

# OPTIMIZATION OF SUPPLY CHAIN MANAGEMENT IN PHARMACEUTICAL INDUSTRY

**Dr. Ganesh L**

Head - General Management, Institute Of Management,  
Christ University, Bangalore, E mail: ganesh.l@christuniversity.in

**Prof. Ghadially Zoher H**

Associate Dean, ghadially@christuniversity.in  
Institute Of Management, Christ University, Bangalore – 560029

## ABSTRACT

*Supply chain optimization to channel management in pharmaceutical industry can transform the organisation to better utilize assets and resources, generate profits, enhance shareholder value, and positively respond to customer demand. As the cost and efficiency level are very significant in channel management, this study focuses on incorporating the use of electronic means in distribution. The research was exploratory and structured questionnaire was administered to 46 chosen respondents from 30 pharmaceutical companies and 16 distributors in Karnataka. The analysis was in done two stages. In the first stage, Factor analysis was done to find predominantly used factors towards introducing E channels. In the second stage, Regression was used to find the elements contributed to shift from legacy systems to digital technology. The study concludes that adoption of digital technology in channel management is no more an option, but a necessity to the success and growth of the industry. The benefits not only confined to monetary aspects but also to better channel relationships, lower attrition levels, employee and channel satisfaction.*

**Keywords:** Channel Management, Digital technology, Employee satisfaction

## INTRODUCTION

Drug distribution in India has witnessed a paradigm shift. Before 1990, pharmaceutical companies used a different distribution system, in which they established their own depots and warehouses that now have been replaced by Carrying and Forwarding Agents (CFAs). These organizations are primarily responsible for maintaining storage (stock) of the company's products and forwarding SKUs to the stockiest on request. Most companies keep 1–3 CFAs in each Indian state. On an average, a company may work with a total of 25–35 CFAs. Unlike a CFA that can handle the stock of one company, a stockiest (distributor) can simultaneously handle more than one company (usually, 5–15 depending on the city area), and a large stockiest may go up to handling even 30–50 different manufacturers. The stockiest, in turn, after 30–45 days (a typical credit or time limit) pays for the products directly in the name of the pharmaceutical company. The CFAs are paid by the company yearly, once or twice, on a basis of the percentage of total value of products handled.

This rapid growth in the pharmaceutical industry is yet to create radical changes in the Indian distribution system. Movement of goods across the country is mainly in the form of road

transport with its attendant problems of lack of or bad roads. The problem is further complicated by bureaucracy at various checkpoints on the way resulting in delays. The main hurdles are:

- The highly fragmented nature of distribution network
- Limited advances in regulatory reforms
- Strong resistance from trade associations in the supply chain
- Infrastructure for cold chain management still in developing stage

This study attempts to assess the status of digital technology adoption by the Pharmaceutical Industry in India with specific reference to Channel Management activities. It aims to look at the latest electronic methods globally adopted in the distribution channel of the pharmaceutical industry. It deals with deciphering the need, desire and ability for adopting digital technology in Channel Management by the Indian pharmaceutical Industry. Understanding and deliberate architecting of a Channel Management strategy can make channel management program a success, and help avoid costly disappointments along the way.

### **Need for Structured Distribution Channel**

With each pharmaceutical company having a large number of products in various packs, and having to reach the remote rural markets on a national scale, it becomes imperative to have a chain of intermediaries to achieve the above objective. Since the market is highly competitive in terms of pricing and new product features, availability at the right place and at the right time is very significant to success in the market. Even for a company which operates in few states or a single state, the intensity of distribution in that state remains unchanged. It is a fact that the cost of these intermediaries in terms of their margins and also the extended credit site offered to them is a significant part of the total cost of operations. More often, for pharmaceutical companies, it becomes a *fait accompli* and they have to toe the line if they wish to exist and expand. It is therefore difficult to bring about major structural changes in the pattern of distribution.

Transition to digital system is already half way through its course and is known as e-commerce or the more encompassing e-business. Supply chain optimization with particular reference to channel management can transform the organisation to better utilize assets and resources, generate profits, enhance shareholder value, and positively respond to customer demand.

Digitally enabled channel management is expected to shorten cycle times, transform purchasing from a tactical operation to strategic sourcing, reduce inventories, decrease logistics costs and streamline communication processes across a total network from initial supplies to final consumption and post-sale service.

## **REVIEW OF STUDIES**

Adoption of electronic means in the management of the channel can lead to several advantages in terms of improved efficiencies, reduced operational costs, better customer service, more satisfied channel members including reduction in conflict among channel members .It will also lead to online management of inventories and real time monitoring and control of sales targets and their achievement. All these could lead to improving revenues and also profits. The online media could lead to better knowledge of competitive activities and the ability to combat them on a real time basis.

A study by Hagedorn Scott and Galloway Scott (2011) concluded that the potential of the digital platform is underestimated in the pharmaceutical industry. Tools such as e-mail, mobile, social media are under-utilized. The Business Person’s Guide to Channel Management Software (2011), is of the view that Channel Management Software is a unique service through which one can increase channel revenue, build customer loyalty, and manage all channel needs in a central location that is easily accessible. Another study by Marco Ruedi (2011) observed that Pharmaceutical industry needs service providers that can offer not only qualitative data collection but also strong service orientation.

Ann Grackin (2010) state that adoption of digital technology in labeling, invoicing, moving of goods, climate control, inventory management, JIT (Just in Time) concept can lead to efficiency, effectiveness and reduction of costs. Bert Rosenbloom (2007) stated that the advantages of Electronic Marketing Channels are global scope and reach, rapid transaction processing, information processing efficiency, database management, and lowering cost of sales and distribution. Some disadvantages far outweigh the advantages.

Most of the reviews suggest that the adoption of electronic means in the management of the channel can lead to several advantages in terms of improved efficiencies, reduced operational costs, better customer service, and more satisfied channel members including reduction in conflict among channel members. All these could lead to improving revenues and also the profits. However, there seems to be no specific indication as to how the existing entrenched channel will react to the online means of channel management .It is possible that the existing channel may consider the internet channel as a threat and fear disintermediation. This study explores the prospect of the channel to accept digital technology by addressing the issues from various angles.

## **RESEARCH OBJECTIVE**

The main objective of the study is to assess the degree of digital technologies in the channel distribution of the pharmaceutical industry in India

## **SPECIFIC OBJECTIVES**

- To identify the factors predominantly influential towards introduction of E-channels
- To find the factors influencing transition from legacy to digital systems

A total of 25 variables were included in the survey. Respondents were asked to express their opinion on the (expected) effects of introducing E-Channel.

1	Increase in revenue	14	Reduction in Customer disputes
2	Increase in profits	15	Reduction in manpower costs
3	Satisfaction Of Channel Members	16	Employee satisfaction
4	Gaining Competitive Advantage	17	Reduction in cost of operation
5	Market expansion	18	Timely deliveries
6	Reaching new segments of customers	19	Announcing on the spot discounts/ schemes to trade online
7	Winning customers from competitors	20	Online monitoring of sales
8	Brand switching	21	Adjusting production based on real time stock monitoring
9	Up selling/ cross selling	22	Feedback to sales staff regarding target achievement
10	Increase loyalty among channel members	23	Helps in modulating current marketing tactics for strategy achievement
11	Decrease in Distribution cost	24	Minimizes stock out situations
12	Lower human errors	25	Instant info regarding status on new product launches
13	Reduction of paper work		

## **RESEARCH METHODOLOGY**

The research is exploratory and data collection is primarily on quantitative factors. Sampling technique is purposive sampling. The specifically tailored and structured questionnaire on 7 point Likert Scale was administered to 46 chosen respondents from 30 pharmaceutical companies and 16 distributors. It had to be kept in mind that the in-depth questionnaire was possible to be answered by only those who were knowledgeable in pharmaceutical business.

The criteria for collecting data were

- Respondents should have a fair knowledge regarding the field of channel management in the pharmaceutical industry
- They should preferably be presently involved in channel management functions
- They should have a basic awareness of information technology enablement in channel operations
- Age, gender , education and income of respondents were not a matter of concern for the research effort , and hence not recorded
- The interviewers had experience of working in pharmaceutical companies

## **ANALYSIS AND INTERPRETATION**

In the first stage, analysis was based on Factor Analysis. From among the 25 variables, an attempt was made to find which factors were predominantly influential (the causative factors) towards introducing E-channels. In the second stage, Regression was done to find the elements contributed to shift from legacy systems to digital technology.

### **I - Stage: Factors predominantly influential towards introduction of E-channels**

An exploratory factor analysis was conducted on different measures to purify the instrument. The 46 responses were examined using principal component factor analysis as the extraction technique and Varimax as the rotation method. Only factors with Eigen value more than 1 were included in final solutions (Table 1).

It can be observed from the table that 7 factors have Eigen value more than 1 which has cumulative variance of 78.274 percent. The factor analysis performed on 25 variables resulted into the extraction of 7 components (See Annexure Table 1).

**TABLE 2: Interpretation of Components**

<b>Component</b>	<b>TVE (%)</b>	<b>Variables</b>	<b>RCMV</b>
<b>Distribution Efficiency</b>	41.100	Reduction of Paper Work	.797
		Decrease in Distribution Cost	.755
		Lower Human Errors	.715
		Gaining Competitive Advantage	.713
		Reduction in Manpower Costs	.687
		Reduction in Cost of Operation	.643
		Satisfaction of Channel Members	.618
		Reduction in Customer Disputes	.618
		Employee Satisfaction	.569
Timely Deliveries	.546		
<b>Online Field Management</b>	50.862	Minimizes Stock Out Situations	.813
		Online Monitoring of Sales	.804
		Feedback to Sales Staff Regarding Target Achievement	.723
		Announcing on the spot discounts/Schemes to trade online	.667
		Instant Info Regarding Status of New Product Launches	.626
<b>Revenues &amp; Profits</b>	58.263	Increase in Revenue	.880
		Increase in Profits	.810
		Modulating Current Marketing tactics for Strategy Achievement	.654
		Adjusting Production Based on Real Time Stock Monitoring	.525
<b>Market Expansion</b>	64.380	Reaching New Segments of Customers	.884
		Market Expansion	.863
<b>Selling</b>	69.637	Up selling/Cross-selling	.881
<b>Channel Loyalty</b>	74.144	Increase Loyalty among Channel Members	.890
		Winning Customers from Competitors	.672
<b>Brand Switching</b>	78.274	Brand Switching	.829

From Table 2 it is inferred that adoption of electronic methods in distribution results in reduction in costs of manpower, operations, lowers paper work, reduces errors. This leads to higher distribution efficiencies with reduction in customer disputes and higher satisfaction of channel members. It also confirms that online monitoring of sales coupled with instant feedback to the

field staff will be the benefit derived by using e-channel methods. Increase in revenue, market expansion and profits are some of the important positive outcomes. It also results in expanding the relationship with the same customer in making him walk to buy again. Adopting digital forms of dealing with channel members is expected to reduce attrition and thereby increase loyalty of channel members. E channel will induce the channel partners to easily shift from the time-consuming analog system to a real time digital system as it perceives advantages in doing so. In marketing, efficient use of e channel delivery methods makes the easiest availability of medicine and in turn acts as a weapon to gain competitive advantage and it is true that it has the potential to do so.

**II - Stage: Factors influencing transition from Legacy systems to Digital Technology**

**TABLE 3: Factors influencing legacy to digital**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.620	.282		9.290	.000
	Distribution Efficiency	-.191	.073	-.716	-2.621	.013
	Online Field management	.114	.059	.411	1.924	.062
	Revenue and Profits	.299	.118	.713	2.529	.016
	Market Expansion	.001	.031	.006	.038	.970
	Up selling and Cross selling	-.051	.049	-.270	-1.038	.306
	Channel Loyalty	.048	.030	.231	1.569	.125
	Brand Switching	.004	.030	.019	.130	.897

As per table, Distribution Efficiency (sig =0.013), is the predominant factor in the transition of legacy systems to digital technology. This means that reduction in manpower costs, operation costs, paper work and satisfaction of channel members’ act as a triggering force in shifting from legacy systems to digital systems. This finding supports the study by Ann Grackin (2010) which reveals the efficiency and effectiveness of e-channel management. Other predominant factor is Revenues and Profits (sig = 0.016) which has a bearing on shifting from legacy systems to digital systems. This involves modulating strategy and production adjustment based on real time stock monitoring. The study also concludes about the limited investment in the adoption of digital technology. By proper planning, physicians and pharmacists avail their products on demand. This will provide a direct linkage between stockiest and distribution centre. This type of e-channel management supports the white paper ‘A UPS Supply Chain Solutions (2005)’ which traces the shift from price reduction to relationship value and total cost management.

**CONCLUSIONS AND RECOMMENDATIONS**

There may be number of ways for a business organization especially pharmaceutical industry to succeed in market, but all ways will create a triangular linkage between the customers, the company and the competitors. The success may be either a cost advantage or value advantage or the combination of both. The role of supply chain is prominent in all these phases. The overall conclusion that can be drawn from the study is that adoption of digital technology in pharmaceutical channel management is no more an option, but a necessity to the success and growth of the industry. The benefits are not only confined to monetary aspects but also to better

channel relationships, lower attrition levels, employee and channel satisfaction. The blossoming of such collateral advantages leads to happier business dealings and mutual benefits. The study not only elaborates an insight about shift in supply chain process but also the customer perception which is the base for the formulation of different marketing strategies.

Based on the results of this research, it is recommended that pharmaceutical companies with expert committee advice could make the transiting from legacy systems to digital technologies more effective. This e channel management will act as a cost effective supply chain method (Martijn Lofvers 2013) which may play a more important role in the pharmaceutical business model of the future. A clear cost-benefit plan over a specified future period needs to be casted out.

## REFERENCES

- Ann Grackin. (2010). *Warehouse Management Technology – Technology for the Second Decade*. ChainLink Research 2010. Retrieved from <http://www.clresearch.com>
- All Things CRM (2011). *The Business Person’s Guide to Channel Management Software*. Retrieved on 15.8.2011 from <http://www.allthingscrm.com>
- Marco, R. (2011). *Multichannel Management in the Pharmaceutical Industry*. Retrieved from <http://www.arvato-services-healthcare.com>
- Hagedorn Scott, Galloway Scott (2011). *Pharma Marketing Network Measuring Digital Competence of Pharma Brands*. Retived on 15/12/2011 <http://www.talk.pharma-mkting.com>
- Martijn Lofvers (2013). *New Supply Chain Challenges for Pharmaceutical industry*. Retrieved on 12/10/2013 <http://www.supplychainmovement.com/new-supply-chain-challenges-for-pharmaceutical-industry/>
- Rosenbloom Bert (2007). *Marketing Channels: Electronic Marketing Channels* (7e) Chapter 15, (pp. 434-461). India. Thomson
- Larry Koester, Kim Rash (2005). *Building Supply Chain Capabilities in the Pharmaceutical Industry. A UPS Supply Chain Solutions: White Paper* Retrieved on 12/10/2013 [http://www.ups-scs.com/solutions/white\\_papers/wp\\_pharma2.pdf](http://www.ups-scs.com/solutions/white_papers/wp_pharma2.pdf)

## ANNEXURE

**TABLE 1: Factors influencing E-Channel**

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.275	41.100	41.100	10.275	41.100	41.100	5.433	21.730	21.730
2	2.441	9.762	50.862	2.441	9.762	50.862	4.686	18.743	40.473
3	1.850	7.401	58.263	1.850	7.401	58.263	2.882	11.529	52.002
4	1.529	6.118	64.380	1.529	6.118	64.380	2.173	8.692	60.693
5	1.314	5.257	69.637	1.314	5.257	69.637	1.597	6.388	67.081
6	1.127	4.507	74.144	1.127	4.507	74.144	1.511	6.044	73.126
7	1.033	4.130	78.274	1.033	4.130	78.274	1.287	5.149	78.274
8	.874	3.498	81.772						
9	.653	2.610	84.382						
10	.589	2.354	86.737						
11	.544	2.175	88.912						
12	.494	1.974	90.886						
13	.356	1.426	92.312						
14	.295	1.181	93.492						

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15	.284	1.135	94.628						
16	.255	1.018	95.646						
17	.217	.868	96.513						
18	.198	.791	97.305						
19	.157	.630	97.934						
20	.127	.506	98.440						
21	.109	.437	98.877						
22	.096	.386	99.263						
23	.077	.308	99.571						
24	.065	.259	99.830						
25	.042	.170	100.000						