

Demand Chain Management: Issues and Initiatives in India

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Introduction

The backdrop to the current economic crisis across industries is over capacity. Too many products and services are chasing too few customers. Customers are scarce, not products. Demand is a problem, not supply as most products and services lack differentiation. Demand chain management (DCM) is a new tool in the hands of the top management to address prevailing and emerging market complexities. Contemporary thinkers of strategic marketing and supply chain management have started arguing that corporate enterprises should separate demand chain from supply chain due to various degrees of flexibility, complexity, priorities and requirement. The main objective of this endeavor is to enhance market responsiveness capabilities. It is the front-end and customer-facing side of the value chain.

Demand Chain Management

Inforte Corporation (2001) defined demand chain management as “a demand-driven processes and systems that manage organizational activities based on responsiveness to market demand.” According to Lee (2002), demand chain is a network of trading partners that extends from manufacturers to end consumers. The partners exchange information, and finished goods flow through the network’s physical infrastructure. Chase (2001) advocated that the demand chain includes a

In the globalized and technology-driven market scenario, consumers are becoming more conscious about maximization of value. Global exposure and easy access to information are making continued change and increase in their expectation and aspiration. These make the whole perspective of value more dynamic that result in more demand uncertainty. In this dynamic environment, firms are under continued pressure to define, create and deliver superior customer value with distinction. Demand chain management is a new tool in the hands of the management that deals with all assets, information, and processes to define demand followed by synchronization of various activities to fulfill demand by real-time flow of products and information. The focus of this paper is to analyze the limitations of supply chain in demand-side optimization in the prevailing market scenario. Thereafter, this paper aims at identifying critical issues of demand chain management in India. It also assesses Indian corporate mindset towards efficient and effective management of demand chain.

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dynamic network of company's customers; customers' customers and direct and indirect marketing, sales and service providers who facilitates the firm with the capability to get, keep, and grow profitable lifetime relationships better, and faster.

DCM is an information technology (IT) led strategic concept largely pushed by software vendors. It enables firms and their resellers to rapidly respond to rapidly changing customer wants and conditions that affect demand (Caruso, 2003). According to Blackwell and Blackwell (1999), "the essence of DCM is to define and understand customer demand on real-time basis followed by rapid respond to it. It identifies which products customers want (a fresh assortment); who wants them (customer purchasing behavior analysis); when they want them (changing conditions); where they want them (store and shelf location); and how many they want (inventory on the shelf)." It is the customer-facing side of value chain that increases process efficiency capability of firms to respond customers' demand quickly in cost efficient manner.

DCM involves real-time capture of demand-related information followed by various business decisions related to the flow of finished goods from point of inception to the point of use throughout the network of chain for fulfillment of sensed demand. The emphasis of demand chain is on optimization of distribution-related functions of marketing and its coordination with other value addition processes of value chain (Agrawal et al., 2002). In the demand chain, there is every possibility that some locations of business units are owned by the firm itself like, central warehouse (CW) and regional distribution center (RDC) called as internal demand chain members. External demand chain members include C&F agent, wholesaler/distributor, retailer, and/or retail chain stores.

DCM is based on "sense-and-respond" philosophy that focuses on acquiring new capabilities required for quick response and offer maximum customer value in the dynamic market scenario. It redefines network structure, IT capabilities, knowledge sharing mechanism and relationships. Doing so, firms need a radical change in their mindset, various processes and activities across the demand chain. This new breakthrough business process of superior market responsiveness starts with the recognition of addressable problems of consumers and ends with their solutions as shown in Figure-1.

Demand Chain Issues: A Literature Survey

Emerging Market Scenario

Globalization and Information Technology (especially the Internet) are the two major drivers of emerging business environment. Due to global exposure, consumers around the world are having new ways of living and consuming. They are demanding many

things they see. The changes in the characteristics of markets are also supported by rapid technological innovations (Kotler et al., 2002). Sawhney and Kotler (2001) argued that there is a clear shift from information asymmetry to information abundance. Agrawal et al. (2004) identified, “consumers have become better informed, alert and resistant to manipulation these days. They are becoming very selective due to change and increase in their expectation and aspiration, and ready to undertake calculated risks that is resulting into a shift in the perspective of their value.” This shift is from a combination of benefits dominated by price to a range of benefits like, superior quality, convenient and hassle-free transaction, pleasant purchase experience, consistency and reliability of product performance, problem solutions, and value for money (Haeckel and Nolan, 1996; Blackwell and Blackwell, 1999; Agrawal et al., 2003; Kumar, 2004). Furthermore, different customer segments have different expectations and needs to be fulfilled by firms (Robert, 2004).

To address this market scenario, Kotler et al. (2002) advocated that the classical marketing models must be future-fitted and must be deconstructed, redefined, and stretched to perform successfully. Kumar (2004) argued that the problem with marketing today is that it operates at a narrow, tactical, 4Ps level that leads in emergence of gaps between the market opportunity, and crafting and sustaining a business model responding to it resulting into loss of their leverage within the organization.

To respond dynamics of emerging market scenario, key success factors are speed, flexibility, integration, innovation and coordination (Ashkenas et al., 1995); time-to-market (Haeckel and Nolan, 1996); an externally oriented culture, distinctive capabilities and a configuration that enables the entire organization to anticipate and respond to changing customer requirements and market conditions (Day, 1999). Walter (2002) emphasized on the need for an integration of numerous core processes and activities with the shared goal of maximizing strategic effectiveness and operating efficiencies based on proper management of knowledge, technology, and relationship across the value chain. Kotler et al., (2002) suggested firms must emphasize on customer value, core competencies and collaborative networks.

Market Responsiveness Capability: Supply Chain v/s Demand Chain

The business world needs a shift from supply-side to demand-side thinking (Rayport and Sviokla, 1995). Supply chain is dead (Walter 2002) because of its “make-and-sell” view of the business (Kotler, 2003). It competes by estimating market demand, planning production, and building up inventory to match supply and demand for achieving economies of scale, speeding up employees’ learning curves, and rigid defined procedures (Kotler et al., 2002). Supply chain strategies are primarily focused on cost reduction but contributed little in terms of growth and profitability (Wayland and Cole,

1997), differentiating processes by products (Hoover et al. 2001), managing the supply base- including sourcing, supplier integration, and in-bound management (Copacino, 2003), a core component of global competitiveness (Lee and Whang, 2001), and standardization of market offerings (Agrawal et al., 2004). While responding to dynamic market scenario, these measures are not enough (Hoover et al., 2001), demand chain is often overlooked (Lee and Whang, 2001), lack demand-side initiatives (Deloitte and Touche, 2003), and did not properly understand and estimate the demand resulting into crashing of the market hype of the late 1990s about supply chain management (Caruso, 2003).

The expected contribution of supply chain in the prevailing market scenario is to create and deliver superior value in a complex and uncertain world (Agrawal et al., 2004). But Fisher (1997) argued that market-responsive supply chains use strategically placed buffer inventories and capacities to achieve responsiveness and allow inventories to be kept as generic products. This supply chain drive results in huge stockpile of finished goods inventory. In USA, \$1.1 trillion inventory supports \$3.2 trillion annual retail sales (Lee, 2002). There are 17, 29, and 29 days finished goods inventory holding in automobile, durable and FMCG industries respectively by manufacturers in India (ETIG, 2002).

Sahay et al., (2003) identified that 84.1 percent companies have been using push-based inventory replenishment systems. Most industries still believed in manufacturing to build up stocks. As a result, Stern and Weitz (1997) identified that consumer and trade-directed sales promotion activities began to dominate promotion budgets. Trade promotional allowances range between 10 to 15 per cent of sales, compared to only about 4 per cent two decades ago (Rosenbloom, 1999). About 85 percent consumer products are supported by some sales promotion schemes in India (Sahay et al., 2003; Agrawal, 2003). But push strategies result in excessive inventory holdings, complicate the actual net cost of a product on the shelf, and create further uncertainty about future demand (Westland and Clark, 1999) unable to meet changing demand pattern, unacceptable service levels and product obsolescence (Simchi-Levi et al., 2003), increasing marketing and distribution costs (Kotler et al., 2002), and lack differentiations (Agrawal et al., 2004).

Furthermore, safety inventory is carried out due to demand forecasts errors and demand uncertainty (Chopra and Meindl, 2001). Demand forecasting system of most of the Indian firms is based on predictions, experiences, gut and sales volumes to be achieved and not on actual demand data (Agrawal et al., 2004). For instance, at Hindustan Lever Ltd. (HLL), largest player in the Indian FMCG sector, actual sales differ from production by 25 per cent at the factory level, pipeline inventory across

internal demand chain of HLL is about 25 days whereas, consumers get almost 2-3 months old products (ETIG, 2002). Fisher (1997) argued that supply chains must respond quickly to unpredictable demand and firms need to enhance their demand fulfillment capability by real-time capture of demand data and speed up demand fulfillment processes. Haeckel and Nolan (1996) stressed that flexibility and responsiveness replace efficiency and predictability for success of firms.

Sahay et al., (2003) also revealed that IT is the enabler of quantum improvements in supply chain. The Economic Times intelligence Group (ETIG, 2002) identified that most of the Indian automobile, durable and FMCG firms have been using IT extensively for cost reduction and supply-side optimization for superior value creation. Agrawal et al. (2006) identified that they have e-procurement system, real-time online information and knowledge sharing about production schedule, stock position, quality certification, disintermediation and reintermediation of vendors, transparent business transactions, and continuous replenishment in small quantity from certified vendors. Agrawal et al. (2004) further argued that firms have not taken same level of ICT initiatives for demand chain optimization. Very few firms are selling very selective products online as well as have automated sales processes. Marketing decisions are still data and information-centric and demand chain related functions are largely done manually and paper-based.

Collaborative networks of value chain are essential for enhancing market responsiveness (Kotler et al., 2002). For this purpose, firms need to develop and maintain partnering relationships with them (Walter, 2002; Agrawal et al., 2003). But most of the Indian firms have developed long-term partnering relationships with their strategic vendors but not with Channel (Demand chain) members. They have made vendor relationships static and standard to a greater extent but not channel relationships. Demand chain relationships are more dynamic and flexible in nature mainly due to dynamic market scenario and existence of multi echelon structure in most of the industrial sectors coupled with downstream demand uncertainty (Agrawal, 2003; Agrawal et al., 2006).

Attributes of Demand Chain

For superior market responsiveness, firms need to analyze demand chain to better understand different customers' buying processes and their value models (Hoover et al. 2001), and have a good grasp of customer demands-and a responsive system to meet those demands in timely and cost-efficient manner (Lee and Whang, 2001). It is based on "sense-and-respond" philosophy (Kotler, 2003) that invites customers to participate in defining their broad needs and choosing the exact attributes; then trigger activities in response to orders for quick fulfillment by the use of digital technology

(Kotler et al., 2002). Demand chain strategies facilitate firms in finding out new ways to build revenues, add value, and connect better with customers (Wayland and Cole, 1997). It ensures acquiring profitable customers, retaining profitable customers longer, and eliminating unprofitable customers quickly (Agrawal et al., 2004) resulting into superior ROI of marketing (Lilley, 2003).

A well-managed demand chain facilitates firms in customized value offering (Wayland and Cole, 1997; Blackwell and Blackwell, 1999; Walter, 2002), real-time product availability and prevention of stock-out without over stocking, continuous replenishment in small quantity (Lee, 2002; Lee, 2003; Simchi-Levi et al., 2003; Agrawal et al., 2004). Further, it enhances demand fulfillment capability (Blackwell and Blackwell, 1999; Walter, 2002; Kotler et al., 2002), customer pull (Lee, 2002; Simchi-Levi et al., 2003; Agrawal et al., 2004), partnering channel relationships (Vollmann and Cordon, 1998; Blackwell and Blackwell, 1999; Chase, 2001; Lee, 2002; Wood, 2002; Agrawal et al., 2003; 2004), and rationalization of marketing and distribution costs (Lee, 2002; Kotler et al., 2002; Agrawal et al., 2004; Kumar, 2004).

But demand chain management needs extensive use of IT for restructuring of channel system in terms of disintermediation and reintermediation (Rosenbloom, 1999; Kotler et al., 2002; Walter, 2002; Lee, 2003; Agrawal et al., 2004; Kumar, 2004; Agrawal et al., 2006), cracking bullwhip effects, intelligence and knowledge-centric decision mechanism, transparent business transaction, and sales processes automation (Lee and Whang, 2001; Lee, 2002; Agrawal et al., 2004), and synchronization of CRM and SCM (Wood, 2002).

Research Methodology

To explore various dimensions of demand chain management in the new business environment, an exploratory research was conducted by means of extensive literature survey and experience survey. Experience survey was conducted to have a deeper insight into the problem domain by an informal discussion with 2 senior level corporate executives each from automobile, durable and FMCG industries. Thereafter, a field study was conducted for the purpose of collection of specific primary data with a pre-tested questionnaire. Corporate respondents were asked to scale various reasons behind efficient management of demand chain if they find it an emerging issue of their concern on semantic differential scale of 1 (least important) to 7 (most important). They were also asked to rate the issues of concern (criticality) about various demand chain tools and techniques on the same scale, and disclose the present level of initiative by selecting one out of four options (already existing / in process / planned to initiate in near future / yet to plan).

In total, 45 top-level corporate respondents (deputy general manager-marketing /scm and above) from automobile (10), consumer durable (18) and FMCG (17) industries were taken as sample on the basis of convenience. The selection of responding firms was made on the criteria that firms must have an annual sales turnover of over Rs 500 crore and ERP system in operation. To validate and interpret data, mean, standard deviation, and percentage were calculated followed by factor analysis with the help of SPSS 11.0 software package.

Data Analyses and Interpretations

To judge the awareness about the growing importance of demand chain management in India, respondents were asked in the very first question of the questionnaire. 86.6 percent of the corporate respondents have shown their major concern about growing complexities of demand chain and expressed need to manage it more efficiently. Thereafter, they were asked to scale various reasons (objectives) behind efficient management of demand chain on the scale of 1 (not important) to 7 (very important). They scaled all variables of objectives very high (lowest 5.56 and highest 6.78), which are shown in Table1.

Table1 depicts that among all 7 objectives behind efficient management of demand chain; pro-active market responsiveness (6.78) has been recognized as most important objective very closely followed by maximization of customer value (6.68) and value chain optimization for long-term performance (6.54). In the next category, remaining objectives fall. They rated 5.56 to growth in return on assets of demand chain participants and 5.76 to achieving superior ROI of marketing. This reflects that firms are still more concern about their own welfare and growth rather than of their demand chain partners. Furthermore, it also gives an idea that firms are now concerned more about optimization of their marketing and distribution costs.

In the next part of the study, respondents were asked to rate various tools and techniques of demand chain on the scale of 1 (not critical) to 7 (very critical) in terms of their concern. At the same time, they were also asked to reveal the present status (yes/no) of their initiatives for the use of respective tools and techniques. Thereafter, mean, standard deviation and percentage were calculated for issues of concern and present status of DCM initiatives respectively for individual tool and technique of demand chain as shown in Table2.

An analysis of Table2 reveals that timely and online demand-related information sharing (6.232) is the most critical issue of concern to top management of automobile, durable and FMCG firms in India. It is followed by partnering channel relationships (6.139), minimization of bullwhip effects (6.045), transparent business transaction (5.883), customized value offering (5.814), real-time product availability (5.790), prevention

of stock-out without over stocking (5.697), etc. Disintermediation of channel structure (3.418) is relatively the least critical issue of concern. As lowest mean value is 3.418 on the scale of 1 to 7 so it can be said that all variables are important for value chain optimization.

So far as present DCM initiative of firms is concerned, about 25 percent of the firms have already taken a lead. Nearly 30 percent firms under study are in the process to optimize demand chain, and about 35 percent firms have already planned to incorporate in near future. Only about 10 percent firms have not taken any initiative in this regard.

To have a deeper insight into the criticality of various demand chain tools and techniques, factor analysis was conducted to know the number of factors as well as the number of variables falling into each of the factor extracted. Factor analysis identifies common dimensions of factors from observed variables that have a high correlation with the observed and seemingly unrelated variables but no correlation among the factors. In this study, Principal Component analysis has been used since the objective is to summarize most of the original information (variance) in a minimum number of factors for the purpose of prediction. Further Varimax with Kaiser Normalization Rotation method is used to simplify the factor structure and only the factors having latent roots (eigen values) greater than 1 (unity) are considered. We chose those factor loadings which were greater than 0.486 (ignoring the signs) and loaded them on the extracted.

Table3 provides the Varimax with Kaiser Normalization rotated factor loadings against the 18 variables measuring criticality of various demand chain management tools and techniques for enhancing market responsiveness capability of corporate enterprises. This was obtained in 6 iterations through SPSS (Version 11.0). This factor analysis finds five derived factors and those variables that had factor loading of above 0.486 (ignoring the signs) are grouped under their respective derived factors. These five factors F1, F2, F3, F4, and F5 have eigen values 2.612, 2.570, 2.402, 1.870, and 1.660 respectively and explains 68.83 per cent total variance, which is quite high and this establishes the validity of the study.

Thereafter, to know the relevancy of the 5 extracted factors out of 18 variables that are rotated in the factor analysis with the help of Scree Test. In the Scree plot, the X-axis represents extracted factors and the Y-axis their respected eigen values. The Figure-2 shows that a steep slop (Scree point) is observed at factor-4 in Scree plot. Thus, all the factors (F_1 , F_2 , and F_3) to the left of the Scree point are the more critical factors and the remaining two factors (F_4 and F_5) are relatively less critical. Altogether 11 variables of demand chain tools and techniques were then loaded on the three factors as exhibited in Table-4. Naming of factors has been done on the basis of the size of factor loading of the variables. In all, these three factors explained 55.443

percent of the total variance of various tools and techniques of demand chain. As depicted in Table-4, F_1 consists of 4 variables (V_4 , V_5 , V_{10} , and V_{11}). Therefore, this factor may be named as “**logistical services.**” Similarly, F_2 with V_7 , V_{12} , V_{13} and V_{14} variables may be named as “**leveraging IT**” and finally, F_3 with V_1 , V_3 and V_9 variables named as “**distribution optimization.**”

Now analyzing the initiatives taken by Indian automobile, durable and FMCG firms with regard to these three factors consisting eleven variables along with their ranking, it is observed that it is in the positive side as shown in table-5. This Table clearly depicts that logistical services is the most critical factor followed by distribution optimization and leveraging IT. Firms’ initiatives have not been according to the ranking of factors in absolute terms but to greater extent, they are moving in the right direction.

Research Implications

The implications of this study are described for managers as well as channel members (external demand chain members). As a result of factor analysis, it has been found that there are 11 critical variables whereas simple analysis (mean and standard deviation) identified 17 critical variables with mean above 3.5. The most interesting and contradictory result of factor analysis with respect to simple analysis is in terms of critical status of two variables. Factor analysis has shown that “disintermediation of channel structure” fall under more critical variables category, and timely and online demand-related information sharing relatively less critical variable, which is opposite of the simple analysis.

While looking into the characteristics of above three factors, they contribute significantly in the co-prosperity of all demand chain members. Logistical services variables facilitate firms in making products available on real time basis, preventing stock-outs without over stocking, and enhancing demand fulfillment capabilities. The two fold contribution of this demand chain initiatives are in terms of boosting sales of products, and unlocking of working capital and minimize space requirement. Finally, this factor leads to ensure superior return on investment to all demand chain members by preventing excessive inventory pileup at each link that unlock working capital that needs less infra-structural investment, and increases their profitability for the same level of trade. It also motivates external demand chain members to have more inventory turns that results into additional sales volume without additional costs to the firm.

In this process, IT plays a significant role by automating sales processes across demand chain. It facilitates firms in real-time capture of demand data and their processing for quick fulfillment of demand. It makes business transactions more transparent by making available information relating to marketing and brand management, merchandising, sales and trade promotion schemes, order status,

shipment schedule along with tracking and tracing. It ensures anxiety-free transaction completion on real-time basis to all demand chain members. This also prevents emergence of conflicts between them (Agrawal et al., 2003) and ensures an integrated approach towards superior market responsiveness. Furthermore, IT also facilitates firms to restructure demand chain network by disintermediation and reintermediation. It may eliminate non-value adding channel members and empowers remaining through web enabled distribution system. It makes demand chain network small and market responsive.

Finally, the third factor of demand chain management deals with optimization of distribution system. It ensures capitalization of channel members' resources, as firms cannot sustain growth and long-term performance solely on their own resources. In the prevailing market scenario, firms' dependence on channel members has been increased significantly for the qualitative outcomes of marketing (Agrawal et al., 2003). For this purpose, they need to develop and maintain partnering relationships with channel members by keeping them happy, loyal and well motivated towards business. In this endeavor, superior logistical services ensure more inventory turns and unlocking on working capital that in turn, results in better return. IT prevents distortion of information resulting harmonious relationships with minimum chances of conflicts. Logistical services along with IT contribute in the adoption of pull strategy that will result in rationalization of total distribution costs because of its "sense-and-respond" philosophy for the conduct of business. This philosophy enhances firms' market responsiveness capability in the dynamic market scenario.

Thus, Demand Chain Management is based on this philosophy that emphasizes on superior value delivery, pull marketing strategy, gaining new demand fulfillment capability, extensive use of IT for automation of various marketing and sales process integration, and partnering demand chain relationships. Above drivers of demand chain finally facilitate firms in the enhancement of their market responsiveness capability.

Conclusions

It has been seen that value chain has two parts namely, supply chain and demand chain. Efficient supply chain management has been contributing significantly in the optimization of supply side of the value chain. It has facilitated firms in creating superior customer value by cost reduction, consistency and reliability of products developed, partnering and collaborative relationships with vendors, optimization of capacity utilization, achievement of greater economy of scale, and IT enabled process integration across supply-side (Agrawal et al., 2006). As a result, it came in the trap of "make-and-sell" business philosophy and created push situation. In the prevailing market scenario, customers' demand has become for uncertain and fluctuating. This

supply chain initiative has caused huge pile up of finished goods inventory across the demand-side of the value chain, which is the most critical issue of demand chain management as per findings of this study.

Demand Chain Management is an emerging dimension of management discipline, which is getting separated from supply chain in the recent past. It is the front-end and customer-facing demand-side of the value chain. Due to increase in the environmental complexities, demand chain is an emerging area of concern in Indian automobile, durable, and FMCG industries. On the basis of literature and experience surveys, 18 variables of demand chain tools and techniques were identified. Factor analysis classified these variables into 5 factors. With the help of Scree test, 3 most critical factors were identified consisting 11 variables. The naming of these 3 factors has been done on the basis of variables with high factor loading and their respective theme. These 3 broad factors are logistical services, leveraging IT, and distribution optimization. Indian automobile, durable and FMCG industries have recognized most of the dimensions of demand chain management. As a result, it can be said that the outcomes of this small piece of research study have supported major attributes of demand chain. Initiatives have been taken by most of the Indian automobile, durable and FMCG firms for internalization of most of the tools and techniques of demand chain management barring disintermediation of channel structure.

Limitations and Scope for Further Study

The concept of demand chain management is emerging and yet to get matured. In this research, only Indian automobile, durable and FMCG industries have been studied. The scope of this study was limited to those firms who have above Rs 500 crore annual sales turnover and ERP system in operation. Even in this study, only 55.443 percent of the total variance has been explained for three factors. Remaining variance is yet to be explained. These issues provide immediate avenue for further research.

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Figure-1: Breakthrough Demand Chain Processes

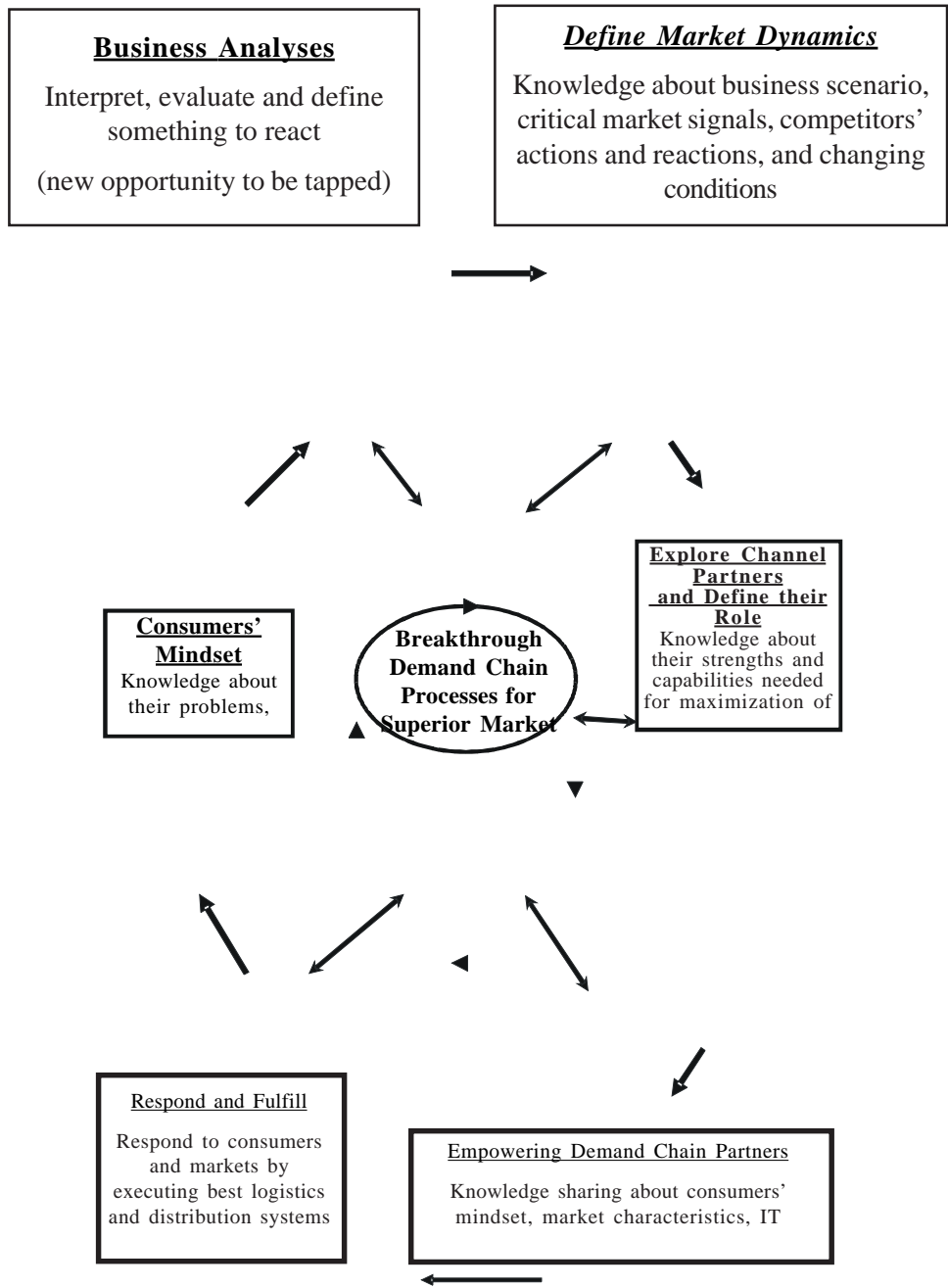


Table 1: Reasons behind Efficient Management of Demand Chain

Reasons Behind Efficient Management of Demand Chain	Mean	Std. Dev.
Value Chain Optimization for Long-term Performance	6.54	1.01
Proactive Market Responsiveness	6.78	0.42
Exceeding Customer Expectations	6.04	1.12
Maximization of Customer Value	6.68	1.27
Working Capital and Space Optimization	5.80	1.44
Growth in Return on Assets of Demand Chain Participants	5.56	1.06
Achieving Superior ROI of Marketing	5.73	0.98

Table 2: Criticality and Status of Initiatives towards Demand Chain Tools and Techniques

Issues of Concern on the scale of			Firms' Present Status of DCM Initiative (in percentage)			
Demand Chain Tools and Techniques	1 (not critical) to 7 (very critical)		Existing	In Process	In near Future	Yet to Plan
	Mean	Std. Dev.				
Capitalization of Intermediaries' Resources (V_1)	5.581	.956	26.6	35.5	20	17.7
Customized Value Offering (V_2)	5.814	0.823	26.6	37.7	26.6	8.8
Partnering Channel Relationships (V_3)	6.139	0.600	31.1	35.5	20	13.3
Real-time Product Availability (V_4)	5.790	0.832	37.7	46.6	8.8	8.8
Prevention of Stock-out Without over Stocking (V_5)	5.697	0.673	26.6	33.3	26.6	13.3
Minimizing Negative Bullwhip Effect (V_6)	6.045	0.754	26.6	13.3	40	37.7

Sales Processes Automation (V_7)	5.597	1.194	24.4	37.7	31.1	6.6
Timely and Online Demand-related						
Information sharing (V_8)	6.232	0.823	28.8	44.4	17.7	8.8
Rationalization of Distribution Costs (V_9)	5.046	0.785	24.5	35.5	31.1	8.8
Continuous Replenishment in Small Quantity (V_{10})	5.418	1.467	8.8	13.3	40	37.7
Enhancement of Demand Fulfillment Capability (V_{11})	5.558	0.933	31.1	37.7	17.7	13.3
Transparent Business Transactions (V_{12})	5.883	0697	28.8	44.4	17.7	8.8
Disintermediation of Channel Structure (V_{13})	3.418	1.005	17.7	35.5	35.5	13.3
Reintermediation of Channel Structure (V_{14})	4.860	1.206	22.2	22.2	26.6	28.8
Synchronization of CRM and SCM (V_{15})	4.651	1.251	26.6	31.1	28.8	13.3
Intelligence and Knowledge-centric						
Decision Mechanism (V_{16})	4.907	1.191	17.7	22.2	26.6	35.5
Pull Marketing Strategy (V_{17})	3.314	0.956	28.8	22.2	26.6	22.9
Superior ROI of Marketing (V_{18})	4.953	1.194	24.4	31.1	6.6	37.7

Table 3: Rotated Component Matrix (loading Criteria >0.486)

Component					
Variable	F_1	F_2	F_3	F_4	F_5
V_1 Capitalization of Intermediaries' Resources			.548		
V_2 Customized Value Offering					.891
V_3 Partnering Channel Relationships			.804		
V_4 Real-time Product Availability	.786				
V_5 Prevention of Stock-out Without over Stocking	.818				

Component					
Variable	F₁	F₂	F₃	F₄	F₅
V ₆ Minimizing Negative Bullwhip Effect				.580	
V ₇ Sales Processes Automation		.750			
V ₈ Timely and Online Demand-related Information sharing		.744			
V ₉ Rationalization of Distribution Costs			.833		
V ₁₀ Continuous Replenishment in Small Quantity	.727				
V ₁₁ Enhancement of Demand Fulfillment Capability	.494				
V ₁₂ Transparent Business Transactions		.829			
V ₁₃ Disintermediation of Channel Structure		.638			
V ₁₄ Reintermediation of Channel Structure		.503			
V ₁₅ Synchronization of CRM and SCM					.640
V ₁₆ Intelligence and Knowledge-centric Decision Mechanism			.641		
V ₁₇ Pull Marketing Strategy					.580
V ₁₈ Superior ROI of Marketing					.503
Eigen Value	2.612	2.570	2.402	1.870	1.660
Cumulative Variance	27.68	43.03	55.44	62.42	68.83

Extraction Method: Principal Component Analysis. Rotation Method:

Varimax with Kaiser Normalization. a Rotation converged in 8 iterations.

Figure-2: Scree Plot

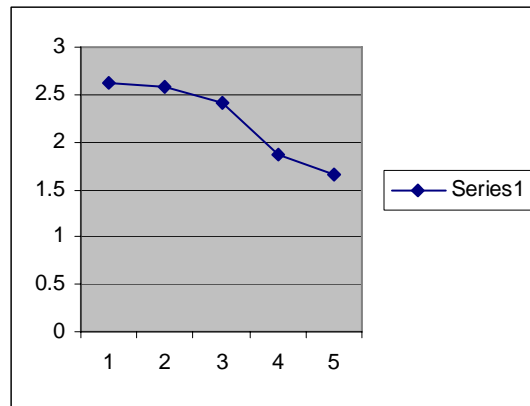


Table 4: Critical Factors of Demand Chain Management for Value Chain Optimization

F1	F2	F3
Logistical Services	Leveraging IT	Distribution Optimization
Real-time Product Availability (5.790)	Sales Processes Automation (5.597)	Capitalization of Intermediaries' Resources (5.581)
Prevention of Stock-out Without over Stocking (5.697)	Transparent Business Transactions (5.883)	Partnering Channel Relationships (6.139)
Continuous Replenishment in Small Quantity (5.418)	Disintermediation of Channel Structure (3.418)	Rationalization of Distribution Costs (5.046)
Enhancement of Demand Fulfillment Capability (5.558)	Reintermediation of Channel Structure (4.860)	

Note: The figures in parenthesis represents the average scores on the scale of 1 (not important) to 7 (very important) for the variables under each Factor that determines criticality of various demand chain tools and techniques for enhancing market responsiveness capability

Table 5: Corporate Initiatives towards Critical Demand Chain Tools & Techniques

Critical Demand Chain Tools & Techniques	Average Mean Score	Factor's Ranking	Firms' Present level of Initiatives(in percentage)	
			Yes	No
Logistical Services Real-time Product Availability Prevention of Stock-out Without over Stocking Continuous Replenishment in Small Quantity Enhancement of Demand Fulfillment Capability	5.615	1st.	58.8	41.2
Leveraging IT Sales Processes Automation Transparent Business Transactions Disintermediation of Channel Structure Reintermediation of Channel Structure	4.939	3rd.	52.2	47.8
Distribution Optimization Capitalization of Intermediaries' Resources Partnering Channel Relationships Rationalization of Distribution Costs	5.588	2nd.	63	37

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