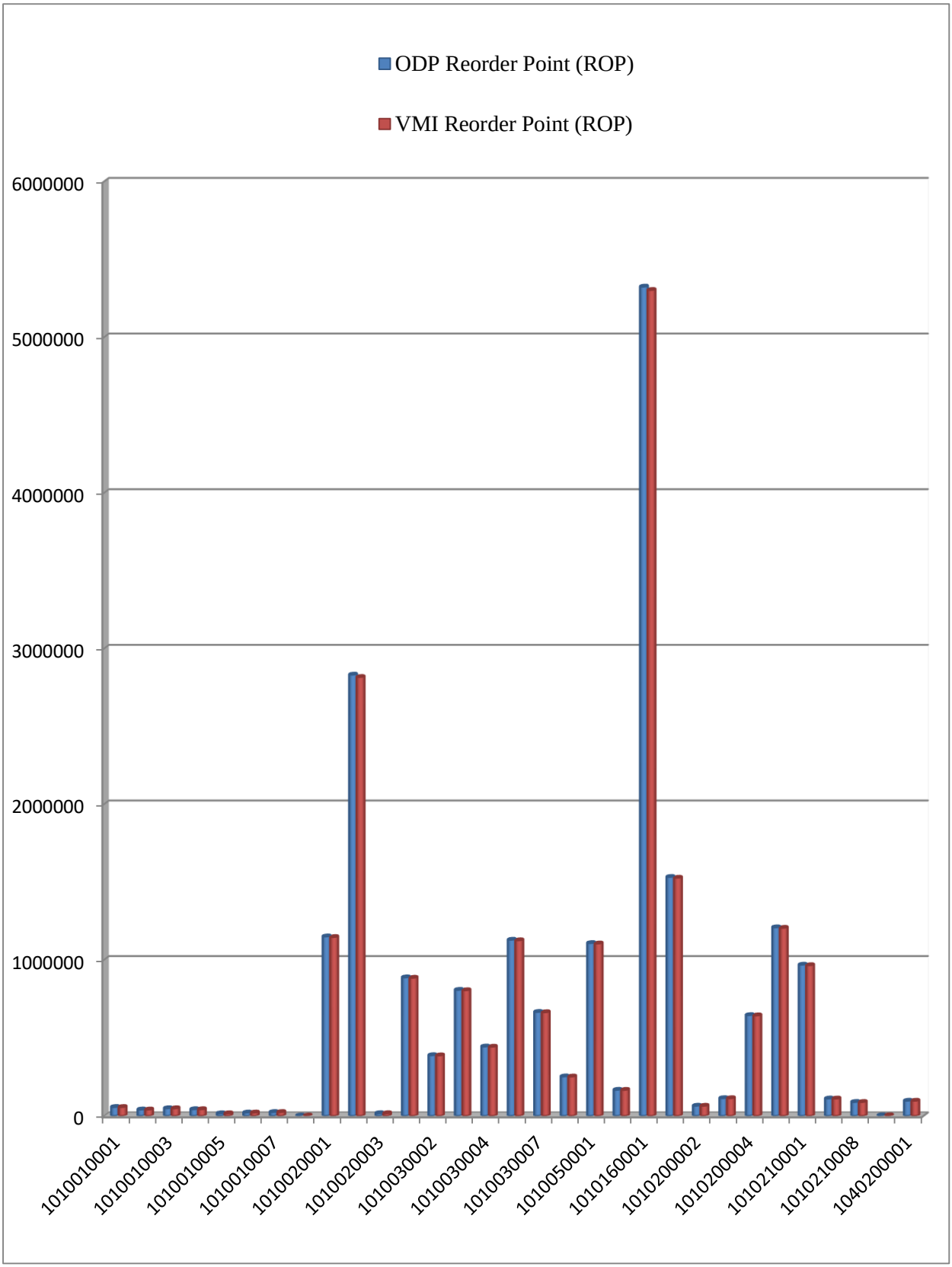

Fig. 3: Show Reorder Point difference between **ODP** AND **VMI**

The Fig no. 3 shows the comparison of reorder point between Order Delivery process and Vendor Managed Inventory. Comparison showed that value of response time was more for ODP as compared to VMI.

IV.REFERENCES

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