

Identifying Indian Industry's Supply Chain Potential and Transformation Requirements

A Study of Indian Best-in-Breed, Industry Average vis-à-vis Laggards

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Introduction

Fifty six percent (56%) of the companies regard supply chain management as the market strategy differentiator, a customer service differentiator or as a profit center, as opposed to strictly a cost of doing business. While the companies across industries and regions continue to be confronted with inexorable escalations in supply chain cost, market realities such as globalization of supply, increasing competitive pressures, and dwindling product life cycles demand that they transform their supply chains to balance cost reduction with strategic business alignment while performing at stellar levels.

For our main study purpose, prior to sending the questionnaire to our target sample, it was pre-tested with a large Indian's Manufacturing companies as well few service companies majorly, Indian Public/ Private Sector bank. The pre-test revealed that the respondent had no difficulty in understanding the content of the questionnaire. For the above purpose an on-line survey of over 100 supply chain executive is done. With the aim to highlight the critical issues faced by Indian Companies during the alignment of business strategies with the deployment of e- supply chain solutions. In addition, it aims to provide a process roadmap for supply chain executives faced with transforming their supply chains while delivering strategic value at lower cost.

Review of Literature

The origin of the concept of Supply Chain Management developed out of the growth in relation to the different dimensions of pre and post production exercise. The Emergence starts from the level of the exercise in small and mid-size firms with the key focus on breaking down internal functional and management. The model proposed by Stevens (1989) outlined an approach to achieving supply chain

integration, based on a progression from this silo-based activity to interdependent functions between suppliers, OEMs and customers within the supply chain.

For the cause of developing a robust systems with a strong operational performance firms acknowledge the need of 'inter-organizational' integration. The integration includes solutions with an external focus, characterized by the shared resource, utilizing third parties and inter-dependence on brought-in expertise. That led to functional- specified developments such as outsourcing, pooling and utilization of common-usable-assets and vendor managed inventory (Venkatesan, 1992; Dong and Xu, 2002; Knemeyer and Murphy, 2005). The benchmarked development was that the firms began to experiment with the potential benefits of wider co-operation with both suppliers and customers at different stages in the supply chain (Alan Smart, 2007).

On the supply side, the lean concept advanced the phenomenon of closer supplier collaboration as leading to cost reduction and greater efficiency (Womack and Jones, 1996); beside this, a raft of literature has emerged outlining the benefits to be achieved in closer alignment of supply with the core activities of the firm and the move away from traditional arms-length or adversarial relationships (Spekman et al., 1994; Goffin et al., 1997; Hines, 1996; Ellram and Hendrick, 1995). On the demand side, within retail in particular, customer-facing initiatives such as Quick Response logistics (Christopher and Juettner, 1999) and Collaborative Planning, Forecasting and Replenishment (Steerman, 2003) have been advanced to decrease lead-times, reduce inventory levels and improve responsiveness to variations in demand. The theme of much of this development has been on the notion of integration of activities and processes between members of the supply

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chain, where a major facilitator is the reciprocity of information (Croxtton et al., 2001; McAdam and McCormack, 2001). For example, the exchange of electronic point of sale data between food retailers and their suppliers to manage order scheduling has enabled improved fulfilment accuracy and on-shelf availability (Christopher, 2005) (table -1). When positing support for stronger external integration, it has been suggested that the benefits increase as the level of supply chain integration grows, both upstream (Tan et al., 1998; Krause, 1999; Narasimhan and Das, 1999) and downstream (Reeder and Rowell, 2001; Gilbert and Ballou, 1999; Croxtton et al., 2001). Indeed, talk of integration is now commonplace in the literature and it is frequently taken as a standard requirement of successful management of the supply chain, that integration will take place (Stank et al., 1999; Frohlich and Westbrook, 2001). Evidence has further been proffered that the use of eBusiness tools leads to a greater degree of integration within the supply chain (Cagliano et al., 2003). This debate takes place against a background notion that greater co-operation between trading partners is necessary for successful management of the supply chain, with all parties to the transaction potentially benefiting from the efficiencies achieved (Bowersox et al., 2003). Despite the theories advancing closer working and some documented cases of success, in most industries it has proved extremely difficult to achieve genuine integration between firms operating in the chain. Fawcett and Magnan (2002) have illustrated that even in the developed countries market where supply chain techniques are more widely understood, the extent of integration between firms is limited. Equally, Akkermans et al. (1999) demonstrated that functional thinking is predominantly the norm and that the arrival of new technology will not alter the situation, without significant organisational and cultural change. This position is supported by evidence from a survey by Bagchi and Skjoett-Larsen (2002) who reveal the problems of achieving IT and SCM integration between organisations. One of the concerns faced by functional managers within different firms in the supply chain is "yielding sovereignty" (Fawcett and Magnan, 2002) and the fear of loss of control. Other barriers to integration include technology itself, organisational focus, trust, people and internal structure (Barratt and Oliveira, 2001; Frohlich, 2002; Jharkharia and Shankar, eBusiness and supply chain integration 2005). Fawcett and Magnan (2002, p. 344), introduced four elements as the elementary

integrants for a robust e-SCM framework. Namely, Cross functional Process Integration (Internal), Background Integration (inter-linkage between first-tier suppliers and second-tier suppliers), Absolute Backward and Forward Integration.

Bagchi and Skjoett-Larsen (2002) defined and classified supply chain integration into two domains namely, Information Integration and Organizational Integration. They cited the underlined processes and characteristics which define these two modes and propose three "stages of integration" within each mode which are low, medium or high. Frohlich and Westbrook (2001) re-conceptualize "arcs of integration". They define five "mutually exclusive groups" representing the integration strategies of the firms these five arcs are inward-facing, periphery-facing, supplier-facing, customer-facing and outward-facing.

Research Design

Research Questions

Responding supply chain and logistics and related area, practitioners were asked for the following research questions:

1. What percentages of companies are re-designing their domestic or global supply chain processes or network?
2. How do companies view their supply chain management organization today?
3. Which role manages the supply chain organizations in companies and who do they report to?
4. Are companies actively centralizing their supply chain organization?
5. What overall process capabilities are companies planning to invest in 2008?
6. Are companies investing heavily in green supply chain initiatives?

Research Methodology

► We examined the strategic supply chain process roadmap of more than 100 enterprises. We have conducted an online survey with selected survey respondent to gather additional information on supply chain process roadmap and technology investment indicators. We have identify few indicators for our research work, those were:

► Industry:

This research sample included respondent firms

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discrete and process manufacturing and service industry. Key demographics are : Indian originated Banks operating in India as well abroad (6%), Foreign Banks operating in India(4%), Automotive (9%), Thermals (6%), Computer Equipment and Peripherals(5%), Construction/Architecture/Engineering (5%), Consumer Durable Goods (5%), Consumer Packaged Goods (9%), Distribution (11%), Food/Beverage (9%), Health/Medical/Dental Services (6%), High Technology (10%), Industrial Equipment Manufacturing (6%), Medical Devices (6%), Metals and Metal Products (7%), Retail (6%), Transportation/Logistics (9%) and Telecommunication Equipment(4%).

►Job Title:

The research sample included respondents with the following titles: Senior Manager GMs/CIO/COO (11%), Vice President (15%), Director (31%), Manager (30%), Staff(3%) and Consultant (10%).

►Categories of Company:

The research sample included respondents of the following categories (please note that respondents may select more than one option): manufacturer (60%), distributor (11%), retailer (7%), logistics provider (13%), contract manufacturer (3%), and brand manager (5%).

►Geography:

The majority of respondents (63%) were from India itself. Remaining respondent were from North America (11%) and Europe (17%). The rest of the world constitutes the remaining 9%.

►Company Size:

Forty-five percent (45%) of respondents were from blue chip companies (Annual revenue of More than Rs. 100 Crore), 33% mid-cap enterprises (Annual revenue of not less than Rs 50 crore.) and 22 % of respondents were from Small-scale industry (Annual revenues of less than Rs. 50 crore).

►Headcount:

Seventeen percent (17%) of respondents were from small-scale enterprises (headcount between 1 to 99 employees); 27% were from mid-size enterprises (headcount between 100 and 999 employees); and 56% of respondents were from large enterprises (headcount greater than 1,000 employees).

The current Role of Supply Chain Management is No Longer Simply Cost Focused

Although the cost savings in logistics and manufacturing are often the key objectives of supply chain redesign, industry leaders realize there is another benefit- the ability to differentiate their customer service or business strategy from marketplace competitors. Although 44% of the respondents report that their companies still view supply chain management as a cost center, today 24% of companies view SCM as a market strategy differentiator.

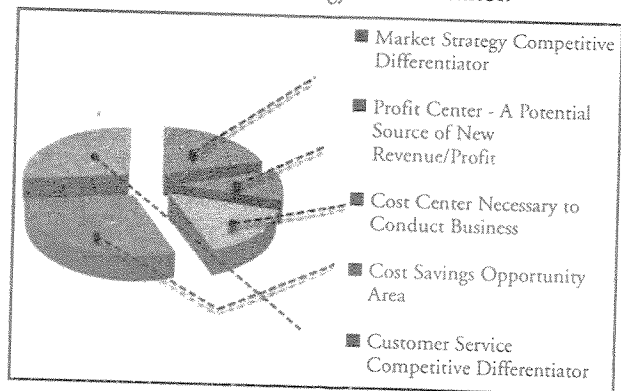


Figure 1: The Perception of the Role of SCM within Companies

Supply Chain Transformation The Need of the Hour

The shift in supply chain prominence within the enterprise represents a key driver of supply chain transformation today. When combined with specific supply chain performance pressures, we see increasing demands for effective supply chain transformation today are cost containment (68% of companies), followed by escalating customer service demands (49% of companies), and the restructuring requirements brought on by the increase in industry acquisition and divesture activity (44% of companies). In response to these pressures, companies have either redesigned or have started to redesign their supply chains. As shown in the figure 2, more than 90% of companies have started to, or have already redesigned their domestic supply chains- and 80% of companies have started, or have already redesigned their international supply chains.

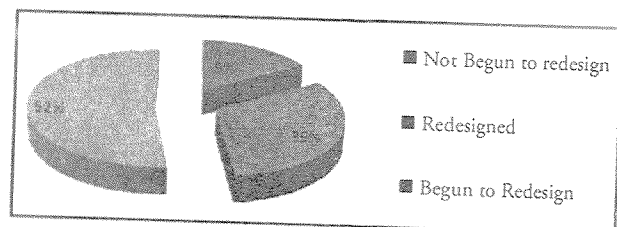


Figure 2. a. Domestic Supply Chain Transformation

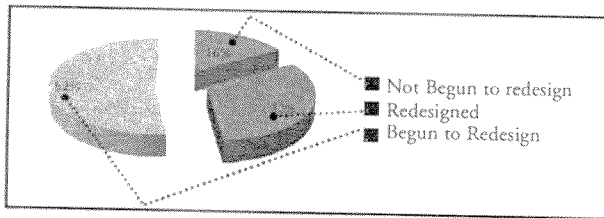


Figure 2.b. International Supply Chain Transformation

Figure 2(2.a. & 2.b.) Companies are actively Reinventing their Supply Chains Domestic and International

Ingredients of Transformation Success

From these supply chain transformation pressures we can identify the key ingredients that are required for companies to achieve strategic supply chain success. These include:

1. **Supply chain responsiveness**-supply chain visibility and agility combine to deliver a responsive supply chain that can quickly identify and react to changes in supply, demand, and execution threats/ opportunities. This results in optimizing the supply chain in its use of enterprise resources while improving customer satisfaction.
2. **Strategic alignment with business objectives**

and internal stakeholders (finance, corporate, product engineering, etc) - a supply chain that is designed to support and drive business objectives becomes a strategic weapon in the marketplace enabling Best-in-Breed execution.

3. **Integration/collaboration with trading partners**-integrating end to end supply chain processes, including real-time collaboration with trading partners, is a critical element in extending the supply chain and leveraging the core domain expertise of each player.
4. **Gaining Sustainability through green initiatives**- sustainability and green are more than marketing buzzwords, they are imperatives for effective supply chain design and execution. Companies that learn to lower costs and improve performance through green initiatives will have a competitive advantage in the marketplace.

During this initial empirical work, we select three key performance criteria to distinguish the Best-in-Breed from industry average and Laggard organizations. Table 2 provides a framework with which companies can benchmark themselves and identify which category they fall into.

Figure 3: Top Pressure Forcing Companies to focus on Supply Chain Transformation

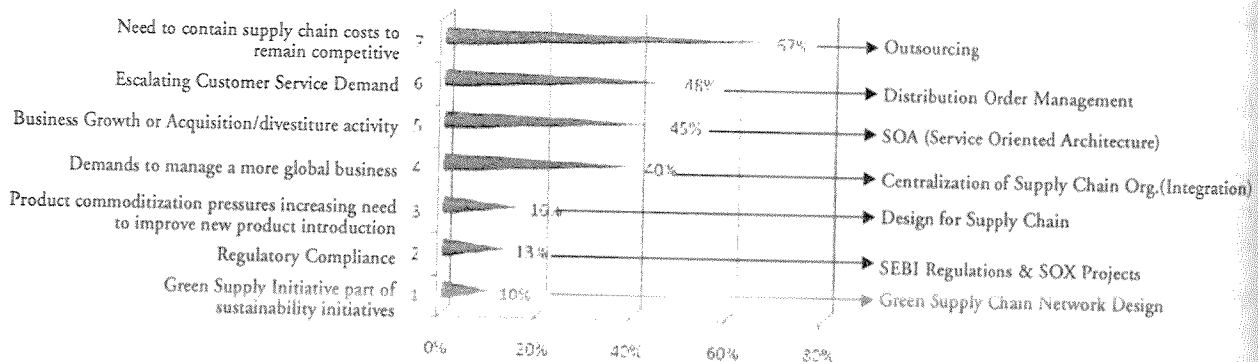


Figure 3 shows the key pressures that are forcing companies to look towards transformation opportunities. In addition, the figure shows specific types of technologies or processes that can be leveraged to eliminate the impact of these pressures.

Some differences in priorities between Best-in-Breed and all other companies include:

1. Escalating customer service demands in ranked by Best-in-Breed companies as the top pressure instead of supply chain costs.
2. Demands to meet more global business is ranked within the top three pressure by the Best-in Breed Companies.

Competitive Assessment

The aggregated performance of surveyed companies based on key performance indicators determined whether they ranked as Best-in-Breed, Industry Average, or Laggard. In addition to having common performance levels, each class also shared characteristics in five key categories: (1) Process (the ability to detect and respond to changing conditions without placing additional burdens on the organization); (2) Organization (Corporate focus and collaboration among stakeholders); (3) Data (Contextualizing data and exposing it to key stakeholders); (4) performance management (the ability of the organization to measure the benefits of technology deployment and use the results to improve key processes further). These characteristic (identified in Figure 3) serve as a guideline for best practices, and correlate directly with Best-in-Breed performance across the key metrics.

Capabilities and Enablers

Process

Best in Class companies are two-times more likely than all others to have a formalized supply chain risk management initiative. Only 30% of companies are concerned about supply chain resiliency and are actively managing the risk. The lack of a risk management strategy is one of the greatest weaknesses of current corporate global supply chain strategies; it threatens the continuity of a company's business and sets the stage for gross margin erosion due to under-managed supply chain uncertainty and risk.

Increasing logistics and supply agility, and improving visibility and automation of supply chain activities are the risk mitigation actions that companies believe will help the most. An emerging set of technologies and solution providers can also help assess risk and create contingency plans.

Organization

Best-in-Breed companies have made organizational strides as well, and are far ahead of their lower-performing peers in creating a centralized supply chain management organization. Creating a command center to orchestrate the complexities of running an end-to-end supply chain is clearly a best practice. Best-in-Breed companies are also two-times as likely to have appointed a single executive with overall supply chain responsibility.

Data

Best-in-Breed companies are much more likely to have end-to-end supply chain data and process visibility than all other companies.

Best-in-Breed companies are much more likely to perform various kinds of data analysis in support of supply chain decisions which ensures that the visibility data they collect are used to help them achieve the market advantage. Overall, 63% of all companies still use spreadsheets to help them analyze the visibility data obtained through their tracking and monitoring systems (or manually). However, the Best-in-Breed are 55% more likely than all others to be using some kind of automated visibility data analysis (Table 4).

Among those that currently perform visibility data analysis, Best-in-Breed Companies are:

1. 44% more likely than the Industry Average, and twice as likely as Laggards to be tracking actual total landed costs as shipment/ order progresses.
2. 2-4 times as likely as both Industry Average and Laggards to use supplier/ carrier scorecards using visibility information.
3. Two-times are likely as both Industry Average and Laggards to conduct performance trending and root cause analysis.
4. 76% more likely than the Industry Average and twice as likely as Laggards to perform trade lane analysis (e.g., lead time availability).
5. Three-times as likely as Industry Average and six-times as likely as Laggards to be performed traceability/ genealogy analysis at item level.

Performance Management

Best-in-Breed companies are 1.5 times more likely than all others to have implemented cross-functional metrics across their enterprise.

1. Best-in-Breed companies are approximately 1.25 times as likely as the Industry Average and

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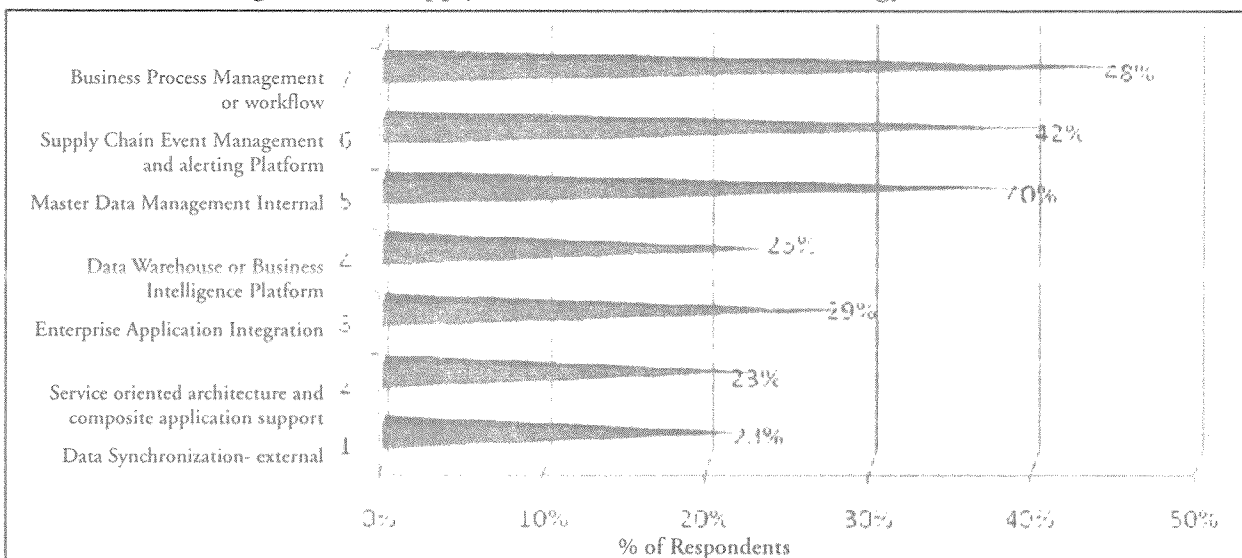
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Figure 4(b) : Supply Chain Infrastructure Technology Priorities



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Table -1: Supply Chain Integration: Research & Findings

Year	Researcher	Research objectives	Findings/ Remarks
1989	Stevens	Supply Chain Integration Model : Approach to achieve supply chain integration, based on perspective from silo -based activity to interdependent functions between vendors and suppliers.	
1992	Venkatesan	Integrated inter-organizational logistic model : study of variables related to 3PL selection, resource sharing, outsourcing, common used assets and vendor managed inventory.	
2002	Dong and Xu		
2005	Knemeyer and Murphy		
1996	Womack and Jones	Study and analysis of potential benefits of wider co-operation between Suppliers and buyers	variable identification that leads to Cost reduction and greater efficiency
1994	Spekman et al.	identification of core business activities and benefits out of them in the close alignment with supply chain mechanism	pattern identification for modern integrated supply chain system
1997	Goffin et al.		
1996	Hines		
1995	Ellram and Hendrick		
1999	Christopher and Juettner	Quick Response Logistics Model	Customer-facing Initiatives
2003	Sterman	Collaborative Planning, Forecasting and Replenishment	decrease lead-time, reduce inventory levels and improve responsiveness to variations in demand
2001	Croxton et al.	Identification of the factors that integrate activities and processes between members of the supply chain	major facilitator is the reciprocity of information
2001	McAdam and McCormack		
2005	Christopher	to determine the indicators of Order Scheduling processing	Improved fulfillment accuracy and on-shelf availability

Table -2: Companies with Top Performance Earn Best-in-Breed Status.

Definition of Maturity Class	Mean Class Performance
Best-in-Breed: Top 20% of aggregate performance Scorers	* Finished goods inventory turns per year- 28.
	*Total Logistics costs as a percent of sales-5%. *Perfect order percentage (percentage of orders shipped complete and on-time to the customer's requested delivery date)-96%.
Industry Average: Middle 50% of aggregate performance scorers	* Finished goods inventory turns per year- 13.
	*Total Logistics costs as a percent of sales-14%. *Perfect order percentage (percentage of orders shipped complete and on-time to the customer's requested delivery date)-85%.
Laggard: Bottom 30% of aggregate performance Scorers	* Finished goods inventory turns per year- 3.
	*Total Logistics costs as a percent of sales-20%. *Perfect order percentage (percentage of orders shipped complete and on-time to the customer's requested delivery date)-71%.

Table -3: The Best-in-Breed PACE Framework

Pressures	Actions	Capabilities	Enablers
* Escalating Customer Service Demands	*Improving supply chain visibility. *Improving sales and operations planning. *Improving inventory optimization. *Improving order fulfillment.	* Formalized supply chain risk management. * Centralized supply Chain organization. *Executive Position with end-to-end supply chain responsibility * Closed loop integration of supply chain planning and execution. * Cross-functional metrics	* Supply Chain visibility tools. * Sales and operations planning tools. * Transportation management tools. * Inventory optimization tools. * Order fulfillment tools.

Table 3 shows the key Pressures, Actions, Capabilities and Enablers (PACE) that are being prioritized by the Best-in-Breed Companies for their supply chain Process roadmap. This will help identify the key capabilities that are being considered as part of their supply chain initiatives

Table -4: The Competitive Framework

	Best-in-Breed	Average	Laggards
Process	Closed-up integration of supply-Chain planning & execution		
	66%	44%	43%
	On-line Trading partner collaboration		
	46%	39%	34%
	On-line(real-time) visibility into supply chain issues/disruptions		
	46%	27%	18%
Organization	Formalized Supply Chain Risk anagement		
	63%	34%	27%
	Executive position with end-to-end supply chain responsibility		
	62%	56%	41%
Performance Management	Centralized Supply Chain Management Organization		
	67%	38%	33%
	Cross-Functional Metrics		
74%	56%	31%	
Data	The ability to find(within a reasonable time) and access supply chain data needed for decision making		
	67%	38%	33%
	End-to-End Supply Chain Data and Process visibility		
Technology Enablers	67%	51%	29%
	Supply Chain Visibility		
	52%	52%	52%
	Sales and operations planning		
	33%	33%	33%
Transportation management			
19%	19%	19%	

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