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# Innovation in Distribution Strategy to Sustain in Competitive Market: A Case Study of Auto Parts Industry

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## ABSTRACT

*Innovation in distribution strategy is the key to sustain in today's competitive market place. This is applicable for diverse sectors like PC manufacturers, retail chain, furniture industry, book sellers etc. Even the auto component makers are now changing their traditional push-type of distribution strategy especially in the replacement or aftermarket. The case is about an established company dealing in automotive filters which used the principle of pull-replenishment advocated in Theory of Constraints to increase its market share in the aftermarket segments. The company used a focusing process to identify the constraint and restructure the organization around it. In the last few years after adopting the new strategy, the company has experienced higher inventory turns, better market reach and remarkable increase in ROI by changing its distribution strategy from a push strategy to that of a push-pull strategy.*

**Key Words:** Auto component, Theory of Constraints, push-pull supply chain, aftermarket/replacement market

## Introduction

Distribution strategy plays a vital role in company's overall growth through satisfying customers demand in an efficient manner in today's competitive business. Choosing the appropriate strategy or changing from one strategy to other

according to the market need depends upon the success of the firm. These changing trends could be observed in various sectors like retail, furniture, book sellers, personal computer manufacturers etc. Even the traditional auto component

manufacturers also are changing their strategy by looking into the success stories of the above industries. ABC Filters Private Limited, our focus company has increased its profitability (by reducing inventory) as well as its supply chain partners ROI in the replacement market by changing its distribution strategy.

### **Theoretical framework of different supply chain strategies**

Simchi-Levi (2004) states that traditional supply chain strategies often are categorized as push or pull strategies. Probably this stems from the manufacturing revolution of the 1980s, in which manufacturing systems were divided into these categories. Interestingly, in the last few years a number of companies have employed a hybrid approach, the push-pull supply chain paradigm.

#### *Push-based Supply Chain*

In a push-based supply chain, production and distribution decisions are based on long-term forecasts. Typically, the manufacturer bases demand forecasts on orders received from the retailer's warehouses. It therefore takes much longer for a push-based supply chain to react to the changing marketplace.

Push-based supply chain leads to:

- The inability to meet changing demand patterns quickly.
- The obsolescence of supply chain inventory. As demand for certain products disappears in a push-based supply chain, it often results in an

increase in transportation costs, higher inventory levels, and/or high manufacturing costs due to the need for emergency production changeovers

#### *Pull-based Supply Chain*

In a pull-based supply chain, production and distribution are demand-driven so that they are coordinated with true customer demand rather than with forecasted demand. In a pure pull system, the firm does not hold any inventory and only responds to specific orders. This is enabled by a fast information flow mechanism that transfers information about customer demand (e.g., point of sale data) to the various supply chain participants. This system leads to

- A decrease in lead times achieved through the ability to better anticipate incoming orders from retailers.
- A decrease in inventory at retailers because inventory levels at these facilities increase with lead times.
- A decrease in variability faced by manufacturers due to lead-time reduction.
- Decreased inventory at the manufacturer due to the reduction in variability.

“Thus, in a pull-based supply chain, we typically see a significant reduction in system inventory level, enhanced ability to manage resources, and a reduction in system costs when compared with the equivalent push-based system. On the other hand, pull-based systems are often

difficult to implement when lead times are so long that it is impractical to react to demand information. Also, in pull-based systems, it is frequently more difficult to take advantage of economies of scale in manufacturing and transportation because systems are not planned far ahead in time.

These advantages and disadvantages of push and pull supply chains have led

companies to look for a new supply chain strategy that takes advantage of the best of both. Frequently, this is termed as a push-pull supply chain strategy.” [Simchi-Levi (2004)]

The characteristics of the push and pull portions of the supply chain are stated in the following table.

**Table 1**

**Characteristics of Push and Pull aspect of Supply Chain**

	<i>Push</i>	<i>Pull</i>
<i>Objective</i>	Minimize cost	Maximize Service level
<i>Complexity</i>	High	Low
<i>Focus</i>	Resource allocation	Responsiveness
<i>Lead time</i>	Long	Short
<i>Processes</i>	Supply chain planning	Order fulfillment

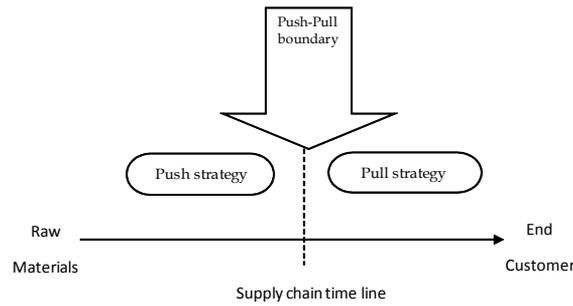
Source: Simchi-Levi (2004)

*Push-Pull Supply Chain*

“In a push-pull supply chain, some stages of the supply chain, typically the initial stages are operated in a push-based manner, whereas the remaining stages employ a pull-based strategy. The interface between the push-based stages and the pull-based stages is known as the push-pull boundary. To better understand this strategy, consider the *supply chain time*

*line*: the time that elapses between procurement of raw material, i.e. the beginning of the time line and the delivery of an order to the customer, i.e., the end of the time line. The push-pull boundary is located somewhere along the time line and indicates the point in time when the firm switches from managing the supply chain using a push strategy to managing it using a pull strategy.” [Simchi-Levi (2004)]

This is illustrated in the following figure.

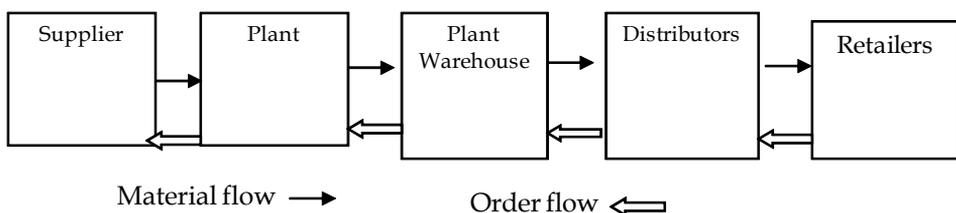


Source: Simchi-Levi (2004)

Consider a personal computer (PC) manufacturer who builds to stock and thus takes all production and distribution decisions based on forecast. This is a typical push system. By contrast, an example of a push-pull strategy is one in which the manufacturer builds to order. This implies that component inventory is managed based on forecasts but that the final assembly is line in response to a specific customer request thus the push portion of the manufacturer's supply chain is that portion prior to assembly, whereas the pull part of the supply chain starts with assembly and is performed based on actual customer demand. The push-pull boundary is at the beginning of assembly. Observe that in this case the manufacturer takes advantage of the fact that aggregate forecasts are more accurate. Indeed, demand for a component is an aggregation of demand for all finished products that use this component.

In the recent past, ABC Filters adopted a similar push-pull strategy in replacement or aftermarket. Prior to this like any other similar auto component makers, ABC also used the traditional push strategy. For example, in the factory, filters were manufactured according to the forecasts estimated by marketing department. Then the company used to push the filters to distributors and the

distributors also used to push them to retailers. As we know the forecasting is always associated with an error so there was a mismatch between supply and real demand which resulted in a decrease in profitability of company as well as its distributors. By observing this with the consultation with 'Vector Consulting Group', the company had switched to push-pull strategy. In the warehouses and C&F agents the inventory for different products were kept in fixed quantity anticipating demands from distributors. For different distributors also the inventory were fixed previously and kept forecasting retailer demand. The distributor sales representatives would visit the dealer/retailer and took orders from them and submit it to distributor. Then the distributor replenished the stock to the retailer on the very next day. All the products in inventory have three statuses i.e. green, yellow or red. Above 66% of the predetermined stock signifies green while less than 66% but above 33% represents yellow and below 33% is red. Once the status of a particular product has changed from green to yellow status then the required amount of items would be shipped from plant warehouse to distributor in the next day. The same procedure would followed by the warehouse when the material was replenished from plant.



## About the Company

ABC Filters Pvt. Ltd. is a part of the Cummins group company worldwide. Established in 1987, ABC Filters is India's leading manufacturer of heavy-duty air, fuel, lube and hydraulic filters and coolants for on & off highway applications. [Exhibit 1, Products] It designs, manufactures and markets air intake systems, air cleaner assemblies, air filters, fuel filters, fuel water separators, lube filters, hydraulic filters and coolants that enable diesel engine manufacturers to incorporate improved reliability and longer life into their equipment leading to better performance throughout its intended product life cycle. It is the only Indian filter company with own paper manufacturing unit with international collaboration and first Indian filter company to be certified ISO/TS 16949:2002. It is used as OE fitment on most widely used engines & new generation trucks. [Exhibit 2, OE list].

## Initial Period in India

ABC Filters was established in India in the year 1987. For the first 15 years (i.e. up to 2007) the company was primarily dependent on original equipment manufacturers (OEM). The company's growth was restricted by the growth plans of its OEM customers because the company had no control over OE sales growth. This led the company to focus on the aftermarket because that is where they could get the maximum profits.

## Planning before the Action

In the later part of 2006, ABC started working with *Kiran Kothekar's 'Vector Consulting Group'*. It was suggested that to succeed in the aftermarket, the company would need to widen its *reach*, i.e. excellent distribution and 100 percent availability and a wide *range* of products. It was planned to understand the total need of the customer and then come up with a strategy to fulfill the need. That strategy or tactic would have to be virtually impossible to replicate.

The need in the aftermarket was identified. Company's immediate customer is distributor whose primary need would be cash flow or inventory turnover or return on investment. The distributor's return on investment could be raised by reducing his inventory and the inventory could be reduced by ensuring availability of the parts. This was quite the opposite from how companies traditionally operate - creating availability by forcing distributors to hold mountains of inventory. So here both the distributor's as well as the company's money would be stuck without any guaranty of sell.

The situation of ABC then was one that of high level of inventory in the pipeline and factory, resulting in losses. Marketing would change the work orders to the factory every now and then, which resulted "too much" dynamism on the shop floor. The company was also afflicted by the "month end" syndrome with seasonal swollen inventories and big discounts for

the distributors, resulting in further losses. In 2002 ABC entered the aftermarket and appointed state wise distributors. M/S Ashis Industry Ltd. was the first distributor in Kolkata.

### Procedure

Like any other auto component company, ABC set target to distributor, and then dumped the material by giving 60 days credit period. Turn over discount was given at the end of each financial year. Marketing of the products was performed mostly by the distributor. Sales representatives from company used to visit distributor once in a month. There was almost no garage (automobile repair workshops popularly known as garages in India) level work.

### Challenges

The major challenges before the company was no control over stock at the distributor as well as company end and also there were frequent situations of excess or shortage in inventory. At the manufacturing end company faced shortage of raw material and at times found themselves in a situation where they had no money to buy raw materials. To conclude company had very limited working capital to operate. Coming to the information part - company was totally ignorant about the dealer's sale and also it had no information about the garages. So company could not able to know the actual market potential for its product.

In the month of June 2007, ABC opened a central ware house at Pune and

also depots were established in each state. A software called '*Samanvay*' was introduced. Primary objective of the software was to control the stock of company as well as the distributor. *After a month 'Humsafar'* software was implemented in which Mechanic Loyalty Program (MLP) was included. Mechanic Sales Representatives (MSR) were appointed. MSR along with the distributor's sales representative visited and collected address of all (small or big) garages.

MLP passbook was given to mechanic stating their name & address along with a T-shirt and cap for them. The mechanic buys ABC products from the dealer and fits it on the vehicle. Then he keeps the packet (cover) for a max of 10 days. Because due to Fixed Day Fixed Route (FDFR, the tour program of a mechanic sales representative is fixed i.e. the allocated number of mechanics he would cover in a specific route) a MSR would visit a mechanic either at 6 or 9 days interval depending upon the number of mechanics in a particular area. While visiting the mechanic the MSR would fill up the passbook taking into account the empty packets. The stickers on the packet mentioning the batch number are then cancelled with a permanent marker to avoid further duplicity.

There are 5 columns in the pass book namely date of MSR's visit, part number of the product fitted, corresponding batch number, points relating to the product and cumulative points. Redemption request if

any could be filled up at the bottom of each page. The points vary from product to product. [Exhibit 3, MLP passbook format] For example: Diesel filter-20 points (part number starts with FF/FS), Coolant - 50 points (part number starts with DCA/CC or 851) etc.

On each visit the MSR updates the passbook which is present with the mechanic and also makes entries in his own register. In the evening, he would update his register online. Thus, points on the passbook accumulate with every purchase of ABC products. Out of the total points, of the mechanic can redeem a maximum of 70 to 80% of the points (not 100% points). There are numerous options available for redemption like school bag, inverter, Tanishq jewelleryes or a 3 days-trip to Singapore, Bajaj Pulsar etc. [Exhibit 4, Redemption table]

### Advantages of MLP

- Company gets grass root level market feedback.
- All the mechanics are under direct touch with company.
- Mechanic insists upon the retailer to keep ABC products.
- Distributor cannot give any preference to particular retailers.
- Company gets the detailed data of all mechanics with the products they are fitting.
- The mechanic can be requested if any range of products he is not using. For example- if a mechanic is using all the

ABC ranges for a particular customer except coolant then he can be reminded to use ABC coolant.

As per ‘*Samanvay*’ software all the distributors were covered. ‘*Samanvay plus*’ extended this to the retailer level in earlier part of 2010. Now the distributor could not manipulate the price. The distributors were asked to dedicate an exclusive system (PC) for ABC only. Fixed Day Fixed Route (FDFR) was followed. A Distributor Sales Representative (DSR) has a fixed 6 day plan in which he visits the dealer as per the plan and collects order. Next day before going to market he submits the order to the distributor. The distributor will replenish the dealer’s order on that day only. The distributor has assigned an exclusive vehicle for ABC.

The Area Growth Professional (AGP) would review the DSR & MSR every day.

For Distributor Sales Representative the following points are to be discussed.

- o Follow up of Fixed Day Fixed Route
- o Coverage of 100% retailer
- o Discuss with range

For Mechanic Sales Representative the following points are discussed

- o Follow up of FDFR, 6/9 days plan
- o Coverage of 100% mechanic
- o Discuss with range & availability

### The Result: Before and After

Earlier the distributor’s typical inventory was 60 days worth of sales, which meant he was getting inventory turns

of about 6 a year. Now the company lowered the inventory and increased availability. The distributor's inventory is now typically 10 days that means there are 36 inventory turns in a year. As a result, the distributor's ROI has increased 300 percent.

Earlier the intention of ABC (like any other auto component company) was to push everything to the distributor. Company operates with the assumptions that the distributor is forced to sell if its capital is blocked. For example if the distributor was generating sales of Rs 12 lakh a year, he had to hold 60 days of stock, i.e. Rs 2 lakh of sales. Rs 2 lakh in the business. Now by reducing the inventory to 10 days, the distributor's investment was not even Rs 20,000. But with the availability, his sales had become Rs 24 lakh. And if he had a 10 percent margin, he used to make Rs 1.2 lakh profit on Rs 2 lakh invested. Now, it is Rs 2.4 lakh on only Rs 20,000.

The company had told to its distributors, "*If my unavailability with you goes more than one day for an item, I will pay you penalty.*" This is the only company that is doing this. In some cases, it had paid penalty also. The management needs courage and commitment to implement such a scheme and perhaps such types of initiatives have provided the impetus for the rapid growth of ABC.

### **At the plant site**

Earlier, the plant would produce those parts which were ordered by the

marketing department. And marketing would order those parts that had higher margins, but that might not be required by the market. So even if there was no real order the plant would produce and then marketing would dump it on the distributors. Now the distributor did not have the money to buy it, so marketing would extend the credit period and add a 2 percent scheme for the month end. Nothing was sold in the market while the production efficiency was cent percent. Company incurred expenses on the plant by running it without any orders and no revenues to show in return.

### **Present situation**

ABC first classified its entire portfolio into two categories i.e. made-to-schedule (MTS)- the fast moving products and made-to-order (MTO)- those with a lead time of up to six months. A plant ware house (PWH) was inserted into the distribution chain from which the Clearing and Forwarding Agent (CFA) replenish the distributor's stock. For the made-to-order the suppliers, plant, plant ware house, CFAs, and distributors each have a tricolor (red-yellow-green or RYG) charts that display the stock level or buffer for each part.

At each link in the distribution channel, the entire stock is the buffer. When the stock falls below 33 percent it is in the red; if it is between 33 and 66 percent it is in the yellow band and a level above 66 percent is green.

There is no ordering any more. The distributor logs-on to the ABC portal at the end of each day and simply enters the details of how many parts he has consumed, provided the number of each part is a multiple of the minimum order quantity (MOQ). The CFA will ensure that his stock is replenished by that quantity, within 24 hours. The stock levels at each of the 30 CFAs & 103 distributors are monitored by a ‘war room’ at the plant ware house. The four ‘generals’ at the plant warehouse study the demand trends for each part number on the basis of the

data they receive at the end of every day, and also priority deliveries to distributors on the basis of their respective RYG statuses. If distributor X has sold one and Y has sold 10, then X would get priority if he is in the red.

The war room also prepares a daily consolidated buffer penetration report (BPR), that in turn determines the work order that is passed on to the plant for the next morning. If one buffer is constantly in the red that means sales of that part is going up. So the buffer would be resized. This is called dynamic buffer management.

**The Final Result**

The ultimate results are presented below

**Table: 2**

Parameter	2007	2013
Number of SKUs	300	600
Inventory	45 days	16 days
Receivables	40 days	11 days
Availability	80% (monthly order fulfillment)	99% (availability at distributors on a daily basis)
Number of distributors	60	147
Area covered by each distributor	No area demarcations	Area demarcations- not more than 3 districts per distributors
ROI of distributors	More than 45 days of stocks. ROI of about 20%	Less than 15 days of stocks. ROI of over 80% (Margins kept same as before and trade schemes were discontinued)
Retailers covered	5000	43000
Mechanics under loyalty program	Nil	45000
Sales officers	26	70
Number of mechanic sales representatives	18	220

Sales increases 9 times in 6 years since 2008

Source: [www.vectorconsulting.in](http://www.vectorconsulting.in)

## Conclusion

The above table tells the success story of ABC Filters after implementing the unique innovative push pull strategy in the aftermarket of auto parts sector. As per the suggestion of Vector Consultancy ABC had increase the range and reach (distribution) of its products. The SKU has increased twice from 300 to 600, number

of distributors from 600 to 147 and dealers from 5000 to 43000. This has been translated in the sales figure which has increased 9 times in 6 year after implementing the innovative distribution strategy. The strategy helped the company not only to sustain in the market but also to be number one player in the aftermarket of filter in auto parts industry.

### Exhibit 1

#### *ABC Products*

1	Air Intake System	6	Lube Filters
2	Air Cleaner Assemblies	7	By Pass Filters
3	Air Filters	8	Hydraulic Filters
4	Fuel Filters	9	Water Filters
5	Fuel Water Separators	10	Coolant

Source: Company website (www.abc-filtrum.com)

### Exhibit 2

#### *OEM list of ABC*

1	Ashok Leyland Ltd	11	Kirloskar Oil Engines
2	AtlasCopco Ltd.	12	Ingersoll Rand
3	Asia Motor Works	13	Cummins India
4	Caterpillar	14	Telcon
5	Cooper	15	L&T
6	Cummins filtration US	16	Tata Motors Ltd.
7	Dossan	17	BMEL
8	Eicher Motors Ltd.	18	Volvo
9	Elgi Equipments	19	John Deere, India
10	Isuzu Motors, Japan	20	Tata Cummins Ltd

Source: Company website (www.abc-filtrum.com)

### Exhibit 3

#### *Sample of Mechanic Loyalty Program passbook*

ABC Humsafar... Mechanic Loyalty Program		Pass Book No.		
Date of MSR Visit	Part No.	Batch No.	Points	Cumulative Points
Redemption Request				
Total Points	Redeemable Points	Gift Opted for	Sign Mechanic	Sign MSR

Source: Obtained from Mechanics

**Exhibit 4**  
**Redemption Table**

Total Points	Redeemable Points	Option 1	Option 2	Option 3
1875	1500	Dungarees-Mechanic Dress	Titan Sonata Wrist Watch	School Kit for Child(Bag)
3750	3000	Basic Tool Kit	Kodak Camera	Steel Dinning Set
6000	4800	Hero Cycle	Desert Cooler	Phillips DVD Player
9000	7200	Nokia Cell Phone	Maharaja Juicer Mixture	Medical Insurance for wife 1 year
12500	10000	Water Purifier	Phillips music System	Steel Almirah
18750	15000	Vacuum Cleaner	Sofa cum bed	Luminous Inverter
28125	22500	Factory visit Pune	Sony 21” TV	Dining Table Set
37500	30000	Gold Chain	LG washing machine	LG Refrigerator 300Lt
50000	40000	Sony 29” TV	Carrier 1.5 ton Window AC	Mahabaleswar trip 3days-couple+2 kids
75000	60000	Hero Honda CD Dawn	Personal Computer	Goa trip couple+2 kids
12500	10000	Bajaj Pulsar 150cc	Singapore trip - Couple	Tanishq Jewellery Set

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