

Improving the Fill Rate Performance of FMCG Products in Modern Trade: An Indian Scenario

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ABSTRACT: This study tries to unfold the problems causing low fill-rates for the FMCG products in Modern Trade (MT) in India. Low-Fill rates in MT are a big concern for most FMCGs not only because they contribute to lost sales but also because it allows consumers to switch to competitor's products. The research is primarily exploratory in nature. Secondary research involved a review of the existing literature on Indian retail and the challenges faced. Short product life cycles, frequent introduction of new SKUs, trade promotions, demand latency & seasonal variability which distort the forecast in Modern Trade are some of the key issues recognised in the extant literature. Various root causes of low fill-rates identified in this research were issues pertaining to Order management (data synchronization), inaccurate demand planning, logistics & network constraints, high uncertainty in system, and rejection of products because of freshness issues. The paper then focusses on overcoming these challenges. Different frameworks for streamlining order management process, Collaborative planning, Forecast & Replenishment, redesigning distribution and transportation strategies are suggested to tackle the issue. The results of this study will have managerial and practical implications which are discussed.

KEYWORDS: Fill-rate performance; Modern trade; Collaborative Planning and Forecasting Replenishment (CPFR); Theory of Constraints (TOC); SAP Reason Codes.

I. INTRODUCTION

Modern trade is an organized form of wholesale or retail arrangement, which is classically a multiple-outlet chain of distribution centers or stores. The feasibility of Modern Trade in India is not a question anymore; a fifth of urban Indian shoppers now shop regularly at Modern Trade and a third of shoppers choosing 'bulk packs' as a strategy to beat price rise (Nielsen, 2012). Organized retail industry (FMCG) is still at a nascent stage in India and is estimated to be about Rs. 14,536 crores per annum and growing at 13.2%. Also, the contribution of Modern Trade to overall trade contributes to 9.7% of the FMCG business (Nielsen, 2013).

This paper has identified the issues specific to modern trade & recommend changes in supply chain strategies of most Indian FMCGs to reach the benchmark fill rate of 95%.

By exploring the major problems prevalent in the supply chain of most of the FMCGs in India through extant literature; key pain areas were identified for low fill rates of Modern Trade (Fig 1). A root-cause analysis brought forth issues in data synchronization between retailers and manufacturers, poor demand planning, logistics & network constraints, high volatility and uncertainty of the market and perishable nature of FMCG products.[1]

Also some of the key issues specific to "Modern Trade" in India were recognized which are listed below:

1. Short Product Life-Cycles
2. Demand variability caused by promotions
3. Frequent New Product Introductions

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4. Rise of Private Labels & Impulse Buying
5. Price-Erosion
6. Shorter Time-to-market and Time-to-Volume
7. Delivery at Slot-Time

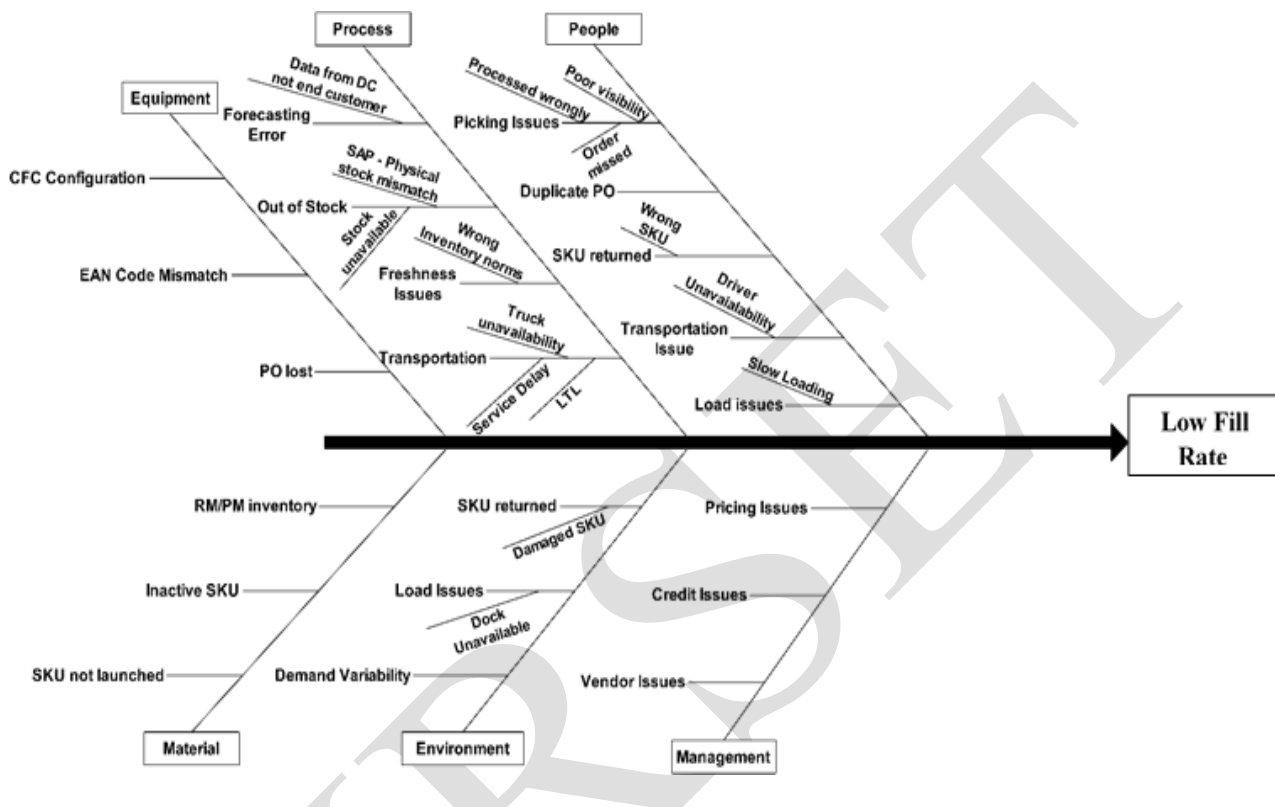


Figure 1. Root - cause analysis for low fill rates

Most FMCGs classify their trade channels into 2 categories General Trade (GT) & Modern Trade (MT). Modern Trade channel supplies to the demands of organized retail. FMCGs service MT customers through 2 modes viz., direct and indirect modes:

- **Direct Servicing-** In case of direct servicing account, Purchase Orders are processed, stocks are provided to accounts from company Warehouse Service Provider (WSP).
- **Indirect Servicing-** In case of indirect servicing, account Purchase Orders are processed by company’s Wholesale Distributors. Stocks are supplied from WD point. Regional and local MT outlets are serviced through indirect route

The paper is structured into five main sections. The first section talks about streamlining the order management process and suggests measures for enabling better data synchronization. Second sections highlights the replenishment strategy to be adopted for catering markets with high demand variability such as that of FMCG products in MT. Next, the paper presents a roadmap to CPFR which is capable of boosting fill-rate performance through collaboration. The last section recommends a modelling framework that can be adopted to optimize the distributioncosts. Finally the conclusions and practical implication are drawn on the research study.

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II. STREAMLINING ORDER MANAGEMENT

Issues with order processing in FMCGs:

1. Conversion of PDFs to Excel, Manual process, thus prone to typing Errors
2. Pricing Issues in PO
3. Duplication of PO/Mismatch in EAN codes/Outdated SKUs

IT application integrated with Database/SAP:

Create a web-based software application integrated with the database of company which facilitates data sharing between Company and Key Accounts and also generation of PO over this interface through authorized access and online Purchase Order approval system. This application can enable automatic invoicing.

This application can help in resolving issues related to data synchronization like Updating New SKUs, Obsolete SKU's, Pricing Issues, Code mismatch etc. Managing Product Catalogue through this application, ensures data synch between suppliers and retailers.

Johnson & Johnson and Wal-Mart have improved fill-rates of J&J products that were caused by data misalignment. This represented a 2.5% improvement in fill-rate. (Capgemini/GCI 2005)

Lot PO Model:

In this model, A lot or a bulk PO is sent to branch by the DC which would accumulate demand for quarter. Subsequent demand communication and invoicing would be carried out through Excel Templates. The advantages are that conversion of PDFs to excel is eliminated. Dropdown of active SKUs can be provided in excel template, eliminating inactive SKUs. SKUs and codes can be compressively matched in the DC stage itself eliminating error by creating a well-designed excel template.

Transition from ERP to ERMS (Enterprise Route Management System):

ERMS is a tailored software application which uses POS data/SKU Barcode to automate PO generation and invoicing. It is highly automated process and human intervention is only required when new SKU s are added or in case of new commercial agreements.

It allows plans to be built only from pre-approved promotions called assignments thereby dampening the Demand variability due to promotion. Simplifies the review, approval, and tracking of promotions.

Defining Reason Codes:

Are the Reason Codes in SAP sharply defined for the FMCG's processes? And what are the actions these Reason Codes trigger?

Say, there are 'X' billing officers who must be punching at least '200X' orders (assuming every billing officer punches at least 200 orders in a month) which means there are more than '3000X' lines every month. For any line that cannot be serviced they have to punch in a reason code. For such an intricate process, most of the problems arise because of the lack of right information with billing officers i.e. what to use when and secondly, the process is time consuming.

How about bringing simple changes with new reason codes (See APPENDIX II). The new reason codes could be clearly defined after close interaction with the business, order processing team, logistics, planning & IT; hence there is an overall buy-in.

The new reason codes might require the following two changes:

IT Change:

1. Reason codes created in SAP
2. Only available for MT
3. Field created for PO expiry date
4. Auto exception report - 24 Hrs. prior PO expiry
5. BIW report on fill rates with reason codes

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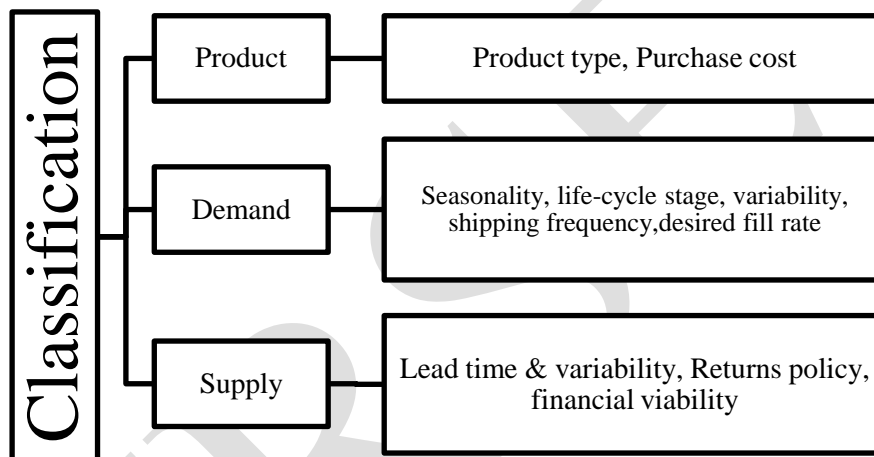
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People Change:

1. Detailed presentation on Reason Codes
2. Billing officers trained
3. Business & Supply Chain sensitized on Actionable
4. Trigger ongoing MIS on Reason Code Report
5. Better information flow from KAM's to Billing Office

III. CHOOSING THE RIGHT REPLENISHMENT STRATEGY

Against traditional one-dimensional classifications (ABC, FSN etc.), SKUs must be classified into Inventory deployment families based on three sets of characteristics: Product, Demand & Supply.[2] Once the classification is done, then suitable replenishment strategies should be employed.



SKUs can be rated on all the above factors on the scale of High, Medium & Low independently. SKUs with the different scores can be accommodated with different replenishment systems.[3]

1. High: JIT or TOC based replenishment system
2. Medium: Continuous replenishment system
3. Low: Periodic review system

Updating Replenishment Norms:

Current stock levels should be divided into three zones: Red, yellow and green. Red zone indicates scarcity, green indicates abundance & yellow being ideal state for a stock. So, If stock reaches red or green zone in a period then norms should be revised and updated to keep it in yellow zone.

Phantom & Hidden Inventory:

Improper scanning of items, incorrect audits, mislabeling are responsible for errors in inventory accuracy in two ways: System shows more inventory in warehouse than on-hand (Phantom inventory) or shows less inventory than on-hand (Hidden Inventory).[4]

This issue can also arise at key account's DC's or Outlets, further aggravating the problem of lower fill rates and OOS.

It can be resolved by auditing when perpetual inventory system shows zero or negative inventory, unusually high inventory, red dots.

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IV. BOOSTING FILL RATE PERFORMANCE THROUGH COLLABORATION

Pain Areas for Demand Forecasting:

1. Short product life cycles & New Product Introductions
2. Demand Variability owing to marketing/promotional efforts, seasonality, holidays, special events
3. Distorted True Demand due to OOS events and demand latency

Accurate forecast will be facilitated by:

Collaborative Planning, Forecasting and Replenishment:

CPFR should be implemented wherein company and its Key Accounts can use information technology (IT) and a set of business procedures and combine their intelligence of all functions in the planning and fulfilment of customer demand sharing Point-Of-Sale (POS) inventory data, promotions strategy and production information.[5]

Attribute Based Forecasting for New Products:

There are certain categories in which new variants or SKU's are introduced frequently. Because of this demand for some SKU's might go down because of substitution, while demand for others might increase. Thus, "Attribute based forecasting" must be used to capture the demand that will be generated owing to different attributes of the new product.[6] It can be achieved by "clustering" the retail stores basis customer preference for certain attributes evident from similar sales pattern and for these clusters, sales forecast can then be adjusted.

Promotion Planning:

Mathematical models like "Dynamic Elasticity Demand" model can be used to determine the effects of price promotion or other variables on sales. Output of the model is both direct sales elasticity (the way in which sales of a product vary as price varies) and cross elasticity (the ways in which a product's sales vary as the sales of other products vary). EDM can be created at branch level to determine promotion demand forecasts to achieve potential impact of promotion.[7]

Return/Stale Products Forecasting:

A Pilot area with highest no. of issues & having high potential for return products can be selected. An excel macro based tool will use exponential smoothening & regression analysis to forecast the potential return amounts using data like product life cycle, sales targets and past data.[8] This system will not only prevent products becoming stale but also prevent heavy discounting costs.

V. OPTIMIZE DISTRIBUTION COSTS

Model 1: Different Delivery velocities for different Purchase Orders -

Issue: Some products were received well in advance of the sale date causing increased liquidation while others arrived with very little time to make the final delivery to the store leading to decreased fill rate.

We will use ordered-probit regression model which will predict the probability whether destination DC dwell time (number of days between the date a product arrived at the distribution center and the date it was needed in order to meet their sales plans) for a particular purchase order will fall in either right or left side of histogram.[9] Based on predicted dwell time we can segment the purchase orders into three categories:

Late shipments, on time shipment & early shipment. For each of the three categories, a different supply chain speed can be applied by introducing slower, more cost-effective supply chains for early items and faster delivery times for tardy products in order to optimize the on-time delivery performance.

Model 2: Order acceptance criteria for New Regions -

Profitability of an order requires that marginal revenue to exceed marginal cost for a region.[10] To calculate the break even number of orders we require calculation of:

1. Cost (manufacturing cost, transportation cost & fixed operating costs)
2. Likelihood of receiving break-even number of orders (by Poisson distribution analysis)

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If incoming order is from a new region then profitability of deploying a truck there will be checked through above model. Model will check the likelihood of receiving the breakeven no. of orders in remaining order acceptance period & if probability is greater than predetermined threshold and if capacity is available then the order will be accepted.

Model 3: Fleet Optimization -

Based upon the ideal density of trucks used by company & density of products shipped to a particular location, specific capacity trucks can be allocated for particular routes to increase truck utilization.[11]

SKUs should be classified into cube constrained, neutral and weight constrained. By mixing SKUs in proper ratio density close to ideal density of truck can be achieved & thus improved truck utilization.

Uncertainty Audit:

Apart from the recommendations above, it is imperative that any company should constantly review its supply chain. [12] For that it can perform uncertainty auditing at regular intervals to find out the areas of improvement to increase fill rate. (See APPENDIX I)

Preventing Liquidation of stocks:

Generally Modern trade does not accept the stock less fresh than 75% w.r.t its expiry date. This can be minimized by distributing stocks to key accounts based on their freshness.

First, for different product categories key accounts will be classified as fast, slow & non-moving. Then, current stock can be classified into red, yellow & green zone Red being most close to expiry & green being most fresh stock. So, Green zoned stock of a SKU will be allocated to its respective fast Key accounts & red zoned stock to its respective slow key accounts.

VI. DISCUSSIONS AND CONCLUSIONS

The Indian Retail sector has caught the world's attention in the last few years. Indian organized retail sector (Modern Trade) is bound to grow multi-fold & hence every FMCG is keen to leverage this opportunity. Modern Trade is very particular about the delivery slot timings, stock availability & quality of products.

All the above issues for modern trade can be handled by following above recommendations. But, these recommendations have their applicability & economically feasibility issues. Thus Any FMCG company must first thoroughly analyze its AS-Is system & then check for the strategic fit i.e. if its competitive strategy is aligning with the above mentioned supply chain strategies.

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APPENDIX I

Uncertainty Auditing Questionnaire	
Flexible Operating Model	
BUY	<ul style="list-style-type: none"> ▪ What proportions of RMs are sourced locally & directly? ▪ Which product categories are sourced externally & in-house? ▪ How does supplier lead time vary with surge in demand? ▪ Is there sufficient supplier redundancy for different materials?
MAKE	<ul style="list-style-type: none"> ▪ In which production lines is the process variability highest? ▪ Are there any processes which can be automated? ▪ Where are the main bottlenecks in the manufacturing process? ▪ What is average changeover time from one product to other? ▪ What is average downtime for each piece of equipment used?
MOVE	<ul style="list-style-type: none"> ▪ Can disruptions be dealt with in-built contingencies in system ▪ What proportions of goods are lost/damaged in transit? ▪ How adequately can the pipeline goods be traced?
SELL	<ul style="list-style-type: none"> ▪ How have spends evolved as a percentage of sales over the last few years? ▪ How is the trade program structured for different retailers ▪ Which retail formats have provided highest returns spend across different product categories?
Dynamic Consumer Proposition Model	
PRICE	<ul style="list-style-type: none"> ▪ What is the price elasticity for each product across different customer segments? ▪ Do consumers show demand for price ranges that ITC does not cover? ▪ Are retailers growing private label share? ▪ In which categories fit to pocket pricing employed, if any?
COMMUNICATION	<ul style="list-style-type: none"> ▪ Is there a gap in the positioning intended for any of the ITC's brands versus their consumer perception? ▪ How allocation of Advertising & promotion has spends across different media changed over last 3 to 5 years?
WORKING CAPITAL REQUIRED	<ul style="list-style-type: none"> ▪ How often are credit terms with suppliers and buyers reviewed? ▪ What forecasting tools and techniques are in place for inventory planning? What is the accuracy of these techniques? Is POS data leveraged?

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APPENDIX II

New reason codes:

Supply Chain Actions
1. No Stocks
2. Insufficient Stocks

Strengthen Systems & Processes
3. Manual Override – Technical
4. Credit Limit Exhausted
5. MO– Temporarily Discontinued
6. PO Cancelled

KAM's ensure Sync with Accounts
7. Mismatch – Margin
8. Mismatch – VAT
9. Mismatch – MRP or Case size
10. Mismatch – Discontinued
11. MO – Quantity Upper Cap
12. MO – Quantity Lower Cap
13. Offer Quantity Exhausted