CHAPTER-VIII

CONCLUSIONS AND SUGGESTIONS

In today's economy the battlefield is shifting from individual company performance to, what the Researcher calls Supply Chain Performance. Supply Chain Performance refers to the extended supply chain's activities in meeting end-customer requirements, including product availability, on-time delivery, and all the necessary inventory and capacity in the supply chain to deliver that performance in a responsive manner. Supply Chain Performance crosses company boundaries since it includes basic materials, components, subassemblies and finished products, and distribution through various channels to the end customer. It also crosses traditional functional organization lines such as procurement, manufacturing, distribution, marketing & sales, and research & development.

To win in the new environment, supply chains need continuous improvement. To achieve this there is a need performance measures, or "metrics", which support global Supply Chain Performance improvements rather than narrow company-specific or function-specific (silo) metrics which inhibit chain-wide improvements the Researcher has described a number of supply chain performance measures that are expressly designed to support and monitor Supply Chain Performance improvements across the supply chain and illustrate the shortcomings of several common metrics. A team of Accenture, INSEAO, and Stanford University researchers has drawn a statistical correlation between companies' financial success and the depth and sophistication of their
supply chains. Specifically, the supply chain leaders are showing market-capitalization growth rates significantly higher than the industry average growth rate.

In addition to that powerful supply chain-financial performance link, the researcher identified the best practices, challenges, metrics, and success factors that accompany a bottom-line-focused supply chain transformation.

1. The study revealed that, from a financial perspective, "reducing cost" is still the preeminent driver of supply chain improvement initiatives. This is to be expected, as supply chain management always has been a linchpin of operational efficiency. More noteworthy, however, is that nearly 25 percent of respondents cited "enhancing revenue" as the most prominent driver of their supply chain improvement initiatives. Out of the total respondents, those giving priority to revenue enhancement exceeded 30 percent. "enhancing revenue" as their initiatives' principal driver are still concerned about reducing costs. But they also are acknowledging supply chain management's growing potential as a front-office tool. Consider the numerous ways that demand manifests itself (via the Web, through online marketplaces, or in conjunction with partnerships) and how critical supply chain proficiency is supporting each of these venues. It also is true that more and more margin potential is being derived after a product ships. In effect, service and support are becoming as important as the product itself. And supply chain management is the heart of profitable service and support.
2. Confirming the above observation, "service quality" was one of the most frequently cited drivers of operational performance improvements. Nearly 20 percent also identified "product innovation" as an important motivator. Clearly, these respondents appreciate the increasingly important role that supply chain management plays in supporting collaborative design processes and maintaining tight control over the complete, end-to-end product lifecycle.

3. The study also revealed that "supply chain planning" and "linkages with customers and suppliers" are perceived to offer the greatest operational-improvement opportunities. Planning and linkages also proved to be among the capabilities most frequently transformed by respondents' recent supply chain initiatives. Clearly, investments in these capabilities can help companies respond more effectively to changing market conditions, proactively control costs, and tighten relationships through greater information sharing and collaboration.

4. Successful benchmarking and metrics development often require that an actual program be put in place to capture and analyze supply chain information. In the case of supply chain transformation, there is a need for data that span the enterprise, so metrics management ideally would be led by a corporate-level organization that can see the "big picture". Efforts undertaken at the departmental level (one business unit leading the charge) are seldom effective, unless that department's energy and enthusiasm can be
amplified to produce a coordinated, enterprise-wide programme.

5. 'Supply chain executives involved in the research effort consistently cited the five metrics below as key to assessing the value of their supply chain transformations. Each of the five is conceptually simple. But it is much more difficult to understand exactly what the measurement parameters entail. That is why a formal programme with executive-level involvement is so important.

1) Efficiency/cost savings goals met. Did documented goals hit targets at the time specified, and did the CFO accept the results?

2) Enhanced customer service. Do surveys (both formal and informal) confirm that customers find it easier and cheaper to do business with the company?

3) Top-management involvement. Do senior executives understand how supply chain initiatives improve the business, and do they agree on the impacts?

4) Technology works as promised. Did software packages, and the integration projects supporting the initiatives, meet their objectives and timelines?

5) Change goes smoothly. Did the company anticipate problems and deal with them quickly and without crises? Did contingency plans work, if needed?

The researcher during the course of study has tested the following four hypotheses (assumptions) with the help of the secondary data. Each of the four assumptions is conceptually simple and validated during the course of the study.
Hypothesis 1 The firm that adopts Just in Time (JIT) has higher ROA than a controlled sample that does not adopt JIT has been proved positive as mentioned in the Chart No6.5 (OOO "Avesta Farmatektika" mother warehouse, Moscow, Russia Federation, Inventory Turns and Days of Inventory)

Hypothesis 2 Better coordination in the Supply Chain reduces uncertainty throughout manufacturing networks which in turn leads to greater efficiency along with faster delivery of finished product has been proved and validated as analyzed from the Table No 6.12 (Material Cost of Dr. Reddy's Laboratories Ltd)

Hypothesis 3 Strategic logistic capabilities contribute significantly to superior company performance and sustainable competitive advantage has also been proved positive and validated as explained in Chart No 6.4 (Graphical presentation of share data showing dividend and EPS)

Hypothesis 4 There is a positive relationship between integrative information technologies and Supply Chain Management has been proved and validated as discussed in Chart No: 6.8

5. The firm that adopts Just in Time (JIT) has higher ROA than a controlled sample that does not adopt JIT
6. Better coordination in the Supply Chain reduces uncertainty throughout manufacturing networks which in turn leads to greater efficiency along with faster delivery of finished product.
7. Strategic logistic capabilities contribute significantly to superior company performance and sustainable competitive advantage.

8. There is a positive relationship between integrative information technologies and Supply Chain Management.

6. Across all of the above observations and recommendations, the common denominators are flexibility and innovation. As supply chains contribute more directly to revenue and profit growth, companies that can quickly adopt strategic supply chain approaches will pull further ahead of those that cannot as it has happened in Dr. Reddy's Laboratories Ltd.

The core philosophy of SCM is the integration of all value-added levels from the extraction of raw material to the sale of the finished product to the ultimate customer, whilst taking into account organizational and human factors (integrated supply chain). The potential of integrated supply chain is considerable. A global study conducted by Supply Chain Council demonstrated the potential for cost reduction between 3 and 6 percent of turnover.

7. A supply chain consists of all stages involved directly or indirectly in fulfilling a customer request. The supply chain not only includes the manufacturer and suppliers but also transports 'Warehouses, retailers and customers. Within each organization, the supply chain includes all functions involved in filling a customer request. The functions include new product development, marketing, operations, distribution, and finance and customer service. The term supply chain conjures up images of product or supply,
moving from suppliers to manufacturers to distributors to retailers to customers along a chain. It is important to visualized information, funds and product flows along both directions of this chain. A typical supply chain may involve a variety of stages. These supply chain stages are shown below:

1. Customers
2. Retailers
3. Wholesales /distributors
4. Manufacturers
5. Component/raw material suppliers

8. The objective of supply chain is to maximize the overall value generated. The value a supply chain generates is the difference between what the final product is worth to the customer and the effort the supply chain, expends in filling the customer's request. In a commercial supply chains, value is strongly correlated with supply chain profitability, the difference between the revenue generated from the customer and the overall cost across the supply chain.

9. Supply chain profitability is the total profit to be shared across all supply chain. Supply chain success should be measured in terms of supply chain profitability and not in terms of the profit at an individual stage. The success of a supply is always chain in terms of supply chain profitability. The next logical step is to look for source of revenue and cost. For any supply chain, there is only one source of revenue, the customer. The customer is the only real point of positive cash flow in a supply chain. All other cash flows are simply fund exchanges that occur within supply chain, given that different stages have different
owners. All flows of information, product or funds generate costs within the supply chain.

Therefore the appropriate management of these flows is a key to supply chain success. SCM involves the management of flows between and among stages in a supply chain to maximize total profitability. Successful supply chain management requires several decisions relating to the flow of information, product and funds. These decisions fall into three categories or phases—depending on the frequency of each decision and the time frame over which a decision phase has an impact.

10. Supply chain strategy or design

During this phase, a company decides how to structure the supply chain. It decides what the chain's configuration will be and what processes each stage will perform. Decisions made during this phase are also referred to as strategic supply chain decisions. Strategic decisions made by companies include the location and capacities of production and warehousing facilities, products to be manufactured or stored at various locations, modes of transportation to be made available along different shipping legs and type of information system to be utilized. A firm must ensure that the supply chain configuration supports its strategic objectives during this phase. Supply chain design decisions are typically made for a long term and are very expensive to alter on short notice. Consequently, when companies like DRL make these decisions, they must take into account uncertainty in anticipate market conditions over the next few years.
11. Supply Chain Planning

As a result of planning phase, companies like DRL define a set of operating policies that govern short-term operations. For decisions made during this phase, the supply chain's configuration determined in the strategic phase is fixed. Planning includes decisions regarding which markets will be supplied from which locations, the planning built up of inventories, the subcontracting of manufacturing, the replenishment and inventory policies to be followed, the policies that will be enacted regarding backup locations in case of a stock-out, and the timing and size of marketing promotions. Planning establishes parameters within which a supply chain will function over a specified period of time. In the planning phase, companies must include uncertainty in demand, exchange rates and competition over this time horizon in their decisions. Given a shorter time horizon and better forecasts than the design phase, companies in the planning phase try to incorporate whatever flexibility may have been built into the supply chain in the design phase and exploit it to optimize performance in the shorter term.

12. Supply Chain Operation

The time horizon here is weekly or daily and during this phase companies make decisions regarding individual customer orders. At the operational level, supply chain configuration is considered fixed and planning policies already defined. The goal of supply chain operations is to implement the operating policies in the best possible manner. The design, planning and operation of a supply
chain have a strong impact on overall profitability and success.

Suggestions
1. Procurement
Over the past decade, improving the purchasing function has become an important and strategic part of the goals of most organizations—primarily because of the recognition that increased profitability can be equally accomplished by spending less. A dollar saved in operating expense may have the same effect on profit as a $10 gain in sales.

In the pharmaceutical industry, e-procurement has been heavily embraced because of its association with lower transaction costs, lower unit price and a drive toward contract compliance. Often these concessions were achieved with little regard to quality, total cost and productivity and resulted in modest to minimal gains in cost savings. There are significantly greater benefits to be gained in the area of procurement by focusing.

1) Strategic Sourcing 2) Supplier Management

Both position an organization to more adeptly respond to changes in demand and to more strategically manage overall costs throughout the supply chain. While e-procurement may lower the costs within the four walls of procurement, it is most effective when led or supported by strategic sourcing or supplier management so that cost structures and productivity are also enhanced downstream.
2. Strategic Sourcing
Are you looking for ways to reduce working capital or lead times or make market-changing improvements to service levels? Strategic sourcing is the aggregating of goods and service needs to devise and execute a procurement strategy that optimizes and balances total cost of acquisition, working capital, productivity and service. Benefits often include reduced total costs for buyer and supplier, higher quality, ongoing reduction in working capital and lead times, and strategic supplier partnerships. The focus in supplier partnerships shifts from one of price reduction to relationship value and total cost management.

Strategic sourcing inherently focuses on both direct and indirect material items that make up the lion's share of costs and productivity problems. The more strategic aspects include in-sourcing/outsourcing and the management of contract manufacturing. Total cost management evaluates unit price, logistics and freight costs, import/export fees, taxes, service models and the cost of poor quality. A pharmaceutical manufacturer's approach to strategic sourcing and speed of adoption should be based on the organization complexity and current level of process standardization.

3. Supplier Management
Supplier management programmes proactively manage supplier relationships and performance to ensure supply objectives are achieved. Proactive supplier management typically yields 10 to 15 percent savings for the purchasing categories addressed and then additional year-over-year savings of 3 to 5 percent. Moreover, the goals of a supplier management program may be critical to operations and sales. The pharmaceutical industry
has been plagued with FDA penalties, fines and subsequent negative publicity - some of which could be resolved with a compliance-focused supplier management programme. "The success of supplier management programmes is highly dependent upon executive sponsorship, cross-functional input, measurable performance metrics and process enablement. Many of today's supply chain management and e-procurement applications offer supplier management functionality. The focus in supplier partnerships shifts from 000 of price reduction to relationship value and total cost management.

Organizations that effectively codify the FDA's CGMP will extend compliance and validation back into their supply base. By defining quality and performance criteria, segmenting suppliers into tiers through performance level or value to the organization, and establishing and measuring against metrics, suppliers can actually foster compliance and achieve other operational goals. Goals often include lowering overall costs, decreasing lead time and shortening product development cycles. Successful pharmaceutical companies like DRL should actively seek to position their organizations for future profitability by anticipating increased competition and the demise of high margins. In this study the researcher has highlighted five supply chain capabilities that winning pharmaceuticals should build to maintain competitive advantage:

1. Production
2. Fulfillment
3. Customer management
4. Forecasting and Planning
5. Procurement
The Researcher believes that pharmaceutical companies that take action now to implement optimized cost and business infrastructure will be best positioned to continue strong financial performance. Each of these areas presents opportunities to generate real value and financial benefit in four to six months. Benefits will continue to be realized as proficiency and capability develop. Building competitive capability in some of these may take several years, but the earlier the start, the greater the lead against the competition.

4. Optimizing supply chain management

A combination of reduced growth, lower margins and less productive outcomes in drug discoveries and therapeutic breakthroughs is forcing a major overhaul of the traditional business model for the pharmaceutical industry. Supply chain optimization and operations effectiveness to "right-size" the business have become an important part of that change, as companies like DRL should turn their focus to more sustainable efficiency gains for their business. This shift can only be obtained by reassessing cost structures across the entirety of the enterprise. From finding raw materials to manufacturing products to distributing them to customers, pharmaceutical companies are offloading non-critical functions to intermediaries, particularly in new and developing markets where they have limited experience.

As the business model transforms and new "ecosystems" of business networks and alliances are formed, the shifts have been seen in how companies approach product sourcing, manufacturing and distribution, as well as how they set up the
financing, taxation and capital allocation around processes and operations. With more and more new players and new markets entering the pharmaceutical value chain, there can be increased vulnerability to counterfeiting and safety lapses, and the subsequent negative publicity and increased scrutiny from government authorities. Many emerging market countries, which are increasingly essential to the pharmaceutical industry, are trying to figure out how to best regulate drugs and medicines, leading to a complex array of new rules, regulations and tax obligations.

The global financial crisis also adds a new dimension of stress and strain to the objective of continuity and predictability. As the industry's revenue growth becomes more dependent on emerging markets and less on developed countries in North America and Europe, the agility of a company's supply chain becomes critical to serving these new and often disparate markets. Performing at its best, a supply chain must be able to maintain quality and cost efficiencies, yet be able to quickly adjust as marketplace, supplier and distribution conditions change with the fluctuations of customer and product demand.

5. Fostering a “cash culture”

The pharmaceutical industry has long been among leading industries when it comes to creating tax-effective manufacturing structures. For decades, drug companies have actively focused on reducing costs through manufacturing in tax-favored jurisdictions, which optimized their world wide effective tax rates and increased earnings per share. While almost all companies have focused on shifting manufacturing to low-tax jurisdictions, many opportunities still exist for tax optimization in other parts of the supply chain, such as
distribution or a centralized procurement function. Optimizing the supply chain may also offer significant operational savings by helping to reduce inventor levels and thus freeing up working capital. Today, manufacturing and supply chain efficiencies are becoming more critical as Industry’s operating margins come under pressure and finance leaders seek the most cost-effective means for delivering their products to the marketplace.

Large, integrated pharmaceutical companies are also taking a cue from specialty companies, custom manufacturing organizations and generic makers, all of whom have optimized performance by specializing in just one or two niche areas of the supply chain. And the markets have rewarded these companies for the performance improvements and efficiencies gained. The contract services segment of the industry, for example, is outperforming the rest of the sector, enjoying the highest difference in valuation - 76.5% - against large integrated pharmaceuticals. The spread seems be widening, with the valuation of contract manufacturing organizations increasing by 50% over the past two to three years. These companies recognized early on that effective supply chain management presented meaningful opportunities for achieving long-term sustainable efficiencies. Investors are flocking to specialty pharma companies in part because of their success in developing a “cash culture” or an operating environment that place heavy emphasis rigorous working capital management.

6. *New markets, new customers, new risks*

As the pharmaceutical industry extends its supplier networks to new domains, they are likewise trying to expand their
customer base into new geographies and demographics. With the era of blockbuster drugs on the wane, some executives are looking to emerging markets to monetize the value of mature brands that have lost patent protection. Here, outsourcing the production of an active pharmaceutical ingredient or its supporting supply chain functions can help, extract value from a mature brand. Marketing off-patent drugs in these markets at a price off-point that can be supported by the market. can effective extend the company’s brand into an emerging market.

7. Enabling "glocal" access

Companies are beginning to think about strategies such as opening branded health clinics that stock their own drugs, and clinics that stock their own drugs, and consumer products to increase their market access. A growing desire to be socially responsible is also driving efforts to make global access to medicine a real priority, particularly in undeserved markets where affordability is a chief constraint. "Think globally act locally" is new for the Pharmaceutical industry and will prompt market participants to adopt new market-specific business models. Just as important, this new global reach will necessitate a renewed focus on risk management, because as the supply chain becomes more fragmented and complex, the number of potential failure points increases exponentially. A growing collection of contract manufacturers, distribution partners and other service providers means the moving parts are multiplying, increasing the importance of a secure supply chain network that can stay on top of cross-border compliance risks.
8. **Securing drug safety**

Drug safety issues in this environment become more pronounced as lapses in this new supply chain paradigm pose real reputational and financial risks for all pharmaceutical companies involved. While an optimal supply network takes advantage of efficiencies offered by individual companies. It also harbours Incentives for organizations to cheat the System. The 2008 melamine contamination of baby formula in China underscored the horrific lengths some low cost producers will go to save money and the challenges in ensuring adequate monitoring of individual suppliers.

For pharmaceutical companies, some sources of active pharmaceutical ingredients are still not easily traceable; the challenge is putting systems in place to track products around the globe, and sniff out unscrupulous partners before their errors can do real harm. This kind of back-end risk is increasing as companies obtain active pharmaceutical ingredients, intermediates and packaging materials from a complex network of new and traditional sources from around the world. Drug safety is a complex system of functions such as, validation, quality assurance and control, compliance, and monitoring and managing adverse events. Centralizing all or part of these functions for a product or a region can enhance control and potentially generate meaningful tax savings.

9. **Evolving regulations**

Due to rising public pressure, governments of new market participants are scrambling to develop their own regulatory standards associated with medicines and put the onus on industry participants to comply with these regulations. This is creating a quickly evolving patchwork of national rules and
regulations, adding another layer of risk and cost for global pharmaceutical companies that don't have the capacity to continuously monitor these market-specific developments. The US Food and Drug Administration, for one, is starting to pay closer attention to current good distribution practices and the overall regulation of the drug supply chain.

10. Managing tax risk
Tax authorities around the world are becoming more and more sophisticated and tax treaty partners share more and more information.Aligning tax planning with business strategies facilitates tax risk management. The operational reengineering suggested is intended to reduce costs and increase profits. Increased profits manifest themselves in the form of both additional shareholder value and taxable income. To support the sustainability of the location of taxable income in tax-favoured jurisdictions, the business and tax models have to be aligned. If they are, the tax-favored jurisdictions will be housing employees with the requisite managerial talent and authority to fulfill these important, centralized functions, and the various economic substance requirements of the affected tax jurisdictions would be satisfied. The costs of complying with international tax rules and trade agreements continue to rise.

Within the last decade, the number of value added tax (VAT) systems in place around the world has proliferated. Noncompliance costs are keeping pace - with fines now common in the millions of dollars - as tax authorities around the world are beginning to share more and more information with each other. With global trade flows changing constantly, companies that are not set up to track them are paying dearly.
In one case, a poorly conceived IT system resulted in a pharmaceutical company overpaying €60 million of non-recoverable VAT.

11. Uncovering peak performance
In this era of shortening credit, shrinking margins and heightening risks, a system-wide evaluation of a supply chain can yield both big financial wins and long-term insights into strategy and innovation for the whole business. From optimizing tax-effectiveness, to improving inventory management and companywide cash flow, to focusing on core competencies and leveraging global partners and alliances, the pharmaceutical industry can take big strides towards uncovering peak performance.