



SUPPLY CHAIN MANAGEMENT: A COMPARATIVE STUDY BETWEEN LARGE ORGANIZED FOOD AND GROCERY RETAILERS IN INDIA

Joy Mukhopadhyay*

Abstract

India is going through a retail revolution. All the big business houses are entering this Sector and it is growing at a very past pace. International giants in this sector like Wal- Mart, Tesco and Carefour are also trying to enter the Indian market. Retail is offering Tremendous opportunities in employment. However, our country also poses a big challenge to organized large retailers particularly in food sector. Food being perishable item, for the retailer to be successful the key is proper supply chain management. The challenge comes from a number of factors, e.g. huge size and population of our country, varied culture and hence varied taste, very poor infrastructure like improper roads, bad connectivity between production centers and markets, lack of proper cold chain facility like refrigerated transportation, ware-housing etc. Under these circumstances it is interesting to find out how large organised retailers are coping up with these problems. In this paper a comparative study is made in supply chain management adopted by different players in food and grocery segments.

** Dr. Joy Mukhopadhyay, Professor of Sales and Distribution Management,
International School of Managerial Excellence
Management and Entrepreneurial Academy, Bangalore; email:joymukh@gmail.com*



INTRODUCTION

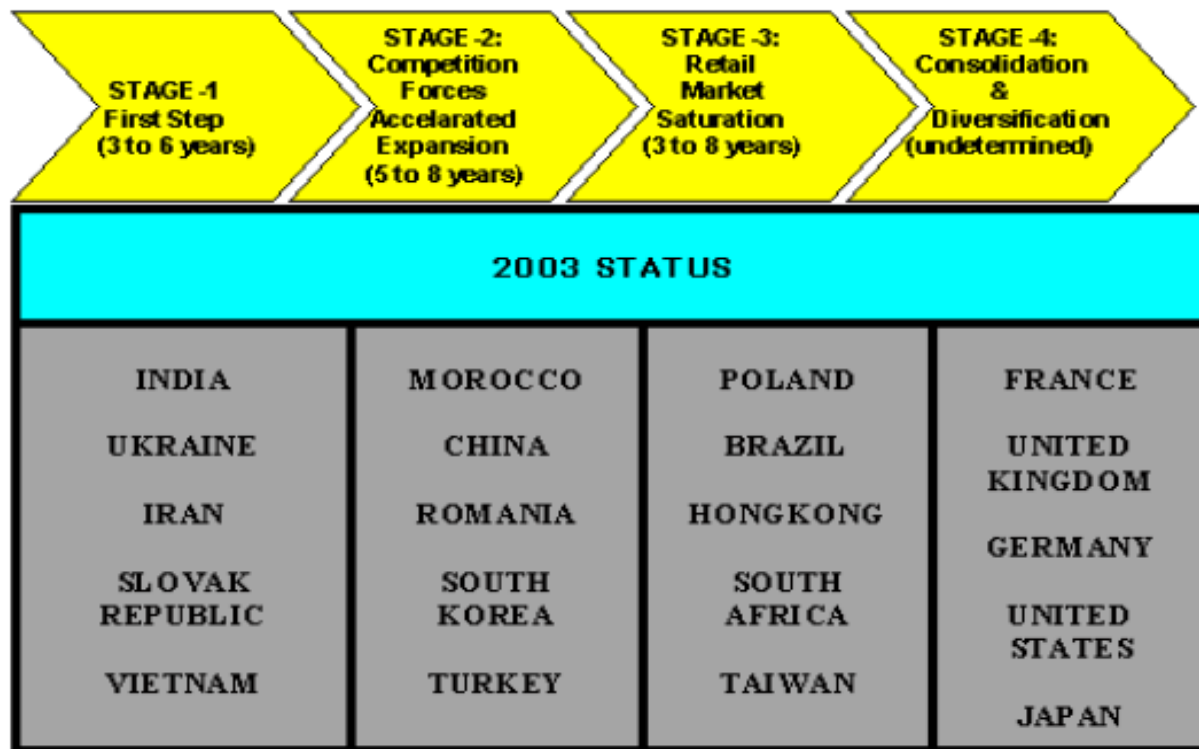
Food & Grocery sector constitutes about 14 % of the organized retailing in India. Ironically, organised retail is a meager 2% of the total retail sector in India. However this figure is changing upwards rapidly. Retail, in general, means “selling in small quantities”. In a laymen’s parlance retailing is a term which can encompass sale of goods and merchandise for personal or household consumption either from a fixed place like market, shops or more recently, departmental stores, supermarket, shopping malls etc. It all started through small shops selling goods but lately came the huge stores ushering in retail revolution in India.

There are three major types of retailing, first is Market where buyer and seller are in contact. This involves selling on the sidewalks, streets etc. The second form involves shop or shop trading where goods are out of buyers reach and kept at a distance which the seller supply them on demand. The third type is virtual selling where products are offered online and then selling is done involving e-mail, online shopping. In nineteenth century in France arcades were invented, where shops were made roofed on both sides of the streets. In 1920s, the first supermarket opened in U S A, which heralded the concept of self service. Around the same time first mall was constructed with both arcade and departmental store style. Soon the revolution started as people got to feel the product before purchasing them, they had a variety to choose from and the ambience added to the beauty of the concept. The scenario remained and conceptualised to the whole world. This has not only opened the vistas for global retail but also provided a next big revolution called Retailing. Retailing both reflects and determines culture as consumer goods are the focus of our labor, our economy, and our collective lifestyle. Because of consumer goods, the retailing industry demands equal opportunity employers. Retailing is the most unifying and common force for the youth of our society. Retailers now are on a spree to make their global presence felt by entering into the untapped markets which have immense consumer base, especially India and China. Wal-Mart; Carrefour etc are eyeing these markets through acquisitions or through mergers.



The retailing industry, which, until the early 1990s, was dominated by the unorganized sector, witnessed a rapid growth in the organized sector with the entry of corporate groups such as Tata, RPG, ITC and Bennett Coleman & Company into the retailing market. With the liberalization and growth of the Indian economy since the early 1990s, the Indian customer witnessed an increasing exposure to new domestic and foreign products through different media, such as television and the Internet. Apart from this, social changes such as increase in the number of nuclear families and the growing number of working couples resulting in increased spending power also contributed to the increase in the Indian consumers' personal consumption. Increased availability of retail space, rapid urbanization, and qualified manpower also boosted the growth of the organized retailing sector.

Though with a population of a billion and a middle class population of over 300 millions organized retailing (in the form of food retail chains) is still in its infancy in the Country. India has been rather slow in joining the Organized Retail Revolution that was rapidly transforming the economies in the other Asian Tigers. This was largely due to the excellent food retailing system that was established by the *kirana* stores that continue meet with all the requirements of retail requirements albeit without the convenience of the shopping as provided by the retail chains; and also due to the highly fragmented food supply chain that is cloaked with several intermediaries (from farm-processor-distributor-retailer) resulting in huge value loss and high costs. This supplemented with lack of developed food processing industry kept the organized chains out of the market place. The correction process is underway and the systems are being established for effective Business-to-Business (farmer-processor, processor-retailer) solutions thereby leveraging the core competence of each player in the supply chain.



Organized Retailing in India

Organized retailing is spreading and making its presence felt in different parts of the country. The trend in grocery retailing, however, has been slightly different with a growth concentration in the South. Though there were traditional family owned retail chains in South India such as Nilgiri's as early as 1904, the retail revolution happened with various major business houses foraying into the starting of chains of food retail outlets in South India with focus on Chennai, Hyderabad and Bangalore markets, preliminarily. In the Indian context, a countrywide chain in food retailing is yet to be established as lots of Supply Chain issues need to be answered due to the vast expanse of the country and also diverse cultures that are present.

Retail Models in India: Current & Emerging

The Indian food retail market is characterized by several co-existing types and formats. These are:

1. The road side hawkers and the mobile (pushcart variety) retailers.



2. The *kirana* stores (the Indian equivalent of the mom-and-pop stores of the US), within which are:

- a. Open format more organized outlets
- b. Small to medium food retail outlets.

Modern trade – the organized retailers

Within modern trade, we have:

1. The discounter (Subhiksha, Apna Bazaar, Margin Free)
2. The value-for-money store (Nilgiris)
3. The experience shop (Foodworld, Trinethra)
4. The home delivery (Fabmart)

While the focus of this note is on modern organized retail trade, we hereunder present insights into the smaller, semi and unorganized retailers.

Hawkers – ‘mobile supermarkets’

The unorganized sector is characterized by the cart vendors (also known as “mobile supermarket”) seen in every Indian town and city is, therefore, difficult to track, measure and analyse. But they do know their business – these lowest cost retailers can be found wherever more than 10 Indians collect – a rural post office, a dusty roadside bus stop or a village square. As far as location is concerned, these retailers have succeeded beyond all doubt. They have neither village nor city-wide ambitions or plans – their aim is simply a long walk down the end of the next lane. This mode of “mobile retailers” is neither scalable nor viable over the longer term, but is certainly replicable all over India. Most retailing of fresh foods in India occurs in Mandis and roadside hawker parks, which are usually illegal and entrenched. These are highly organized in their own way. Hawking of food products, cooked food and FMCG products is a very interesting model of retailing. Much has been written about these roadside “malls” – from social security issues to their nuisance value. However, if you put these hawkers together, they are akin to a large supermarket with little or no overheads and high degree of flexibility in merchandise, display, prices and turnover. While shopping ambience and the trust factor maybe missing, these hawkers sure have a system that works.



Kirana/Mom-and-Pop Stores

Semi-organized retailers like *kirana* (mom-and-pop stores), grocers and provision stores are characterized by the more systematic buying – from the mandis or the farmers and selling – from fixed structures. Economies of scale are not yet realized in this format, but the front end is already visibly changing with the times. These stores have presented Indian companies with the challenge of servicing them, giving rise to distribution and cash flow cycles as never seen elsewhere in Asia. The model is very antithesis of modern retail in terms of the buyer (retailer)-seller (FMCG) equations. It is not unknown for MNC leaders to link the supply of one line of products to another slower moving line of products. These retailers are not organized in the manner that they could challenge the power of the sellers, most protests have been in the form of boycotts, which really have not hit any company permanently.

Evolution of organized retailing

Retailing, one of the largest sectors in the global economy, is going through a transition phase in India. For a long time, the corner grocery store was the only choice available to the consumer, especially in the urban areas. This is slowly giving way to international formats of retailing. The traditional food and grocery segment has seen the emergence of supermarkets/grocery chains, convenience stores and fast-food chains.

The traditional grocers, by introducing self-service formats as well as value-added services such as credit and home delivery, have tried to redefine themselves. However, the boom in retailing has been confined primarily to the urban markets in the country. Even there, large chunks are yet to feel the impact of organized retailing. There are two primary reasons for this. First, the modern retailer is yet to feel the saturation' effect in the urban market and has, therefore, probably not looked at the other markets as seriously. Second, the modern retailing trend, despite its cost-effectiveness, has come to be identified with lifestyles.

Retail stores necessarily have to identify with different lifestyles. This trend is already visible with the new stores with an essentially 'value for money' image. The attractiveness of the other stores actually appeals to the existing affluent class as well as those who aspire to be part of this class. Hence, one can assume that the retailing revolution is emerging along the lines of the economic evolution of society.



In 2000, the economists put a figure to it: Rs. 400,000 crore, which was expected to develop to around Rs. 800,000 crore by the year 2005 – an annual increase of 20 per cent. Retailing in India is unorganized with poor supply chain management perspective. According to a recent survey by some of the retail consulting bodies, an overwhelming proportion of the Rs. 400,000 crore retail market is unorganised. In fact, only a Rs. 20,000 crore segment of the market is organized. As much as 96 per cent of the 5 million-plus outlets are smaller than 500 square feet area. This means that India per capita retailing space is about 2 square feet (compared to 16 square feet in the United States). India's per capita retailing space is thus the lowest in the world.

Impact of Organized Retail

Organized retailing is spreading and making its presence felt in different parts of the country. The trend in grocery retailing, however, has been slightly different with a growth concentration in the South. Though there were traditional family owned retail chains in South India such as Nilgiri's as early as 1905, the retail revolution happened with the RPG group starting the Foodworld chain of food retail outlets in South India with focus on Chennai, Hyderabad and Bangalore markets, preliminarily. The experiment has reaped rich dividends and the group is now foraying into other territories as well. Owing to the success of Foodworld model of RPG group, several new models such as Trinethra, Subhiksha, Margin Free and others have made their foray into this sector albeit at regional levels. Today the food retail sector in India is about Rupees Ten Lakh Crores (USD 200 billions) of which the organised food retail segment is about 1 per cent and increasing at a pace of over 20% year-to-year.

To be successful in food retailing in India essentially means to draw away shoppers from, the roadside hawkers and *kirana* stores to supermarkets. This transition can be achieved to some extent through pricing, so the success of a food retailer depends on how best he understands and squeezes his supply chain. The other major factor is that of convenience shopping which the supermarket has the edge over the traditional *kirana* stores. On an average a supermarket stocks upto 5000 SKU's against few hundreds stocked at an average *kirana* stores.

Though with excellent potential, India poses a complex situation for a retailer, as this is a Country where each State is a mini-Country by itself. The demography's of a region vary quite distinctly from others. In order to appeal to all classes of the society, retail stores would have to



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

identify with different lifestyles. Hence we may find more of regional players and it would take enormously long time before nation wide successful retail chains emerge. This is the main reason as to why the successful retail chains in the country today operate at regional segments only and are not aiming at nation wide presence, atleast for the time being.

In the organized retail industry, the gestation periods are long, institutional funding is difficult, and there is none or little Government support. But the belief among top retailer chains in the country is that the industry will see large investments coming once the current ban on foreign direct investment is lifted. But that could be two-three years away. Food and grocery retailing is a tough business in India with margins being very low, and consumers not dissatisfied with existing shops where they buy. For example, The next-door grocery shopkeeper is smart and delivers good customer service, though not value. As of now, while Chennai has about five organised food and grocery retail chains, other big cities such as Delhi, Bangalore, and Mumbai average only two-three such chains. Almost all food retail players have been region-specific as far as geographical presence is concerned in the country. To illustrate with examples, the RPG Group's FoodWorld, Nilgiris, Margin Free, Giant, Varkey's and Subhiksha, all of which are more or less spread in the Southern region; Sabka Bazaar has a presence only in and around Delhi; names such as Haiko and Radhakrishna Foodland are Mumbai-centric; while Adani is Ahmedabad-centric. Industry topography in India is such that spreading presence across cities is a tough call. As pointed out by many experts, organised food and grocery retailing chains going national requires significant investments. Retailing within this sector is not just about the front-end, but involves complex supply chain and logistics issues as well.

The trend and mindset of the present retailer chains in India can be best understood by studying FoodWorld as an example, which came in first in the food and grocery retailing sector. The chain has no plans to venture beyond the Southern region just yet. Current plans are to focus on the Southern markets and achieve saturation. The intention is that by 2005, they could look at the other regions. Subhiksha, a Chennai based discount chain, too wants to be the principal store of purchase for at least 40 per cent of all consumers living within 500-750 meters of the store, that is, within walking distance. This makes the point very clear that the strategy among most existing retail chains of various formats is to completely saturate the markets where they are already established players and then move on to virtually untouched areas where the challenge of



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

sourcing resources and extending their supply chain model to best suit the size and expanse of the market would be a challenging task.

Meanwhile, the RPG group plans to take its new formats such as Giant Hypermarkets national over the next three years. Grocery is a large component of this format, but not the only one. To elaborate on the hurdles of going pan-Indian, fundamentally, the way a basic grocery retailing model works is that the high set-up costs in terms of setting up buying/ distribution infrastructure is gradually amortised over a larger number of stores. The back-end costs without distribution centre costs, or what in retail jargon is called retail administration costs, should stabilise at around 2.5 per cent to 3 per cent of sales.

It can be explained that the obstacles of looking at a pan-India model for grocery are several. Given the federal nature of the country, the weak infrastructure and the major variances in eating habits in different parts of the country, one will have to replicate the retail administration costs for at least each region and therefore the gestation period of the project becomes huge. However, if a model is in place where the upfront store revenues scale very rapidly, then it is possible. Therefore, if one is to attempt a pan-Indian grocery foray, it will have to be in the hypermarket format with its attendant investment numbers and risk profile.

If a close look is taken at the nature of the Indian Retail Markets, it can be seen that there is so much potential to extract from individual regions, that players are in no tearing hurry to spread out. Based on a recent study by a renowned government institution in India, in the six major metros, Delhi has the highest per capita consumption of food and grocery, among supermarkets. Chennai, “the mecca of retailing”, comes at fourth place. This shows the high potential the sector presents. Chennai has some five supermarket chains, and each of these are doing well for themselves. So there is enough scope to expand even in one single city in India.

It can be observed that the most popular retail format in India is the ‘supermarket’, beside the corner shop/grocery store/’mom and pop’ store. Hypermarkets have very recently come into being and are negligible in number though most retail chains do intend to expand their presence through this format as well very soon. ‘Discount chains’ are also substantial in number and are growing at a fast pace through the country, predominantly, in the southern region.

Given that organised retail has been registering growth rates of approximately 40 per cent over the last three years, it is expected to grow to about Rs 35,000 crore in 2005, and close to Rs



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

70,000 crore in 2010. If projections were to be made considering the current trends in food retailing in India, some years down the line, food and grocery stores will become dominating trade partners for the food industry, which, in turn, will be forced to offer special discounts and trade terms for them to get the shelf space in such stores. Also, once established, in-store label brands will become a real threat to the industry as manufacturers will have to compete with the store label brands that are generally very price-competitive. As for the spread geographically, strong chances stand that the major chains would spread to the next grade of cities in the country over the next 5 years or so and then progressively start covering every corner of the country. Most chains have already started developing their own unique supply chains that would suit their needs precisely. Replicating the success stories of the big names of the Western nations may still be a distant dream for Indian food and grocery retailers, but at least the winds are blowing in the direction of growth.

Analysis of the Food Retail Sector

Retailing is a sunrise industry in India with many challenges like exclusion of small farms, management of processing and distribution chains. Evolution of super markets and fast food chains is a recent phenomenon in India. Various demand and supply side factors have contributed towards this growth.

Supply Side:

The liberalization of the economy in the 1990s led to a boom in the “Consumer Goods” Industry with reductions in custom duties and shift from quota to tariff based system. Entry barriers on multinationals were largely removed after which Food Industry majors like Kellogg’s, Heinz, Tropicana, etc., entered the Indian food industry. This gave rise to tremendous development of sophisticated supply chain & logistics which eventually and gradually has led to the growth in the food processing & packaging industry.

Demand Side:

The increase in the income levels of middle & higher income groups in the 1990s coupled with the reduction in poverty levels was a major factor in contributing to the increase in demand for high quality food retailing services. Changing consumer lifestyles with the steep increase in time



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

value, wide spread change in the Indian family structure from vast Joint Hindu families to more manageable nuclear families and increasing level of quality awareness has also helped the cause of the Food Retailing industry considerably. Another major factor that has accelerated the growth of the Indian Food Retailing Sector has been the advent of cable television and the increasing instances of overseas travel by Indians for various reasons.

Retailing is subject to a plethora of laws and regulations at central, state and municipal/local levels, some of which have been listed below:

- Restrictive zoning legislation limits availability of land for retail/ commercial purposes
- Restrictions on interstate movement of food grains deprive farmers from getting remunerative prices.
- Restrictive Labour laws
- Urban land ceiling regulations, restrictions on shop opening timings, requirements for shops to close once a week
- There is no uniform tax structure - multiple layers of taxes.

Food & Grocery form a big and better portion of organized retailing these days. India's retail sales now account for 44 per cent of its GDP. Food retail sales make up for close to 63 per cent of total retail sales. In absolute terms, food retail sales have grown from Rs 3,81,000 crore in 1996, to Rs 7,03,900 crore in 2001. And, just for the record, non-food retail sales have grown from Rs 2,22,400 crore in 1996, to Rs 4,19,000 crore in 2001. Besides, the food and grocery sector now accounts for 14 % of total organised retail, after clothing and textiles (36 %) and watches and jewellery (17 %).

Modern, or organised retail, accounts for just about 1.6 per cent of the total retail sales in the country, estimated at Rs 18,000 crore. The study further analyses that last year, for the first time in five years, retail shares of grocery dropped, even though in terms of absolute value, the shares remained stable.

According to Mr. .R Subramanian, Director of the Chennai-based discount retail chain, Subhiksha: "Food and grocery retailing is a tough business. Margins are low, and consumers are not dissatisfied with existing shops where they buy. For example, the next door grocery shopkeeper is smart and delivers good customer service, though not value." As of now, while Chennai has some five organised food and grocery retail chains, other big cities such as Delhi,



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Bangalore, and Mumbai average only two-three such chains. Also, most food retail players have been region-specific as far as geographical presence is concerned. RPG Group's FoodWorld, Nilgiris, Margin Free, Giant, Varkey's and Subhiksha, all of which are more or less spread in the Southern region; Sabka Bazaar has a presence only in and around Delhi; names such as Haiko and Radhakrishna Foodland are Mumbai-centric; while Adani is Ahmedabad-centric. "Organised food and grocery retailing chains going national requires significant investments. Retailing within this sector is not just about the front-end, but involves complex supply chain and logistics issues as well." Says Mr. Arvind Singhal, Chairman KSA Technopak.

FoodWorld, which came in first in the food and grocery retailing sector. The chain has no plans to venture beyond the Southern region just yet. FoodWorld has a current sales figure of Rs 350 crore. Subhiksha too is gung-ho about the future of the discount chain. Given that organised retail has been registering growth rates of approximately 40 per cent over the last three years, it is expected to grow to about Rs 35,000 crore in 2005, and close to Rs 70,000 crore in 2010. And as an industry analyst elaborates, "Some years down the line, food and grocery stores will become dominating trade partners for the food industry, which, in turn, will be forced to offer special discounts and trade terms for them to get the shelf space in such stores. Also, once established, in-store label brands will become a real threat to the industry as manufacturers will have to compete with the store label brands which are generally very price-competitive." In the retail format, hypermarkets are expected to be the most successful format. Food and grocery and hypermarkets are likely to generate the best returns in five years. Most of the growth will come from hypermarkets and, coincidentally, all announcements of expansions by leading players are in this format. In terms of returns, food and grocery format scores over the apparel one. Although apparel stores have higher margins, food and grocery stores earn higher returns once the stores stabilise; this is driven by lower fixed costs and significantly higher stock turnover ratios. Private labels have yielded higher margins for most large players.

The comprehensive list of Food & Grocery retail in India are :

PARENT GROUP	RETAIL STORE NAME
Heritage foods	Fresh @



Big Bazaar	Food Bazaar
Bharti Enterprises	FieldFresh
RPG Group	FoodWorld
Nilgiris+Actis	Nilgiris
Viswapriya	Subhiksha
Reliance Industries Ltd.	Reliance Fresh
Dairy farm International	Giant
Supplyco(KSCSCO)	Maveli stores
RPG Group	Spencer's
AB Group	Fab Mall
AB Group	Trinetra
Sankalp retail value stores(AHMBD)	Sankalp
Hiranandani Group	Haiko
Trent Ltd	Star India Bazaar
Shoprite Hypermarket	Shoprite
Cooperative (Kerala)	Triveni Stores(Kerala)
M K Ahmed (Bangalore)	M K Retail(Bangalore)
Margin Free Markets	Margin Free Stores(Kerala)
Godrej	Nature's Basket
Wadhawan group	Spinach
Piramyd holdings	Trumart
Zakaria Shahid Group	Sabka Bazaar
Apna Bazaar(Cooperative Retail chain)	Apna Bazaar
Adani group	Adani
Radhakrishna Group	Radhakrishna Foodland
Varkey's(Kerala)	Varkey



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

The above list only highlights the key players in Food & Grocery retailing in India and also it tries to explain the patterns of the business of some of the retailers.

Profiles of the Food & Grocery retailers in India



Overview-RPG Group

- ❖ RPG Enterprises is not only one of the biggest, but also one of the most respected names in the industry.
- ❖ A US\$ 2.55 billion business conglomerate, RPG is one of the powerhouses that drive Indian Industry.
- ❖ With more than 20 companies, it spans 7 business sectors, Retail, Technology, Entertainment, Power, Transmission, Tyres and Specialties- all under the RPG banner.
- ❖ With such a diverse portfolio, the fact that RPG Enterprises has had nothing but only unrivalled success in all these sectors, speak very highly of the efficiency and vision with which the company is run.
- ❖ Over the years RPG Enterprises has built a huge reservoir of trust and goodwill among the people of India. We at Spencer's are truly proud to be a part of the RPG family.
- ❖ 'Spencer's quality' is a time-tested phrase, which has been ingrained in the minds of the Indian consumer for over 100 years now.
- ❖ It still continues to evoke a warm aura of trust and goodness. In 1863, since we first opened our gates to the Indian consumer, we have like all successful businesses, re-invented ourselves with the times.
- ❖ The endeavour, by which the company still stand firm, has always been to provide a pleasant and delightful shopping experience for you, our valued customer.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

- ❖ RPG pioneered the retail revolution in India, by introducing the concept of specialty stores like FoodWorld, Health and Glow and Music World. And this pioneering spirit still burns strong. RPG introduced the first ever HYPERMARKET in the year
- ❖ Spencer's Retail today, is the largest supermarket chain in India.
- ❖ At Spencer's we have for you an extensive range of products and durables, designed to satisfy all your shopping needs. Spencer's today has 125 stores across 25 cities covering a retail trading area of half a million square feet and an astonishing 3 million customers a month.
- ❖ From an endless choice of foods and exotic fruits & vegetables to household needs, home décor and consumer durables.

Stores- Overview

Stores and Formats:

- ❖ Spencer's express
- ❖ Spencer's fresh
- ❖ Spencer's daily
- ❖ Spencer's super
- ❖ Spencer's hyper

Spencer's Express

Spencer's express is your store next door for your fresh needs at arms length.

These stores are around 1000 sq ft in size.

They are open from 7 am to 9 pm and also provide you with home delivery.

Express stores stock dairy, fruit and vegetable, bread and bread products, cut vegetables/ ready to cook, fruit juices, fresh batter, fresh coffee/tea, fresh spices, fresh pickles, fresh Ghee, fresh fish and meat

Spencer's Fresh

- ❖ Spencer's Fresh stores provide you with an enjoyable and convenient shopping environment in your very own neighborhood.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

- ❖ These 2000 sq. ft. air-conditioned stores are well stocked with fresh food of the very best quality, such as fresh farm produce, vegetables, fruit, milk, eggs, breads and much more.
- ❖ With an impressive range and a clean, bright and hygienic ambience, Spencer's Fresh is far better than the regular vegetable outlets.

Spencer's Fresh provides fresh, clean and tasty farm produce at the lowest possible prices in the locality.

Spencer's Daily

- ❖ The Spencer's Daily store is your friendly neighborhood store, which caters to your entire daily shopping needs - from regular groceries to fresh food and also weekly top-up shopping.
- ❖ About 4000-7000 sq ft in size and with a bright and friendly atmosphere, Spencer's Daily saves the hassle of bargaining with the local Kirana shop owners.

Spencer's Super

- ❖ The Spencer's Super is the place for monthly shopping. About 8000-15,000 sq. ft. in size the Spencer's Super not only caters to your daily needs but also stocks home care products; personal care products, Bakery, Chilled and frozen food; Baby care besides groceries & staples, fresh fruits and vegetables.

Spencer's Hyper

- ❖ The Spencer's Hypermarkets are huge destination stores, more than 25,000 sq. ft. in trading area.
- ❖ Shoppers come here looking for fantastic deals across all categories.
- ❖ Hypermarkets ensure a comfortable, clean, bright and functional ambience to shop along with the convenience of finding everything under one roof at the best value for money.

Shopping Basket can have the following products while shopping at Spencer's:

Obvious Choice: SPENCER'S

- ❖ Spencer's currently has 100 stores geographically spread across the country with a retail trading area of more than half a million square feet.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

- ❖ The largest Super Market Chain of India.
- ❖ Spencer's have a captive audience of around 2.8 million who walk in to the stores every month.
- ❖ Consumers view brands, advertised on the in-store media networks, 40% more positively. (Source: Nielsen Media)
- ❖ Consumers are 34% more predisposed to buy products advertised on the in-store media network. (Source: India retail report 2005)
- ❖ In-store advertising has 57% Brand Recall as compared to 24% for TV Ads. (Source: Nielsen Media)
- ❖ Consumers view in-store media advertising for an average of 7 minutes per visit.
- ❖ Variety of Branding options (Hyper, Daily / Supers) for the clients and a controlled environment for in-store promotions. We deliver the lowest OTC cost and ensure minimum media wastage

Benefits:

- ❖ Reach consumers on a national platform
- ❖ Sustain ad flights over a one month period
- ❖ Leverage the appeal of seductive 26" LCD screens
- ❖ Eliminate media wastage
- ❖ Launch new products

- ❖ Geographically target broadcast messages
- ❖ Run tactical brand promotions
- ❖ Boost the effectiveness and impact of broadcast advertising
- ❖ Increase the power of traditional in-store promotions
- ❖ Enjoy enhanced and positive brand recall



Subhiksha is the brain child of the IIM-B alumnus Mr. R SUBRAMANIAN .The first store was opened in March 1997 at Tiruvanmiyur in Chennai. Strategic planning and practices have led the company to command turnover of 278 crores in the year 2004. In the mid–nineties Mr. SUBRAMANIAN zeroed down to start the discount retail chain based on the research studies conducted for retail groceries in Chennai. This was a great strategic decision as till that time people hardly cared about the place they bought their groceries. Subhiksha was formed to create a need for the retail grocery in Chennai where value creation started from the cleanliness of the retail. Customers’ needs and their prospective desires were kept into the mind which has made Subhiksha grow into a billion rupee company. The strategic advantages where Subhiksha gained were high speed delivery, lesser price, free home deliveries etc. Subhiksha Indianised the shopping experience of the mandis to retailing experience of the groceries.

Marketing the groceries

Today, discounting is a widespread strategy. With 140 stores and a turnover of Rs 278 crore, Subhiksha plans on taking its chain across the country and touching Rs 5,000 crore by 2010. At Subhiksha the customers save upto 10% of the mrp. This in itself is a great achievement for customers who receive 2-3% discount at any other retail shop. The lifetime value of savings when buying groceries at a discount store far outweighs discounts on anything else. Subhiksha applied the strategy of introducing cost of intermediation low and buy directly from FMCG. The marketing practices has helped Subhiksha to cut down on cost by chopping all swanky overheads no AC’s, not on main roads etc. Subhiksha also consciously make less money per rupee of sale but make it up with more sales. It earns 3 per cent on Rs 1,000 rather than 10 per cent on Rs 100. The strategic decisions taken helps the company to avoid frills like AC’s and other products selling as they would have increased the opportunity cost for the company. Worldwide, grocery



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

retail is considered the most price-sensitive sector. Consumers, especially in developing markets, spend more on groceries than anything else.

Cost cutting

To cut costs, Subhiksha decided on adopting the following:

- ❖ Small sized functional stores with an approximate area 1500 square feet.
- ❖ All the retail outlets taken on a 10-year lease period.
- ❖ Purchase costs are reduced by having fixed vendors for the store furniture and equipment.
- ❖ Providing customer service and eliminating self-service. This would eliminate customer pilferage, which is normally around 5 percent in the existing retail market

Subhiksha's supply chain strategy

Subhiksha's strategy revolved around maintaining low real estate costs, fixing furniture vendors, quick inventory turns and customer education.

Inventory management

Subhiksha has a centralized purchasing system. This eliminates multiplicity of billings, which would occur if the stores were to make independent purchases. Subhiksha has 3 separate godowns for stocking Pharmacy products, unbranded groceries and branded FMCGs. It has a fleet of 10 tempos, which supplies its stores once a day. As the discount format requires holding costs to be at a minimum all the stores are connected in an intranet to facilitate inventory planning. Also spot payments made, helped to get cash discounts to the company.

Final word

Subhiksha has more than 140 stores in south India and still with proper planning the company is planning to foray into markets in north and west. It has already established more than 13 shops in Bangalore and moved up to Hyderabad. The growth and expansion plans of Subhiksha are well



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA
fuelled as a result of proper marketing and financial cost cutting strategies. It plans to touch 5000 crore by 2010.

Field Fresh



Overview

Field Fresh Foods (P) Ltd

- ❖ Incorporated in the Year 2004, with a vision to **Link Indian Fields to the World**
- ❖ Provides premium quality fresh produce to the markets worldwide and promotes **world class standards** for agricultural practices, progressive farming techniques & identification and adoption of appropriate technologies.

The **Research & Development** work, being undertaken at the model farms, is benefiting a large number of partner & non-partner farmers.

Values:

Conducting itself with the highest degree of integrity, complete transparency and sensitivity towards its stake holders, the environment and providing value to its customers. **Mission:**

- ❖ Be a dominant global player in the food industry.
- ❖ Offer consistently high quality products and aim for value leadership(fresh produce category)
- ❖ Cutting edge product development, deployment of appropriate technology, close understanding of the market trends and consumer needs.
- ❖ FieldFresh aspires to create India's first global outsourcing opportunity in fresh produce.



Initiatives:

- ❖ Sincere and committed attempt to bridge the gap between inherent potential of the agriculture sector with the requirements of the world market.
- ❖ Acquired 300 acres of farm land in Punjab which is the fulcrum point of R&D, Information & knowledge dissemination and crop & varietals trials.
- ❖ The farm includes 42 acres of state-of-the-art protected cultivation including, poly-houses, glass and green houses and net houses.
- ❖ Engage directly or indirectly over 1 lac people in its operations to enhance social & economic benefits of the community at large.
- ❖ Partnered with one of India's leading Agricultural University, the PAU at Ludhiana, Punjab to share existing manpower resources, employ PAU graduates and conduct periodic joint training & development programmes.

Business Approach

- ❖ Safe Food
- ❖ Good Agricultural Practices
- ❖ Environment Safety
- ❖ Fair Trade Practices
- ❖ High Employee Welfare Standards

Resources & Infrastructure

Strong Partnership

Partnered with growers across the country Some Partners are:

- ❖ Plastro Irrigation Systems (P) Ltd
- ❖ ACM China

Agri Centre of Excellence



Policy Initiatives & Certification

- ❖ Equal minimum wages to all farm labour
- ❖ Fixed working hours for the farm labour along with the lunch break.
- ❖ SGS certification

Health & Safety

- ❖ Farm shelters within the farm for labour to have lunch and rest
- ❖ Separate toilets for men & women in the farm
- ❖ Cold drinking water facility within the farm
- ❖ Special pesticide clothing while handling pesticides
- ❖ Special clothing being provided to farm workers at work
- ❖ Transportation to women employees
- ❖ Visiting doctor for medical advice.

Community Outreach Programs

- ❖ Satya Bharti School has been set up in the farm for the children from local community.



FOODWORLD

Organisation overview

Pioneer in Indian Organized Retail business - India's first national chain of supermarkets. It was started as a division of Spencer & Co, a part of the RPG Group, in May 1996, and opened its 1st supermarket in Chennai. In August 1999, FoodWorld hived off as a separate company; 51-49% joint venture between Spencer & Co and Dairy Farm International of the Jardine Matheson Group, a US \$ 4.5 billion retail giant agreed upon May 2005 partnership came to an end. FoodWorld Enjoys 62% of the organized retail market in cities in which FoodWorld operates.

Store format

There are 93 outlets today across Southern and Western India. Self service oriented merchandising strategy is followed. FoodWorld display format follows functional racking with no fancy accessories. The stores have a very dominant corporate fascia/signage, with the logo written in yellow on bold red. Typical store carries about 5000 items. The average ticket size ranges around Rs280-300. Site strategy is residential high street with minimum 6000 households in two to three km radius and the Core customer target between one-and-a-half and two kilometers of the store. FoodWorld stores consider ground floor properties only-between 3000 to 3500 sq ft with minimum 40 ft frontage. Additional space of approximately 400 sq ft for back office and standby generator is used.

Positing

A "self service neighborhood Grocery" store catering largely to the "monthly" consumables requirement of households in the immediate vicinity. It offers a complete range of fresh foods, including Fruits, Vegetables, Bakery etc. Primarily it is a shopping destination for people staying within one-and-a-half kilometer radius of the store. It provides customers with



a wide range of quality products reasonable prices under one roof, in a convenient location, in a clean, bright and functional ambience.

Product Mix

It consists of seven major groups, namely, staples, processed foods, beverages, non-food, health & beauty, perishables and hardware and home appliances. Further divided into 49 categories, such as destination, strategic (routine), convenience and specialty (occasional) depending upon the importance in the customers' purchase basket and frequency of purchase. 28 per cent of Food World's foods and groceries are private labels -launched more than 150 items under FoodWorld Brand. FoodWorld brands are backed by a 100% No Questions Asked Replacement Guarantee- a first of its kind in the market.

Marketing Strategy

FoodWorld marketing strategy's focus is to maximize traffic in the store. Merchandising and display strategy geared toward increasing the size of the bill value and purchase basket for each customer. Direct mailers and in-store shopping guides main communicators for the customers for the strategy. In-store shopping ambience built using bright and prominent displays like posters, large shelf talkers and bulk merchandising or floor displays.

Distribution Strategy

It follows a strategy of minimum suppliers to take advantage of economies of scale (in purchasing and supply logistics), reduced overheads and control requirements, and easier vendor development. FoodWorld works on the hub-and-spoke model. A hub is typically of 50,000-60,000 sq ft in area and serves about 30-40 stores in a radius of 30 km .Creation of Regional Hubs facilitates over 90% central distribution .The remaining 10% (mostly perishable items like fruits and vegetables, bakery etc) supplied direct to store. It consolidates the harvests from Ooty, Kodaikanal, Hoskote, Venkatagirikota, Bangalore and Hyderabad. It participates in early morning auctions at the major wholesale markets. It has a set of suppliers who grade, clean, pack and label the fresh products in time for early morning



dispatch to the stores. FoodWorld has also opened up a Fruit and Vegetable Consolidation Centre at Hosekote, near Bangalore. On an average, 250 tones of fruits and vegetables a month are supplied from here to all FoodWorld stores. FoodWorld has close to 8,000 SKUs at any given point in time in the stores. Revenue as of year 2005 was Rs 382 crore. CAGR, in terms of turnover has been at 30% over the years.

Challenges & Constraints

It faces competition from emerging value-based formats and from independent modern stores providing a better value proposition. No investments made in areas like IT, Back end administration, and customer relationship management, where returns are not immediate. Unorganized sector is getting organized -Bombay Bazaar and E-foodmart have also been formed which are aggregations of Kirana's. Challenges in the area of infrastructure, supply chain, warehousing, and local legislation still lie ahead.

The Road Ahead

FoodWorld has good retail penetration, good real estate space and strong brand recall in areas of presence. It intends to be a dominant retailer of Food products in the states of Tamil Nadu, Karnataka & Andhra Pradesh and Maharashtra, with an estimated 225 Stores by 2005-06 in the major cities in these states. Expand own label categories in products like jams, ketchups, detergents and make product basket bigger. Experimenting with new formats such as FoodWorld Express -a format of one-fourth the normal size FoodWorld outlet. The focus on private labels resulted in the success of 'Natures Bounty' and 'FoodWorld' brands, together accounting for about 22% of its sales by 2002.





Company Overview

Established in 1966, the Radhakrishna Group has attained a reputation of being a **leader in the food related domain** with operations in contract foodservice, foodservice distribution, retail solutions, logistics, food vouchers and exports. Radhakrishna Foodland Pvt. Ltd. (Foodland) is a part of the Radhakrishna Group of companies. It is a back end distribution and logistics company, and supply to a diverse set of clients, in the retail, food service and the hospitality industry.

Mission, Purpose, Values

Sustained customer delight through excellence in everything we do. To be at the heart of the community by adding value everyday in the food and allied business.

Values

- ❖ Customer is always right
- ❖ Respect for every individual
- ❖ Fair and ethical business practices
- ❖ Making things happen
- ❖ Fun to be with Foodland

Business Streams

- ❖ Retail Solutions
- ❖ Customised Distribution and Logistics

Retail Solutions

Foodland provides a distribution and logistics platform (wholesale) to service a range of retail formats. Foodland's business model is aimed at providing a 'one stop shop' solution to independent retailers at a competitive price. With an integrated supply chain already in place,



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Foodland can service all the requirements of the independent retailer, rather than him having to interact with a minimum of 50 vendors / distributors daily. The benefits that such a 'one stop shop' solution can bring to their business are immense and go a long way to creating a sustainable business. The Foodland retail solutions offer to independent retailers comprises

Basic Product

Product aggregation and supplies

- ❖ Fresh Products -
 - ❖ Fruits
 - ❖ Vegetables
 - ❖ Non Veg
 - ❖ Bakery
- ❖ Dairy & Frozen Products
- ❖ Staples
- ❖ Processed Food
- ❖ Beverages
- ❖ Personal Care
- ❖ Home Care

Retail Solutions

For a nominal fee, Foodland offers an independent retailer the following retail solutions:

Foodland Associates

Foodland Associates are **independent retailers** who source their products from us and avail of retail solutions, whether comprehensive or in part. They are classified into **Bronze, Silver, Gold or Platinum Associates**, depending upon the scale of business and level of engagement.

Needless to add, we offer our associates **unique advantages** - exclusive promotions, consumer



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

schemes, loyalty bonus etc. To become a Foodland Associate, all you need to do is to get in touch with our Sales Representatives to avail of the multiple benefits.

Advantages to independent retailers –

The independent retailer gets the following benefits by dealing with Foodland:

- ❖ Partnership with a company that has proven expertise in food distribution and logistics
- ❖ Dealing with a single supplier only
- ❖ Less wastage of time, thus additional time released for customer interaction
- ❖ Reduced effort for accounting management
- ❖ Smooth receiving procedures
- ❖ Better stock management
- ❖ Delivery once / twice a week
- ❖ Supplies in case loads – speed of receipt
- ❖ Better fill rates
- ❖ Reduced money blocked in working capital to finance stocks
- ❖ Saving in manpower, telephone, paper and transaction cost
- ❖ Regular planned supply and hence reduction in stock holding
- ❖ Timely stock replenishment
- ❖ Quicker access to new product launches
- ❖ Sales forecasting based on lifting patterns

Distributor	Foodland
Volume Focused	Profit Focused
Brand Focused	Category Focused
Trading Focused	Consumer Focused
Fragmented	Comprehensive



Adversarial	Collaborative
Supplier as a Source of Money	Focusing on us a Source of Expertise
Reluctant to Share Information	Open with Information

Advantages to Suppliers and Vendors

Foodland works with FMCG companies / other suppliers and retailers, with the common goal of both, **improving supply chain** efficiency and ensuring **survival of the independent retailers**.

Following are the **advantages** for Foodland's supplier/vendors:

- ❖ Transparent & good working relationship
- ❖ Our category team work with supplier sales team and create the list of SKUs to be carried in each type of store based on the store's selling ability
- ❖ Make certain that the stocks move from your company, to the DC, to the store, to the customer's home and does not sit longer than necessary in any of these places
- ❖ Ensure higher fill rates in to stores by joint forecasting to selectively hold stocks of SKUs anticipated to be out of stock
- ❖ Help the store improve its efficiency on sales space
- ❖ Train store staff to maintain MBQs and order accordingly
- ❖ Quick implementation of launch / re-launch / strategic promotions
- ❖ Reduction of visible & hidden costs

Customer Details

Foodland Fresh is a convenience format store catering to the **monthly food and grocery needs of customers**. It sells products from the **fresh range** - fruits, vegetables, groceries, non-vegetarian products, sweets, dairy, impulse products, bakery products and ready-to-eat items, as also staples, FMCG food and FMCG non food items. Wide range of branded products are sold



below **MRP** in Foodland Fresh stores. The store also offers **Home Delivery** to customers in the respective catchments

Other Customers

- ❖ ApnaBazar (5 departmental stores & 22 retail branch stores)
- ❖ Viva Supermarket (5 stores)
- ❖ Just Call Supermarket
- ❖ Maratha Stores (10 stores)
- ❖ Super Bazaar (6 stores)

In addition, over 100 independent retailers in the geographies of Mumbai & Navi Mumbai

Customized Distribution and Logistics

Supply Chain

Foodland provides Customized Distribution & Logistics services encompassing the entire supply chain, such as storage, handling and distribution solutions to various clients. The services are tailor made to suit each client's requirements, which include organisations such as **McDonalds and Radhakrishna Hospitality Services Pvt. Ltd. (RKHS)**

Platter of Services

- ❖ Supply Chain Structuring
- ❖ Inventory Planning & Replenishment Management
- ❖ Warehouse Management
- ❖ Customer Order Fulfillment
- ❖ Logistics – Temperature Controlled



Third Party Logistics

Key Features:

- ❖ Dedicated to 'cold chain' movement
- ❖ The only logistics solution provider with expertise in handling agri – produce
- ❖ Total kilometer run per month is – 6,00,000 km
- ❖ Perishable tonnage handled per month – 6,000 tons
- ❖ Robust quality systems & processes
- ❖ First in the country to use multi temperature vehicles
- ❖ Use of innovative methods to ensure temperature integrity during transit
- ❖ Experienced staff – The **BEST** in the industry.

Fresh Rush

Aimed at movement of small volumes of perishable items. Companies loose out revenue due to non catering few markets due to the inexperience in movement of perishable items. **Fresh Rush** is a **temperature controlled transportation service** addressing the needs of **small volume cargo**.

Features:

- ❖ Multi temperature products, such as Frozen (below –18°C) and Chilled (1°C to 4°C) can be transported
- ❖ Flexibility of load movement - A minimum of 500 kgs to maximum of 5000 kgs can be transported
- ❖ In transit temperature tracking
- ❖ Fixed schedule of pickup and delivery
- ❖ Well trained and experienced manpower
- ❖ Adherence to strict hygiene standards
- ❖ Consignment can be tracked through GPS system



Advantage Foodland

- ❖ Foodland's **domain expertise and experience** of 15 years helps customers derive optimum efficiency and profitability
- ❖ **Waste reduction, shelf life extension and cost reduction** of agri-produce from hinterlands and upcountry sources supplying to the country's main markets
- ❖ Freedom from managing the day-to-day affairs of supply chain management
- ❖ Major **cost saving**, coupled with timely management of schedules and deliveries
- ❖ **Dependable and trustworthy** services matching global standards of companies like McDonalds

Customer Details

McDonalds:

- ❖ Full Supply Chain responsibility
- ❖ Multi Temp. Products - Over 65 % temperature controlled
- ❖ Stores as far as 500 – 1000 kms
- ❖ Drops per month – Over 700
- ❖ Movement mainly by road
- ❖ Regular movement of perishables by air
- ❖ Routing Challenges
- ❖ No margin for error – Operations critical client
- ❖ No Stock Outs at store
- ❖ On time delivery record – above 97 %
- ❖ Clean delivery record – above 99 %
- ❖ Unfailing inbound supply chain



RKHS:

- ❖ Full Food Basket – Multi Temperature
- ❖ 24 hrs Operations
- ❖ Narrow Delivery Window
- ❖ Drops per month – Over 300
- ❖ No margin for error – Operations critical clients
- ❖ Extensive clearances & documentations
- ❖ Off Shore Deliveries – BPT Docks / JNPT / Kakinada
- ❖ Far off land sites - Jamnagar / Hazira / Turangaloor etc

Private Labels

Foodland offers its own private labels, under the '**Foodland**' brand.

Products

- ❖ Fruits & Vegetables
- ❖ Staples
- ❖ Bakery Items
- ❖ Non Veg
- ❖ Delicatessen (premium ready-to-eat veg, chicken and pork products)

Features:

- ❖ Sourcing from **reliable vendors** who follow stringent Quality Assurance and Food Safety standards.
- ❖ Distribution Centers equipped with multi-temperature zones to **store and process different types of products** depending upon their specific requirements.
- ❖ **Extensive training imparted to food-handlers** and others involved in the whole chain to ensure superior output



❖ **Hygienic Packaging**

❖ Delivery vehicles capable of **carrying products across temperature dispositions**

❖ Strict **Quality Assurance and Food Safety programs** to ensure product integrity

ADANI GROUP



ADANI RETAIL LIMITED (Formerly B2C India Limited) is one of the companies among the ADANI GROUP which is promoted with an intention to foray into retailing marketing business with an immediate objective of setting up a chain of retail outlets in line with the core competence of Trading and Infrastructure of Adani Group.

Adani Retail Limited is into the business of Organized Retailing, the sector which has tremendous potential and is growing with very rapid pace. Looking into the current scenario, ARL also plans to have the B2B model to be plugged in the existing offering.

Quality, Service, Convenience, Satisfaction and Assured Benefits are the Backbone of the Adani Retail Limited. ARL currently have 15000+ SKUs, with the major categories of FMCG, Household goods and Appliances, Apparels, Gifts & Articles, Luggage & related items and catering 2,50,000+ families across the state of Gujarat.

ADANI RETAIL LIMITED is the largest supermarket chain of the Western India. At present Adani Retail operates in 9 Cities across the State of Gujarat with the chain of 47 stores. ARL is having 27 stores in Ahmedabad, 10 stores in Baroda, 3 in Surat, 2 in Rajkot, one each in Anand, Gandhinagar, Mundra, and Nadiad & Navsari. ARL operates through the format of Neighbourhood Store, Supermarket Store, and Hypermarket Store. ARL plans to continue its journey to reach total 19 cities with the store strength of 60+ in the



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA
state of Gujarat. ARL also plans to expand its operation in the neighbouring states of Rajasthan, Madhya Pradesh, Maharashtra and Chhattisgarh.



Overview

It was launched in June 2000 with its first outlet at Hiranandani Gardens, Powai, and Mumbai. Matching international standards in all aspects of 'Value. Variety. Service' The Supermarket is spread over 10000 sq.ft of space, making it the largest supermarket of its kind in the country. More than 20000 SKU's sold at below MRP. Home Delivery. Use of Credit Card on all purchases. Fast cash terminals with conveyor belts and table top scanners. Free drinking water. Customer lobby. Customer classifieds-wall space. A separate non vegetarian niche. An Eco-friendly supermarket. Wheel chair facility. It remains open on all days. It is Owned & managed by M/s. Lakewood Malls Private Limited. It has Customer friendly exchange policy.

Growth Plans:

It has plans to be a chain of stores by 2008 in Mumbai alone & then venture out to other cities

Apna Bazaar

The biggest chain of supermarkets in India operating with more than 500 outlets throughout the state, selling more than 6,000 essential commodities.

The only biggest supermarket chain that keeps in view the development of consumer association indirectly cooperates with every activity and supports consumer rights to acquire quality products without compromising on quality.



It possesses one of the best and biggest warehouse facilities. The same is well equipped, scientifically tested to be of quality one. It also provides direct employment to more than 1,000 volunteers and indirect employment to more than 10,000 people. In this way it has been a good job creator and sustainer.

Quality

ApnaBazaar adhere to the best quality standards, that is, our products are AGMARK accredited. The same has been possible due to the long process commencing from identification, selection, cleaning, purification, packaging and storage. The whole work process tackled from the following angles - adulteration, mixing and imitation. The other notable factor is that we ensure the weighment and quantity of the products before they are dispatched for sale (before packing and after packing) in the warehouse.

Work force Productivity

We possess an army of well-trained large volunteer force that ensures maximum interactivity. The same has given the advantage to get the best out of their capacity vide making them work on a flexi-hour basis. Our volunteer-to-outlet ration has enabled us to divide work among them in areas as:

- ❖ Service
- ❖ Maintenance
- ❖ Monitoring
- ❖ Point of Purchase assistance

Easy and Quick Availability

All the outlets are equipped with a complete range of products that forms a part of the daily/regular needs of a typical Indian family. All the products are available under one roof, groceries, food and beverages, milk, personnel care products, vegetables, crockery items and so



on and also they come with depth in range and makes. The whole process is based on the foundation of “Freedom of Choice” to shop at a one-stop!

Home Delivery

It has introduced for the benefit of our consumers the concept of “Home Delivery”, the same has been utilized well by people who are busy and have little time to spare for shopping. The same is worked out by dialing our helpline at no extra cost.

Friendly Advice to the Suppliers

We are a consumer organization as well as a retail chain – our basic service to the consumers start at the supermarket level and towards the same we seek the cooperation from all our regular and trusted suppliers.

As a result, we demand more sops from the suppliers on mutually-beneficial terms which will result in a substantial sale increase as well as quality service to the consumers. The facility of this “prompt service to the consumers” can only be understood by the suppliers/manufacturers who want enduring returns (in retailing parlance) and not by those who look for “everything quick in today’s competitive business world”.

The other noted point is that we have a solid and established base all over the state which is a major plus to the suppliers, manufacturers and farmers. The same comes about in the form of no investment required on advertising and publicity and instead they can avail the facility of outlets all over the state, reaching so many consumers is a task possible only through Apna Bazaar. The Producer/Manufacturer also need not invest any money on advertising since Apna Bazaar will ensure the sale of his product. More than 20 lakhs consumers all over the state are being introduced to new products, through Apna Bazaar.

The most difficult problem faced by most well-known brands today is 'imitation'. Imitation is so close to the real product that it is difficult for the consumer to distinguish between



the real product and the imitation. As a result, the manufacturers of the quality products and the buyers of the imitation products are the ultimate losers. Manufacturers can also avoid the hurdle of imitations, by selling their products through the totally centralized and transparent functioning of the Apna Bazaar. The members of the Apna Bazaar are also members of the local Consumer Association, so they will have a good idea of the quality of the products. In this way, the sales of pure and quality products will increase by leaps and bounds.

Future is here, it beckons and it sure glows brightly and emits that priceless quality called “Pride of Place”, the future is Apna Bazaar.



Trinethra Super Retail Limited

Trinethra Super Retail Limited, Hyderabad is a multiple outlet retail store network founded in 1986, operating in the twin cities of Hyderabad, Secunderabad, Vizag, Vijayawada and some more cities of AP a . It is in the business of retailing mainly edible / FMCG products. Started as a partnership in 1986, the firm was reconstituted into a Private Limited Company (1990) and subsequently converted into a Public Limited Company in 1998 under the name Trinethra Super Market Limited. On April 16, 2003 the name of the company has been changed to Trinethra Super Retail Limited.

Vision

The near term vision is to set up 100 Retail Outlets within 3 years all over Andhra Pradesh and achieve a turnover of Rs 300 crores within next three years.

The long-term vision is to become the market leader in the household goods segment of the



supermarket channel and have service points not more than three kilometers away from any of our customers.

As a part of the vision to open premium outlet basing on the profile of the customers in a particular area, we have opened two centrally air conditioned outlets, one in Hyderabad, Jubilee hills and another at Dutt Island, Vizag. Both the above outlets are with a carpet area of more than 6000 sq.ft. Recently we have opened another large outlet admeasuring 4860 sq. feet at Sidartha Nagar, Vijayawada. Trinethra is shortly opening another large outlet at Bhimabharam.

Thrinethra has and shall have the largest network of outlets in AP.

Key Components

The key components of the Trinethra business success are:

Strategically located Retail Outlets.

Well equipped Central Warehouses.

A well balanced mix of Products

Experienced top management with vision.

Break up of Retail Outlets

City wise break up of Trinethra outlets as on June 30, 2003 are as given below:

This includes two outlets inside the premises of GE Capital, Hyderabad and one outlet inside the premises of ISB, Hyderabad:

Franchisee Scheme

Apart from own outlets, Trinethra has a plan to appoint franchisees at 2nd and 3rd level towns and Mandals of AP.



Hypermarket

Trinethra has also ambitious plans to set up Hyper Marts of the right size at the tin cities. One of the reasons for changing the name of the company to Trinethra Super Retail Limited is to make the company's name independent of the format of its business. Trinethra has embarked upon conducting market survey and location studies in this connection.

Central Warehouse

Trinethra has two Warehouses at Bairamalguda and Kothapet in Hyderabad with a total space of 50000 sft. The warehouse at Bairamalguda also called Central Warehouse is a well designed functionally laid out facility covering 35000 sft. It has separate sections for storing various categories of items like Kirana stock, Kirana Processing, Finished Kirana items, Oils, Branded Items etc. It has trucks and vans to deliver and pick up stock, labeled bays, bins and racks for storage, handling and protective equipment are all in place. Over 10000 SKUs are stored in this warehouse at any given time. A separate warehouse at Kothapet in Hyderabad takes care of procuring, grading, packing and dispatching perishable items like fruits, vegetables, eggs, milk etc on a day-to-day basis. The operational headquarter of Trinethra is also situated at Bairamalguda warehouse. Trinethra has regional office cum centralized godowns at Vizag and Vijayawada also.

Marketing Strategies

Direct Supplies

In view of the large size of Trinethra, We have been getting offers for direct supply from various companies, eliminating the middle man, the distributors. After carefully studying the pros and cons, we have entered into direct supply arrangements with Hindustan Lever, Henkel, Coca cola etc. This will enable us to pass more margins to the ultimate customers.



SWOT Analysis

Strength

- ❖ It has a large and dedicated customer base spread over AP, so far as Grocery supermarket business is concerned.
- ❖ It has Price advantage over its competitors for Branded goods and commodities.
- ❖ It has a wide product range catering to all types of customer needs.
- ❖ It has been in existence for the past seventeen years. It has a proven and consistent track record in terms of growth in number of Outlets and turnover.
- ❖ It has located all its Outlets at strategically convenient points for its customers giving it the
- ❖ Locational advantage.
- ❖ The corner stones of Trinethra's operations are: Availability, Accessibility, Affordability, Quality, Reliability and Novelty.

Weaknesses

- ❖ It belongs to first generation entrepreneurs and is a self-made organisation.
- ❖ Promoters do not possess adequate financial strength for expansion on their own.

Opportunities

- ❖ It can encash on the Brand and goodwill it enjoys today to expand throughout the State.
- ❖ It can leverage on pricing with expansion by taking advantage of volume purchases.
- ❖ It can cater to growing middle-class/ upper middle class customers where purchasing habits have shifted to one stop shopping.
- ❖ With its network it can add a wide product range including fast foods to the current product range to give a wider choice to the customers.



Threats

- ❖ It has to be on the watch as large corporate may enter / are entering the retail arena.
- ❖ It could also face increased competition from the existing smaller chains and local stores.

Trinethra has an active system of studying the threats and modify corporate plan accordingly.

Trinethra's Plan to embark upon engaging franchisees at the lower end of the market and operating HyperMarts at the upper end of the market is a step in that direction.



Overview

Sankalp Group was established in 1990. An efficient work force, consisting of 200 people is operating in India, in various departments of the group, providing quality service to the elite clients. The business is operated through 5 independent, but closely knit companies

- Sankalp Consumer Products Pvt Ltd
- Sankalp Gifts and Promotions Pvt Ltd
- Sankalp Technological solutions Pvt Ltd.
- Sankalp Retail value stores Pvt Ltd
- Sankalp Essen Inc

Headquartered in Mumbai, India, the Sankalp Group has its US operations in Los



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Angeles. The group has its presence in Hong Kong, Guangzhou China and in all the major cities of India.

Role

Sankalp plays a crucial role in all the domains of sales activities, which include

- ❖ Presence Penetration
- ❖ Pressure Visibility
- ❖ Logistics Satisfaction



Overview

Nilgiris took birth as a small dairy farm in Ooty in Tamil Nadu in 1905. In 1936, he moved his shop to Brigade Road, Bangalore. Started the Bangalore operation in 1939 as a small trader selling butter to the army people. Then he expanded the business in a large scale by establishing a huge dairy farm at Erode in Tamil Nadu in 1962, which was the major step in our growth.

Present Status

In October 2006, Actis, a UK-based private equity investor, invested US\$65 million in the Nilgiris Group. This investment has given Actis a controlling interest (more than 51% stake) in the Nilgiris group. It handles 1-lakh liters of milk, 30,000 to 40,000 lobes of bread.



In total we sell around 15000 products, out of which 90% are food products & 2500 employees. It has 40 super markets spread over different states. The company has 30 franchisee and ten direct outlets. Bangalore, Chennai, Coimbatore, Pondicherry, Guntur, Vishakhapatnam, Vijayawada, Pune and coimbatore are major centers of operation. The company's annual turnover at present is around Rs 220 crores.

Products

- ❖ The Nilgiri's group has been in operation for the last 100 years and is among the best known food brands in South India.
- ❖ Apart from its own dairy, it has dairy and bakery products, chocolates and a variety of other local foods and snacks.
- ❖ Have their own brand in dairy and bakery products.
- ❖ Nilgiris grew gradually and
- ❖ Presently handles 1-lakh liters of milk, 30,000 to
- ❖ 40,000 lobes of bread. In total we sell around 15000Products, out of which 90% are food products.
- ❖ Only 20 per cent of products stocked in Nilgiris are own brands, the bulk 80 per cent are FMCG brands, all approved by Nilgiris, which each franchisee buys separately from distributors.

Supply Chain

- ❖ They maintain a viable supply chain and ensure continuous availability to our customers.
- ❖ They get products from the local markets and also overseas.
- ❖ We import different products from different Countries (soya milk from Thailand, honey from New Zealand, sauces, chickpea, and green pea from the USA and many more).
- ❖ They get products like bottled food items and canned foods from the importers.



- ❖ Apart from this we have six distributors in the APMC's who supply us the food products which match our quality parameters.
- ❖ *Nilgiris* also gets wheat from local dealers in Punjab, which is ground to flour and sold to our customer.

Measures for building Equity

- ❖ Scale up its dairy and bakery products manufacture, perhaps even through outsourcing, as the retail chain expands.
- ❖ Approximately Rs 70 crore has been earmarked for expansion of its dairy and bakery business.
- ❖ Increasing the pace of roll out of franchise stores,
- ❖ Improve customer service and create a strong supply chain to make its product range widely available.
- ❖ Centralized purchasing system, which will Nilgiris achieves economies of scale and better prices for its franchisees,
- ❖ Increase the Nilgiris' private label presence to at least 40 per cent of shelf space in all the stores to earn better margins.

Future Plan

- ❖ The company proposes to open convenient stores about 2000 sq ft each having just the essentials such as provisions, bakery and dairy products.
- ❖ The company plans to invest Rs. 200-300 crore towards its expansion plans.
- ❖ The company plans to increase the number of outlets to 400 and tapping the north Indian market.
- ❖ Already has presence in Maharashtra.
- ❖ Searching for strategic partner to expand to other markets.



A. Land, Soil, Water and people are inter-related. Therefore, in any attempt to change the prevailing land use practices, controversies would inevitably arise. These will have to be met by constant education and motivation of the people from all walks of

CONCLUSION

The emerging trends in organised retailing in India can be explained as below.

Likely Transformation of the Supply Chain:

To counter the unbeatable advantages of convenience of a hop, skip and a jump access and home delivery, organized retailers seem to have just one option - offer attractive prices to the consumer. A successful retailer's winning edge will therefore come from sourcing - how best it can leverage its scale to drive merchandise costs down, increase stock turns and get better credit terms from its vendors. There are obvious and hidden areas where costs can be pruned and the benefits of this lower cost of retailing can be passed on to customers as lower prices, which in turn should fuel demand. One way of trimming costs is if the pressure points in the long, often unnecessary, supply chain for produce and staples can be identified and suitably dealt with. The food supply chain in India is full of inefficiencies - a result of inadequate infrastructure, too many middlemen, complicated laws and an indifferent attitude.

Corporate and NGO interventions at the farm end in the form of Farm Management Services are emerging to ensure quality and timely supply of produce for the operations. The Farmer-Corporate relationship has helped both the farmers and the corporate in bringing the high quality low cost product to the retail shelf. To ease the burden of the corporate in setting up farm management services, several leading NGO bodies have taken up this activity essentially due to the fact that their operations are mostly at the farm end. These farmer-corporate models would be replicated and extended to all the farm end products. With the emergence of Private Label, we would soon find even the retail chains to work with the farm community in developing a efficient supply chain and to leverage on the cost advantage at both ends.



Supplier Retailer Relationships

Traditionally the supplier-retailer relation in India comprised several layers such as the national distributor, the regional wholesaler and the end retailer. However this scenario is fast changing with the organized retail increasing its presence in the country where the relationship is directly with the manufacturer. However this new model has been affecting the relationships that the manufacturer enjoys with the traditional system which is still the most dominant in the entire retail sector. The issue of differential pricing is being taken up at several forums and the growing dissatisfaction among the traditional retailers is being addressed by the manufacturers. However we see that in the long term, the role of a national distributor would slowly fade away or get restricted to the rural/ upcountry regions. The supplier-retailer relationship would come under severe pressure as each party would try to squeeze maximum margins out of the other.

Innovations in Transportation Logistics

The logistics service providers have been innovating several interesting formats and models for the retail sector. As of now, organized retail chains in India do not, by far, outsource logistical requirements, they develop their own network. This was basically due to the fact that the supply-chain was still in its infancy stage, which has begun to mature and the systems are being well defined. As retail chains begin to focus more and more on the retail end, the logistics support would begin to get outsourced. The logistics service providers have begun to come out with innovative customized solutions for the retail chains such as GATI's model for distribution of Alphonso mangoes throughout the country with the Information Technology support. We see that the logistics service providers would continue to innovate and develop effective distribution systems for the retail sector.

Impact of Technology

The other important aspect of retailing relates to technology. It is widely felt that the key differentiator between the successful and not so successful retailers is primarily in the area of technology. Simultaneously, it will be technology that will help the organized retailer score over the unorganized players, giving both cost and service advantages.



Retailing is a 'technology-intensive' industry. It is quoted that everyday at least 500 gigabytes of data are transmitted via satellite from the 1,200 point-of-sales counters of JC Penney to its corporate headquarters. Successful retailers today work closely with their vendors to predict consumer demand, shorten lead times, reduce inventory holding and thereby, save cost. Wal-Mart pioneered the concept of building a competitive advantage through distribution and information systems in the retailing industry. They introduced two innovative logistics techniques - cross-docking and electronic data interchange. Today, online systems link point-of-sales terminals to the main office where detailed analyses on sales by item, classification, stores or vendor are carried out online. Besides vendors, the focus of the retailing sector is to develop the link with the consumer. 'Data Warehousing' is an established concept in the advanced nations. With the help of 'database retailing', information on existing and potential customers is tracked. Besides knowing what was purchased and by whom, information on softer issues such as demographics and psychographics is captured.

Retailing, as discussed before, is at a nascent stage in India. Most organized players have managed to put the front ends in place, but these are relatively easy to copy. The relatively complicated information systems and underlying technologies are in the process of being established. Most grocery retailers such as Food World have started tracking consumer purchases through CRM. The lifestyle retailers through their 'affinity clubs' and 'reward clubs' are establishing their processes. The traditional retailers will always continue to exist but organized retailers are working towards revamping their business to obtain strategic advantages at various levels - market, cost, knowledge and customer. With differentiating strategies - value for money, shopping experience, variety, quality, discounts and advanced systems and technology in the back-end, change in the equilibrium with manufacturers and a thorough understanding of the consumer behaviour, the ground is all set for the organized retailers.



Bibliography

www.google.co.in

www.technopak.com

www.foodbazaar.com

www.indiaifoline.com

www.outlook.co

Technopak Retail Outlook-2006

www.timesofindia.com

www.wikipedia.com

www.hindubusinessline.com

Statistical survey of India reports

www.sulekha.com



SUPPLY CHAIN PERSPECTIVE OF LEAN PRODUCTION SYSTEM

P.Venu Gopal[†] & N.R.V.Prabhu[‡]

Abstract

As more and more companies adopt a "horizontally integrated" business model, they are seeking to perform in house only their core functions, while outsourcing the no core activities. In manufacturing, this means shedding a company's own plants and turning to domestic and international contract manufacturers. It also means sourcing from far-flung parts of the globe and relying on third-party providers for the necessary logistics support. This contrasts sharply with the old-world "vertically integrated" approach in which everything from basic raw materials to end customer sales might be under the control of a single global enterprise.

With the move toward horizontal integration, the supply chain has lengthened and grown more complex. And with this heightened complexity comes a new set of challenges. How to manage a global supply chain while retaining speed and flexibility? How to eliminate waste across the supply chain-not just at one point in the channel? How can firms collaborate in a way that is mutually rewarding? How to meet the needs of a global customer without excessive work in process or inventories? And, most importantly, how to accomplish all of this in the face of shrinking margins? The answer for all this is applying the lean production principles to the management of global supply chains. Lean is about doing more with less: less time, inventory, space, labor, and money. "Lean manufacturing", shorthand for a commitment to eliminating waste, simplifying procedures and speeding up production. Lean Manufacturing (also known as the Toyota Production System) is, in its most basic form, the systematic elimination of waste - overproduction, waiting, transportation, inventory, motion, over-processing, defective units - and the implementation of the concepts of continuous flow and customer pull.

[†] *Dr. N.R.V.Prabhu, Director, of Sambram Institute of Technology, Bangalore*

[‡] *Mr.P.Venu Gopal ,Sr.Lecturer of Sambram Institute of Technology, Bangalore*



Supply Chain Perspective of Lean Production System

INTRODUCTION

Today is the world of immense competition concretizing Darwin's theory of survival of the fittest. So in order to survive in today's world, neither organization nor an individual will have to get equipped to face the stiffest battle. This paper hovers around the concept of lean production system and its supply chain perspective.

Levers for Lean Manufacturing Process

Areas drive lean manufacturing/production:

- ? Cost
- ? Quality
- ? Delivery
- ? Safety
- ? Morale.

Just as mass production is recognized as the production system of the 20th century, lean production is viewed as the production system of the 21st century.

The Lean Supply Chain

A number of sources have detailed the basic principles of lean manufacturing. Two of the most authoritative are Lean Thinking and The Machine that Changed the World, which described the famous Toyota Production System. Both of these books, which are still widely available, were co-authored by lean experts James P. Womack and Daniel T. Jones. As these authorities point out, the overarching objectives of lean are to eliminate waste in both materials and processes and to create value. Importantly, value is defined from the perspective of the customer. If an activity or process does not add customer value, then it is considered waste.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

While the principles of lean have been applied in the manufacturing space for several decades now, the notion of lean supply chain management is relatively new. Six attributes that companies should cultivate to build a lean supply chain that is creative, flexible, and adaptive.

Lean supply chain is a set of organizations directly linked by upstream and downstream flows of products, services, finances, and information that collaboratively work to reduce cost and waste by efficiently pulling what is needed to meet the needs of the individual customer. While individual firms can become lean by themselves, a lean supply chain requires multiple entities to work together. It's important to understand up front that lean supply chain management is not an exercise in shifting inventories or costs to a supplier. Instead, it's a coordinated effort among partners to eliminate waste across the supply chain. This can only be done by collaborating across common processes.

Why Be Lean?

Why work to develop the lean supply chain attributes in the first place? Doesn't it take a lot of time and effort? And don't we all have enough on our plates as is without adding another project?

Reports of various stages in leaning process

- ? Lean adopters see exchange of data as a tactical advantage and are more likely to work
- ? Lean adopters see employees as a valued asset and emphasize employee development .
- ? Lean adopters are more likely to have continuous improvement programs..
- ? Lean adopters are more likely to collaborate with supply chain partners on process standards.
- ? Lean adopters are more likely to enforce company product standards .
- ? Lean adopters participate in standards bodies and work with partners on standards
- ? Lean adopters had statistically significantly higher inventory turns as well as lower days' sales in inventory on hand. And because the leaders are not carrying excessive levels of inventory, their cost of goods sold is lower and they are better able to respond to changes in the supply chain. In short, they are enjoying two of the key benefits of lean supply chain management.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Lean adopters communicate and collaborate more successfully with their supply chain partners. They have a higher use of standards in processes and materials. The lean adopters also enjoy reduced Stock Keeping Units (SKU) counts and inventory levels and report a general reduction in cost of goods sold when compared to the nonadopters. Notably, all of these factors contribute to the bottom line.

Attributes of a Lean Supply Chain

source: www.oracle.com

1. Demand Management Capability

An underlying tenet of the lean philosophy is that product should be "pulled" by actual customer demand rather than "pushed" into the market. Ideally, point-of-sale (POS) data is gathered in real-time, or near real-time (daily), and transmitted upstream to all the supply chain members. This doesn't mean just the tier one suppliers but the tier two and tier three suppliers as well. Thus, suppliers at each level of the process would receive the customer's demand signal and convert it into something usable (such as part number and quantity) for their upstream partners. In this way, all members in the channel can understand the total volume being sold. Over time, this capability should minimize the need for forecasting, since the supply chain is responding to actual demand.

The consumer goods sector provides some good examples of effective demand management in a lean supply chain. In particular, the techniques of collaborative planning, forecasting, and replenishment (CPFR) and efficient consumer response (ECR) are enabling point-of-sale data to drive store deliveries. In effect, the retail manufacturer/distributor only delivers stock to the store when specified by a pull signal for a specific quantity issued from the retailer.



How Gillette managed its variability in demand?

Gillette is one of the best practitioners of demand management in the consumer goods space. Gillette receives actual demand data from POS systems at the retailers and uses that data to create replenishment orders to ship just the right amount of a product to each store. The company is even working to develop radio-frequency identification (RFID) processes that could ultimately lead to continuous monitoring of backroom and shelf inventory, providing automated notification when replenishment is required. The consequences of not managing the demand signal have been well documented. The biggest problem is often referred to as the "bullwhip effect," whereby additional units are added to the original demand signal as it moves further upstream. For instance, an order may grow 10 percent at each node as it moves from the retailer to the distributor, then to the manufacturer, and then to the tier one suppliers and their suppliers. The result is excessive inventory held by all of the channel partners, which makes it much more difficult for everyone to respond effectively to change.

While many companies understand the importance of getting demand data from customers and to suppliers, they have a long way to go toward achieving that goal. Most of the manufacturing and supply chain planning is on usage history or on projected sales based on usage rather than actual demand. Only very small number of firms follows any kind of ongoing dialog with the downstream supply chain to improve demand-data accuracy and timeliness. Only in miniscule number of firms product is being "pulled" through the downstream chain by actual usage. Of those, just 15 percent has any "real-time" exchange of actual usage data with their customers.

There has been much discussion about companies competing "supply chain vs. supply chain." If this is to become a reality, all of the supply chain partners will have to do a better job of managing the demand signal. The lean supply chain runs on knowing what is actually being sold, at what quantities, and where the sales have taken place. Results of our study suggest that there is significant room for improvement on this key attribute.



2. Waste and Cost Reduction

Elimination of waste is another key tenet of lean supply chain management, just as it is with lean manufacturing. In the broadest sense, waste can be time, inventory, process redundancy, or even digital waste. Digital waste is especially detrimental to the supply chain. It refers to redundant or unnecessary data that is collected, managed, and stored for no tactical or strategic reason. The amount of digital waste within an organization is typically great. It increases exponentially when one considers the data flows among members in a supply chain.

Note that the emphasis here is on reducing waste, and not cost. This is not a matter of semantics but of philosophy. There's not always a direct one-to-one correlation between eliminating waste and cutting costs. Yet waste reduction almost always results in lower costs. In the supply chain context, the elimination of waste yields a significant by-product: a reduction in costs for all members of the supply chain.

A focus on waste, and not cost, also makes the conversation with suppliers and customers less threatening. If the goal is to reduce waste, most parties are more willing to discuss their processes with one another. A cost-cutting program, by contrast, is often seen as just another way of squeezing a little more out of the suppliers or service providers. With a joint goal of reducing waste, supply chain partners can work together to modify those policies, procedures, and data-collection practices that produce or encourage waste. Typically, waste across the supply chain will manifest itself in excess inventory. Effective ways to address this are through postponement and customization strategies, which push the final assembly of a completed product to the last practical point in the chain.

How Dell reduced wastages in the supply chain

Dell provides an excellent illustration of how to reduce waste in the supply chain through effective demand management. The company's build-to-order model produces a computer only when there is actual customer demand. Dell works closely with its suppliers on reducing inventories and improving processes to achieve a system where inventory turns are measured in hours rather than days. Thus, Dell is able to introduce new technologies such as faster CPUs much more quickly than the competition. In fact, it can start shipping computers with the new technology the very day that it becomes available from, say, Intel-without concern about



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

flooding the supply chain with excess or obsolete processors. And since Dell does not maintain stocks of unsold finished goods, there is no need to conduct "fire sales" to unload complete computer systems that are considered out of date. The result: Waste has been eliminated both on the component side and on the finished goods side.

3. Process and Product Standardization

Process and product standardization is the third attribute of a lean supply chain. It's important to develop standardization across both processes and products for the reasons elaborated below. Process standardization enables continuous flow—that is, the uninterrupted movement of a product or service through the company's system and to the customer. Major inhibitors of flow include work in queue, batch processing, and transportation issues. These roadblocks slow the time from product or service initiation to delivery. Continuous flow needs to be accomplished with a "value stream" perspective, which means viewing processes in terms of how they add value to the customer.

This perspective demands a shift from vertical to horizontal thinking. Horizontal thinking requires that managers look across the traditional vertical functions to integrate activities in a value stream that flows from suppliers, through the organization, and on to customers. This effort is facilitated by having processes the organization first determines the best way to manage a process and then standardizes this process across the organization, taking into account regional or cultural differences.

Toyota Production System, the foundation for most lean and just-in-time strategies. Toyota's emphasis on standardized processes and tooling has led to a significant reduction in the time required to manufacture an automobile. While each new Toyota car and truck model may appear to be different from one another, the processes involved in bringing these vehicles to market are very similar. This approach allows Toyota to focus on perfecting both the new vehicle and the underlying processes used. Toyota also is well-known for working with its suppliers to help them adopt similar lean practices, which extends the benefits of standardization across the supply chain.



A thorough understanding of the value stream will help supply chain partners standardize important processes and shift work to the most efficient point in the chain. Yet, for many companies, this remains a challenging task. Planning and production, two key processes that pertain to most organizations, are examples. Most of the firms consider as they are “proprietary” and therefore not shared with their supply chain partners. In addition to standardizing processes, companies can benefit from standardizing products used in the manufacture or assembly of goods-in other words, sharing subcomponents across product lines. In this way, fewer unique components are needed, thereby reducing manufacturing, warehousing, and development costs. Component standardization also can help promote postponement initiatives that, in turn, can reduce inventory levels of finished goods. Take, for example, a large Original Equipment Manufacturer (OEM) that bundles various software games with its gaming console for different retailers. Instead of having a "Costco" SKU and "Best Buy" SKU that was customized at manufacturing, the OEM shifts this value-added activity downstream to its distribution partners. So when Costco purchases products, the distribution partner generates the customer-specific SKU and does the bundling and labeling. By performing the value add activities downstream at distribution rather than at manufacturing, the OEM streamlines its inventory with one generic gaming SKU rather than having a separate SKU for each retailer.

4. Industry Standards Adoption

Standardization also needs to extend beyond a company's particular supply chain to the industry overall. Industry product standards benefit not only consumers but also companies by reducing the complexity of product variations. The consumer electronics industry provides many examples of effective use of cross-industry standards-from the pin arrangement for various electronic components, to the size of a hard disk drive used in a computer, to the dimensions of the racks for mounting telephone switching equipment.

Industry standards help ensure that components from various suppliers can be used interchangeably, thereby reducing development costs for the original equipment manufacturers and allowing for standardized processes in assembly. To illustrate, the popular USB memory stick products have become a great tool for transferring large amounts of data. Without a standardized USB port, however, a universal memory stick would not have been possible. Had



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

each computer manufacturer developed its own solution for a USB port connection, we would have needed as many different memory sticks as there were computer models. Today, the majority of components in a personal computer manufactured by Dell or HP are the same for any given performance and quality level. The biggest differentiators are the name on the box, the marketing strategy, and the after-market support.

Steps taken in this accord for standardisation

Process Classification Framework (PCF) that establishes a common nomenclature for various activities ranging from human resources to supply chain management. Based on the premise that organizations have similar processes for many activities, the framework allows companies to "get on the same page" with respect to process definition. The Supply-Chain Council's SCOR (supply chain operations reference) model defines common supply chain management processes across the plan-source-make-deliver-return spectrum. Frameworks like these help companies talk about their supply chain processes in a common language.

5. Cultural Change Competency

There is one recurring obstacle to successfully applying lean supply chain concepts-resistance from the people who will be asked to embrace and implement the change. These are the same people who have been doing things the old way for a long time-and, in fact, have a vested interest in doing things the way they have always been done. Cultural change is one of the biggest challenges in getting lean accepted in the organization.

Successful cultural change requires a clear roadmap. Done properly, a lean supply chain initiative can provide a "roadmap" that provides employees with that long-term perspective. It can clearly communicate the objectives and benefits of going lean. The roadmap then can map how the company will move from the "as is" condition to the desired state. And as with any major change management initiative, the lean roadmap must have the unconditional support of top management.

The company's view of its people within the organization also is crucial to successful cultural change. In this regard, it's interesting to note how lean adopters view their employees as compared to nonlean organizations. The adopters tend to view their people as valued assets and



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

place significant emphasis on employee development. In contrast, nonadopters are more likely to see employees as expendable and provide little support for development programs.

Today most firms are concentrating on enhancing employee development and trying to reduce turnover. Lean supply chain management initiatives and programs would clearly be central to developing this attribute. Over time, TQM and Lean supply chain systems thinking becomes ingrained in employees as the way they do business. Several of the leaders tackled cultural change through formal training programs led by a "lean team" of subject-matter experts. These experts would work with various business units within the company not only to do the formal training but also to take an active role in implementing lean supply chain initiatives.

6. Cross-enterprise Collaboration

The final attribute of the lean supply chain is cross-enterprise collaboration. Through collaborative practices and processes, supply chain partners must work to maximize the value stream to the customer. To do this right, of course, it's necessary to first understand how the customer defines value. Added services, regardless of how the supply chain partners view them, are of true value only if the customers understand and desire them.

Cross-enterprise teams are a major enabler of supply chain collaboration. In a lean supply chain, these teams are not functionally oriented or internally focused. Rather, they are oriented toward the whole supply chain and work toward solutions that benefit all of the members. The most effective teams comprise members from all of the end-to-end supply chain partner companies. The team members should represent all of the principal supply chain functions of plan, source, make, and deliver as well as the enabling functions of finance and technology.

Cross functional collaboration in supply chains of Wal-Mart and Tesco

Giants such as Wal-Mart and Tesco have implemented collaborative processes with suppliers that allow them to reduce their backroom stock while improving shelf availability for the consumer. Both of these benefits result from close cooperation and communication between these large retailers and their suppliers. Developing the collaboration attribute not only improves



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

the working relationships among the supply chain partners, but also creates a positive atmosphere that contributes to the success of future supply chain initiatives.

source: www.tcs.com

- ? Integrated single piece continuous workflow
- ? Close integration of the whole value chain from raw material to finished product through partnership oriented relations with suppliers and distributors.
- ? Just-in-time processing: a part moves to a production operation, is processed immediately, and moves immediately to the next operation
- ? Short order-to-ship cycles times; small batch production capability that is synchronized to shipping schedules
- ? Production is based on orders rather than forecasts; production planning is driven by customer demand or "pull" and not to suit machine loading or inflexible work flows on the shop floor.

- ? Minimal inventories at each stage of the production process
- ? Quick changeovers of machines and equipment allow different products to be produced with one-piece flow in small batches
- ? Layout is based on product flow
- ? Total quality control. Active involvement by workers in trouble shooting and problem solving to improve quality and eliminate wastes.
- ? Defect prevention rather than inspection and rework by building quality in the process and implementing real time quality feedback procedures.
- ? Team based work organizations with multi skilled operators empowered to make decisions and improve operations with few indirect staff.



Source: www.1000ventures.com

Where To Start?

There's an implied assumption in articles such as this that all of the principles espoused deserve equal emphasis. Put in terms of the lean supply chain, you have to develop all six attributes at the same pace and to the same degree. Yet, few things in life work that way. Runners have stamina and lower body strength, but don't spend a lot of time building upper muscle mass. Tennis players often have incredible strength on one side of their body, but not the other. In the same way, companies have to focus on those attributes that match their strategies, their supply chain capabilities, and their competitive positioning.

Focus on only one lean attribute-and only one improvement-in supply chain, it should be the demand management capability. Effectively managing the demand signal across the organization and then communicating that signal to your suppliers will reduce waste, cut costs, and ultimately lead to higher supply chain performance. How to focus more intently on the demand signal? A good starting point is to create a process map that charts all of the steps involved in moving the demand signal from the end user into your organization and on to your suppliers. Once understand the key processes, work can be started to improve them. Answering a few questions like these will point in the right direction.

- ? How can the signal's velocity be increased?
- ? What are the benefits of increased velocity? Who benefits?
- ? Who sees the signal now but doesn't use it?
- ? Who doesn't see the signal but could benefit from it?
- ? What are the roadblocks that hinder the signal?
- ? What support or training is needed?
- ? What metrics need to be put in place to measure and encourage changes?
- ? What compensation plans are in place that may run counter to this initiative?

Lean supply chain management, much like lean manufacturing, is not a destination, but a journey. And as with any strenuous journey, the big question is always, "Is it worth it?" Our data-both qualitative and quantitative-confirms that the journey is worth the time and effort. By



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA
working to develop the six attributes described here, companies and their supply chain partners can greatly improve their overall performance while delivering greater value to the customer.

Lean techniques are applicable not only in manufacturing, but also in service-oriented industry and service environment. Every system contains waste, i.e. something that does not provide value to your customer. Whether a company is producing a product, processing a material, or providing a service, there are elements which are considered 'waste'. To run home office more effectively and faster one may need just as little as 10% of its current staff. Only executives who have a direct involvement with finding, keeping, or growing customers as well as key support staff - accountants, tax, legal and human resources people - should stay. Others can be rehabilitated by sending to an operating unit. Components of lean production system

INTEGRATED PRODUCTION SYSTEMS AND PRODUCTION CHAIN

- ? Lean supply Chain
- ? E business & EDI
- ? ERP & CRM
- ? Outsourcing
- ? Just in time
- ? TQM
- ? MRP
- ? Flexible Manufacturing
- ? Lean Manufacturing

Benefits of Lean Production

Establishment and mastering of a lean production system would allow you to achieve the following benefits:

- ? Waste reduction by 80%
- ? Production cost reduction by 50%
- ? Manufacturing cycle times decreased by 50%
- ? Labor reduction by 50% while maintaining or increasing throughput
- ? Inventory reduction by 80% while increasing customer service levels
- ? Capacity in current facilities increase by 50%
- ? Higher quality



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

- ? Higher profits
- ? Higher system flexibility in reacting to changes in requirements improved
- ? More strategic focus
- ? Improved cash flow through increasing shipping and billing frequencies

Continuous Improvement model for the Lean Manufacturer

Lean manufacturing is only one element of an overall best-practice order fulfillment strategy. To achieve maximum product availability and customer service at minimum total chain inventory and cost, you must address more than just the manufacturing processes.

- ? Actively manage the key drivers of total chain inventory and cost.
- ? Improve planning decisions when inventory must be held in the system.
- ? Gain a total chain inventory perspective to manage and improve supply chain performance.

Model of lean supply chain integration

source: www.tcs.com

Evolution of Toyota /Lean production systems

- ? A "pull" system asks workers to use their heads
- ? To cut lead-time, cut out all the bits that don't add value
- ? The line must stop if there is a problem
- ? Deal with defects only when they occur, and the number of staff you need will drop
- ? Train people to follow rules and standards as if second nature
- ? Find where a part is made cheaply and use that price as a benchmark
- ? Develop people who can come up with unique ideas
- ? Transporting - unnecessary transport of parts or materials

Today the lean production systems is adopted by different majors like GM, GE, FORD, HONDA, DAIMLERCHRYSLER, PRATT & WHITNEY etc to name a few. Case Examples on Supply Chain Integrated Lean Production Systems # Supply Chain Integration & Slimming Processes at Mahindra & Mahindra Ltd. Anand Mahindra, CEO of Mahindra &



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Mahindra Ltd (M&M), knew that something was "broken" in the automobile industry. Anand, along with top lieutenants, had launched several initiatives to realize their shared vision of value creation within M&M. Several of these initiatives were aimed at integrating M&M's demand and supply chains, supported by the latest technologies. Their goal was to strengthen and integrate M&M's demand and supply chain systems to build what is known as a digital loyalty network (DLN). As its name implies, a DLN includes the three components M&M was addressing: "digital" for technology enabled; "loyalty" for a focus on customers and on increasing their loyalty and lifetime value to M&M; and "network" for coordinating and leveraging all supply and distribution chain partners to serve those customers. Anand and his team believed their efforts would be fundamental to a sustainable, value-creating auto industry business model that would lead to increased efficiency and profitability. The group had made excellent progress, and Anand decided to get together with his team to take stock of where they stood in realizing their overall vision. But the words "industry business model is broken" stayed with him. He wondered whether the investments in these myriad initiatives would actually pay off--and whether they would help fix the problem of low value creation. The adoption of lean technologies proved to be making M&M one of the best auto companies not only in India but globally.

India's Competitiveness in Supply Chain Management

As per the year 1999 reports by both Geneva-based World Economic Forums (WEF). Global Competitiveness Report (GCR) and the Laussan. Switzerland-based International Institute for Management Development (IMD), World Competitiveness Yearbook (WCY). India still continues to remain firmly stuck near the bottom of the list in the company of virtually unknown and failing economies. India has been ranked 52 by the GCR out of 59 countries and 39 by WCY out of a universe of 47 countries. This enviable image is despite the fact that India, the fifth largest country in terms of Gross National Product (GNP) and Purchasing Power Parity (PPP) (World Bank, 1999), constitutes one of the fastest growing market in the world and is also counted among the richest in regard to cheap skilled labor, scientific and technological resources, and entrepreneurial talents.

Exhibit 1: International Comparison of Customer Orientation



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Parameters	Product Quality	Product Design	One-time Delivery	After Sales Service	Managing Distribution
India	41.08	34.05	30.27	41.08	52.43
Brazil	52.39	56.62	36.34	39.15	51.83
Thailand	63.00	58.50	57.00	54.00	66.50
South Korea	60.71	48.57	59.29	47.14	57.14
Canada	68.13	58.06	62.19	62.50	66.45
USA	59.67	69.84	62.62	57.70	74.43
Japan	92.68	81.46	93.17	89.76	72.20
Germany	92.50	71.39	88.06	78.61	75.83
France	55.94	66.96	44.64	45.56	66.09
Netherlands	72.89	63.1*	69.78	68.44	74.76

CONCLUSION

In today's world of neck to neck competition one cannot manage to rest without the continuous improvement philosophy. Today the market is open & flooded with a variety of products with each product having equivalent substitutes. Differentiation of a product from another is fairly difficult. In order for the firm to make better returns it will have to become more efficient & effective. Leaning of processes/supply chain as explained above with real life examples is a major step towards this mission. The above International Comparison of Customer Orientation will help us to find out what is the position of Indian Industry with respect to the parameters like Product Quality, Product Design, One-time Delivery, After Sales Service and Managing Distribution.



Reference:

- 1 Supply chain journal of Council of Supply Chain Management Professionals and University of Tennessee Supply Chain Research Group. April 2004
- 2 Dave Nave, "How to Compare Six Sigma, Lean and Theory of Constraints," Quality Progress, March 2002.
- 3 Mike Rother, "What Are We Learning Since We Started Learning to See?"
- 4 www.lean.org.
- 5 www.toyota.com
- 6 www.toyotageorgetown.com
- 7 www.smartops.com
- 8 www.missisipiuniversity.edu
- 9 www.harwardbusinessonline.edu
- 10 www.strategosinc.com
- 11 www.wisegeek.com
- 12 www.vorne.com
- 13 www.va.gov
- 14 www.1000ventures.com
- 15 www.oracle.com
- 16 www.tcs.com
- 17 www.infosys.com
- 18 www.simpler.com
- 19 www.bambooweb.com



SUPPLY CHAIN MANAGEMENT: ENTERPRISE RESOURCE PLANNING

Swarnalatha.B^{*}

Abstract

To achieve the enterprises common goal with transparency the information about all the aspects of the organization is stored centrally and is available to all departments. ERP software is designed to model and automate many of the processes of a company with the goal of integrating information across the company. The ERP system has more advantages and disadvantages. The first activity in ERP project is to create a business model which is a representation of the business as one large system showing the interconnections and inter dependencies of the various subsystems and business process. The next step is the creation of an integrated data model. In order to overcome the limitations of ERP the technologies such as ERP, BPR, data warehousing, data mining, on-time analytical processing and supply chain management are used. While implementing ERP cost benefit analysis is to be done before implementation. ERP implementation life cycle consists of pre-evaluation screening, package evaluation, project planning phase, gap analysis, Re-engineering, configuration, implementation team training, testing, going live, end-user training and post implementation. ERP implementation has to take care of methodology, hidden costs also. Organization of the implementation team consists of executive committee, project management, technical support, work teams. All ERP packages contain many modules. The number and features of the module varies with the ERP package. Some of the most common modules available in almost all packages are finance, manufacturing, production planning, sales and distribution, plant maintenance, Quality management, materials management and so on. The ERP market can be seen at the global and Indian level separately. The present and future aspects of ERP can be seen with E.I.A, E-commerce, and internet.

^{*} Ms. B. Swarnalatha, Lecturer in MBA Dept.; E-mail: bsl_bm@yahoo.com;



SUPPLY CHAIN MANAGEMENT: ENTERPRISE RESOURCE PLANNING

Introduction:

Enterprises are continuously striving to improve themselves in the areas of quality, sales, customer satisfactions, performance and profitability. For this improvement the business processes or functional activities of the organization should gather and quickly act upon crucial information. The material requirement planning MRP-I, Manufacturing resource planning MRP-II were the major techniques followed in the organization. But they covered only inventory planning and production activities respectively. To provide information across all functions and locations within the organization ERP, Enterprise resource planning concept is introduced.

ERP systems typically handle the manufacturing, logistics, distribution, inventory, invoicing and accounting for a company. ERP package can aid in the control of many business activities like sales, marketing, delivery, billing, production, inventory management, Quality management and Human Resource management.

Meaning:

ERP refers to a software package designed to automate the functional activities of the company with the goal of integrating information across the company and eliminating complex links between computer systems.

Definition:

Enterprise Resource Planning (ERP) covers the techniques and concepts employed for the integrated management of businesses as a whole, from the viewpoint of the effective use of management resources, to improve the efficiency of an enterprise.



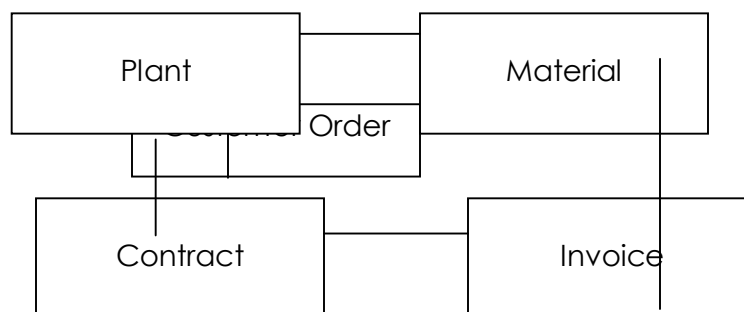
ERP system:



The information about all the aspects of the organization is stored centrally and is available to all departments. In an organization, all the departments work in isolation and with their objective as to achieve departmental target. The ERP system integrates the various departmental information so that each department / subsystem knows what the others are doing, why they are doing it and what should be done to move the company towards the common goal.

The first step in ERP is to develop a business model. Business model is a representation of the business as one large system showing the interconnections and interdependencies of the various subsystems and business processes. With the help of business model ERP system is developed. This business model only assists ERP to provide required information to the various individuals for accomplishing their business process in an efficient manner

The Business model is represented in the geographical form with flowcharts & flow diagrams.





Using the business model, the next step in ERP is to develop integrated data model. The entire data must be integrated. That is data relating to day to day transactions must be entered and updated immediately.

The parties involved in ERP:

Company management,

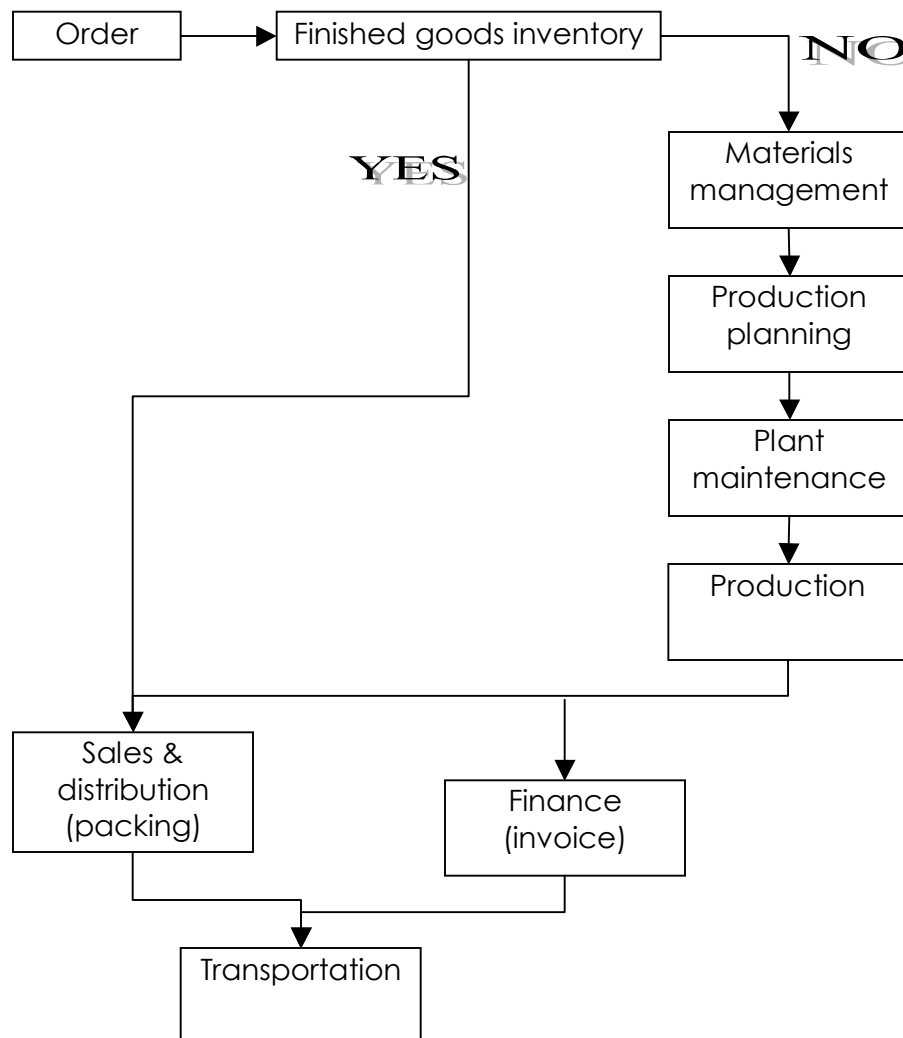
ERP vendor,

Consultants,

Implementation team and end users.

ERP & Non ERP environment

Order Processing



Let us see the ERP environment and Non ERP environment by taking order processing as an example. Suppose a company receives a purchase order from a customer. In the Non-ERP environment, the order entry clerk will enter the order details. Then this information is passed on to the finished goods inventory section. The inventory clerk will check the availability of goods and if the goods are available, he sends the information to the sales & distribution department for package and to finance clerk for preparing sales invoice and the goods are sent to the customer. If the goods are not available, the inventory clerk will inform to purchase department for ordering / supplying raw materials to production department. The purchase department then informs to production and plant maintenance department to prepare production schedule and to set up the machines for commencing production. The production planning and plant maintenance



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

departments complete their work and give information about their performance to production department. The production department manufactures goods and intimates sales & distribution and finance department to pack the goods, prepare the sales invoice. Finally, the goods are sent to the customer's place.

In the Non-ERP environment each employee takes time to complete their work and for order processing the total time taken is few days / few weeks / few months.

But in the ERP environment, the order processing is finished within few minutes and the goods are sent to the customers.

ERP Implementation:

ERP implementation is done in several stages and it is known as ERP implementation life cycle. The different stages are explained below. The length of the time to implement an ERP depends on the size of the business, the scope of the change and willingness of the customer to take ownership of the project. A small project (e.g. a company of less than 100 employees) may be planned & delivered within 3-9 months, however, a large multi-site / multi-country implementation may take years.

Pre evaluation screening:

The first step in ERP life cycle is pre evaluation screening. An analysis of all ERP packages available in the market is the time consuming process. For this purpose, one committee is formed by the company management and the committee restricts the analysis of total number of packages to less than five.

For evaluation, selection an evaluation committee will be formed and it consists of functional experts from various departments, one representative of top management (preferably the CIO or COO) and consultants. Thus the selection committee selects one best package.

Package evaluation:

After restricting the number of packages to a small number, an evaluation of merits and demerits will be done in respect of the following:

Complexity

User friendliness



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Time taken for implementation

Ability to support multi-site planning & control

Project planning:

In this phase, the project plan is prepared for implementing the process of ERP. The project plan is prepared by the members of the project committee who are team leader of the implementation group. They prepare the project time schedule, i.e the date of commencement, date of completion, method of performance will be planned. The plan also includes procedure to monitor the progress of implementation, procedure in case of contingencies and out of control situation. Finally, the project committee has to submit a report for the project to the executive committee. The contents of the project plan should get approved by the other parties of the ERP system viz. ERP vendor, consultants, in-house team and executive committee.

Gap analysis:

An analysis of the difference between the current position and the anticipated position is called as Gap analysis. In general, it is impossible for all ERP packages to satisfy the customers at 100% level. This happens even in the case of tailored made packages. For example, if the package meets only 85% of the company's functional requirements the remaining 15% of the requirements are fulfilled using technologies like Business Intelligence (BI), Business process re engineering (BPR).

Re engineering:

Re engineering phase can be seen in two ways. The first connotation is, even though the ERP system simplifies the business processes of the organization, the reduction or down sizing of human resources is not recommended. The second connotation refers to an ERP implementation model (BPR) initially designed and used. BPR approach to an ERP implementation implies that there two separate implementations involved on an ERP. They are technical implementation and a business process implementation.

Configuration:

In the main functional area of the ERP implementation – Configuration stage, the business processes have to be clearly understood. Testing of prototype is carried on to find out the “To



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

be” model of the ERP while performing the operations of the company. A prototype is mapping as per the actual business process requirement of the company. This is known as configuration. It reveals the strengths and weaknesses of the business process so that custom pre-configured ERP system can be framed for a particular company.

For example, if any accounting practice of the company cannot be configured into the system, then the existing company practices are synchronized with the ERP package.

Implementation team training:

The training given to selected employees of the company who are going to put into action of the functional requirements is called as implementation team training. The employees are selected based on willingness to change, interest to learn new things, functional knowledge, technical support team, administrative support team and work team.

Testing:

After configuring the system, testing is done. The test cases must be designed to find out the weak links in the system. This is done by using the cases – System over loads, multiple users logging on at the same time with the same query, user entering invalid data, hackers trying to access restricted areas and so on.

Going live:

Going live refers to starting up the business process operations in the ERP system by the end users. But once the system is ‘live’ the old system is removed and the new system is used for doing business. If the data conversion is done and the prototype is fully configured and tested then officially the company will commence its operations using ERP package.

End user training:

The actual users of the ERP system are called the end users. The employees who are going to be the end users will be identified and based on their skills they are divided into groups and training is given for each group on the new system. The end users will be given an overall idea of the system as well as the particular job in which the end user is going to perform his work. The



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

success of ERP system entirely depends upon the end users and hence end user training must be carefully done.

Post implementation:

The most important activity in the post implementation stage is to create a new organizational head so that the ongoing need for ERP related activity can be satisfied. The post ERP organization requires a different set of roles and skills for every one who uses the ERP system. The employees involved should be trained to work in the ERP system with sound knowledge of relationship relation ship between ERP and the Business process. It is also necessary that the company should have sufficient technical people to handle problems as well as for upgrading new versions or new technologies in the system.

Business modules in an ERP package:

In each ERP package, we can find many modules. The total number of modules and features of the same (module) will differ in accordance with the ERP package we use. The various modules are Finance, Manufacturing, Production planning, Sales and distribution, Plant maintenance, Quality management, materials management and so on. In general, the business models in ERP system will have the following sub systems.

Business module – Finance:

The subsystems of Finance module are:

Financial accounting – General ledger, Accounts receivable / payable, Special Ledgers, Fixed Asset Accounting, Legal Consolidation.

Investment Management – Investment Planning / Budgeting / Controlling, Depreciation Forecast / Simulation / Calculation.

Controlling – Overhead Cost Controlling, Activity-Based Costing, Product Cost Accounting, Profitable Analysis

Treasury – Cash management, Treasury Management, Market Risk Management, Funds Management

Enterprise Controlling – Executive Information System, Business Planning and Budgeting, Profit Centre Accounting



Business module – Manufacturing:

Some of the major subsystems of the manufacturing module are:

Material and Capacity planning

Shop floor control

Quality Management

Cost Management

Business module – Human Resource:

The various subsystems under the Human Resource module are:

Personnel Management – Human Resource master data, Personnel administration, Information systems, recruitment, travel management, benefits administration, salary administration

Time Management – Shift planning, Work schedules, Time recording, Absence determination

Personnel Development – Career and succession planning, Profile comparisons, Qualification assessment, Additional determination, Training and event management

Business module – Plant Maintenance:

The major subsystems of a Plant Maintenance module are:

Preventive maintenance control

Equipment tracking

Plant maintenance calibration tracking

Plant maintenance warranty claims tracking

Business module – Materials Management:

The main modules of the Materials Management module are:

Pre-purchasing Activities

Purchasing

Vendor Evaluation

Inventory Management

Invoice Verification and Material Inspection

Business module – Quality Management:

The Quality Management module fulfills the following functions:



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Quality Planning – Management of basic data for quality planning and inspection planning, Material specifications, Inspection planning

Quality Inspection – Inspection processing with inspection plan selection, Record results and defects

Quality Control – Application of statistical process control techniques using quality control charts, Quality scores for inspection lots, Quality notifications for processing internal or external problems and initiating corrective action to correct the problems, Inspection lot processing and problem processing, Quality Management information System for inspections and inspection results and quality notifications

Benefits of ERP:

Reduction of lead time: The time gap between order placement and actual receipt of materials is known as lead time. In ERP, the inventory management system is integrated with the purchasing, production planning activities and hence it reduces the lead time.

On-time shipment: the different function involved in the timely delivery of the finished goods to the customer – purchasing, materials management. Production planning, plant maintenance, sales and distribution are integrated and the procedures automated, the ERP systems ensure on time delivery of goods to the customers.

Reduction in cycle time: ERP system reduces the production cycle time. Cycle time is the time gap between receipt of the production order and delivery of the product.

Improved resource utilization: The efficient functioning of the different modules in the ERP systems like manufacturing, materials management, plant maintenance, sales and distribution ensures that the inventory is kept at a minimum level, the machine downtime is minimum, the goods are produced only as per the demand to the customer in the most efficient way and thus ERP helps the organization is improving the capacity and resource utilization.

Better customer satisfaction: Using ERP system, the customer's expectations are fulfilled by adopting the made to order approach and selling the products.

Improved supplier performance: The ERP system searches for the best fir supplier contract and automatically assigns it to the corresponding purchase order or requisition. If changes are necessary, the user can override the contract selection made by the system.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Increased flexibility: Flexibility is a key issue in the formulation of strategic plans in companies. ERP systems not only improve the flexibility of the manufacturing operations, but also the flexibility of the organization as a whole. ERP systems help the companies to be more flexible by making the company information available across the departmental barriers and by automating most of the processes and procedures.

Reduced quality costs: ERP systems provide tools for implementing total quality management programmes and specification control systems to standardize the quality assurance and control functions. Thus by ensuring that the company has an efficient and effective quality assurance and management system, the ERP systems play a vital role in reducing the cost of quality.

Improved information accuracy and decision making capability: The three fundamental characteristics of information are accuracy, relevancy and timeliness. These characteristics are important for a decision maker whenever he needs to take decisions. The strength of ERP systems – Integration and automation help in improving accuracy of information and thus help in better decision making.

Limitations of ERP:

The ERP system has three limitations. They are ERP system does not allow managers to obtain data for customer queries on their own i.e. without help from a programmer. ERP provides the data related to current status and not past status. In ERP, it only integrates data pertaining to business processes within the organization and not with other organizations.

In order to overcome these limitations many technologies are developed. Some of them are Business Process Re-engineering (BPR), data warehousing, data mining, on-line analytical processing (OLAP), supply chain management and so on. These are explained below,

Business process re-engineering (BPR):

Business process re-engineering means not just change – but dramatic change and dramatic improvements. This dramatic change is achieved by the overhaul of organizational structures, management systems, job descriptions, performance measurements, skill developments and most importantly the use of information technology.

A successful business process re-engineering can result in dramatic performance measurements, increase in profits, better business practices, enormous cost reductions, dramatic



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

improvements in productivity and so on. It can also create substantial improvements in quality, customer service, employee satisfaction, profitability and other business goals.

Data ware housing:

If operational data is kept in the databases of the ERP system, it can create a lot of problems. As time passes, the amount of data will increase and this will affect the performance of the ERP systems. So once the operational use of the data is over, it should be removed from the operational databases. In addition to producing standard reports, today's data warehousing systems support very sophisticated online analysis, including multi-dimensional analysis.

Data mining:

The importance of collecting data that reflects one's business, or of activities that achieve competitive advantage, are widely recognized now. Powerful systems for collecting data and managing it in large data bases are available in most organization. However the major bottleneck of converting this data into effective information is difficulty faced in extracting knowledge about the systems from the collected data. Modeling the investigated system discovering relations that connect variables in a databases are the subjects of data mining. Data mining is the process of identifying valid, potentially useful and ultimately comprehensible information from databases that is used to make crucial business decisions.

Online analytical processing (OLAP):

OLAP describes a class of technologies that are designed for live adhoc data access and analysis. OLAP has become synonymous with multidimensional database technology and provide the technical basis for calculations and analysis required by Business Intelligence applications. OLAP technology is being used in an increasingly wide range of applications. The most common are sales and marketing analysis; financial reporting and consolidation; and budgeting and planning. Increasingly however, OLAP is being used for applications such as product profitability and pricing analysis; activity base costing; manpower planning; and quality analysis, or for that matter any management system that requires a flexible, top down view of an organization.



Supply chain management:

A supply chain is a network of facilities and distribution option that performs the function of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers. Supply chains exist in both service and manufacturing organizations, although the complexity of the chain may vary greatly from industry to industry and firm to firm.

ERP Market :

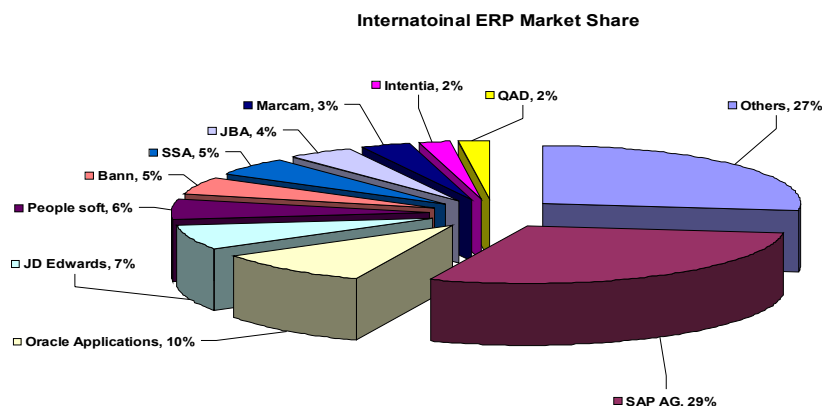
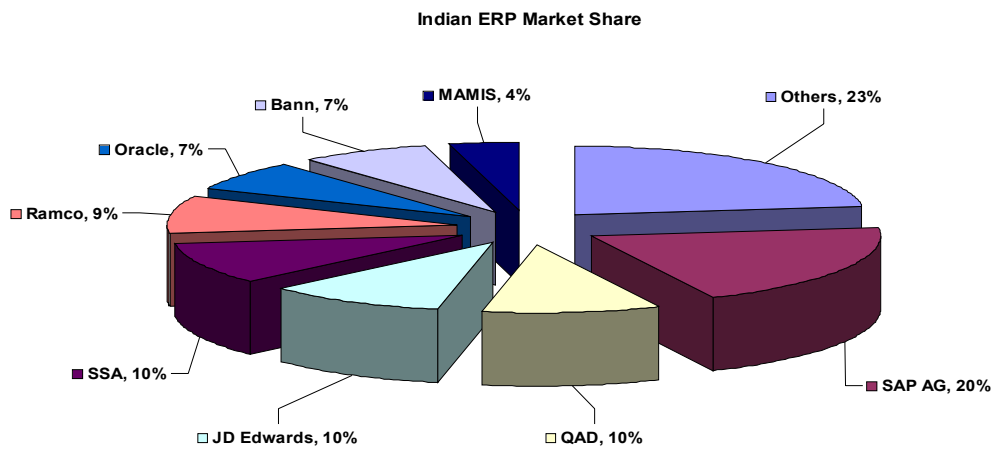
Major ERP vendors and their products

Vendor	Product
SAP AG	R / 3
Oracle corporation	Oracle Applications
JD Edwards World Solutions Co.	One World
PeopleSoft Inc.	PeopleSoft
Baan Co.	Baan IV

ERP packages are sold at Indian level as well as International level.

In Indian ERP market, the vendors are SAP, QAD, JD Edwards, SSA, Ramco, Oracle, Baan, MAMIS. In International ERP market, the vendors are SAP, Oracle Applications, JD Edwards, PeopleSoft, Baan, SSA, JBA, Marcam, Intentia, QAD. In Indian market share SAP occupies the first place followed by QAD. In International market share SAP gets the first place and the next is Oracle applications.

The following charts depict the Indian and International market share scenario.



According to Data quest survey, nearly 35% Indian organizations have been using ERP packages for more than two years.

Thus ERP market grows day by day in a competitive manner. AMR Research Inc., states the following as the primary factors for rapid growth of ERP market. ERP vendors expand market presence by offering new applications like Business intelligence, Data mining, etc., ERP vendors have introduced the concept of license for their product and the renewal of the same ERP system can be used for any type of organization irrespective of the nature of business



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

For installation, ERP systems require a minimum of 30,000 US dollars and maximum of 500,000,000 US dollars for multinational companies.

ERP – Present and Future:

ERP today is suffering from few drawbacks. In order to overcome these drawbacks, i.e., for including external intelligence and storing large volume of data (includes past data also) it is a cost effective way to add a data warehouse and a business intelligence front end to the ERP system. Business intelligence systems improve business competitiveness by providing reporting and analysis tools to the desktop, enabling communication with the entire supply chain via the web and automating alerts and actions.

ERP & EIA

ERP & E commerce

ERP & Internet

ERP in future

ERP in logistics and supply chain management:

Logistical management includes the design and administration of systems to control the flow of material, work-in-progress and finished Inventory to support business unit strategy. Logistics involves the integration of information, transportation, inventory, warehousing, material handling and packaging.

Logistics is viewed as the competency that links an enterprise with its customers and suppliers. Information from and about customers flows through the enterprise in the form of sales activity, force assets and orders. Thus the process is viewed and orders. Thus the process is viewed in terms of two interrelated efforts, inventory flow and information flow.

To be fully effective in today's competitive environment, firms must expand their integrated behavior to incorporate customers and suppliers.

This extension, through external integration is referred to as supply chain management. The basic notion of supply chain management is grounded on the belief that efficiency can be improved by sharing information and by joint planning. The above diagram illustrates an overall supply chain focusing on integrated management of all logistical operations from original supplier procurement to final consumer acceptance.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Activities related to providing customer service order receipt and processing, storage and handling are covered under planning, scheduling and supporting manufacturing operations.

Procurements activities are related to obtaining products and materials from outside suppliers.

Logistics and Supply Chain Management contributes to an organizations success by providing customers with timely and accurate delivery. This timely and accurate delivery is ensured by ERP system. ERP provides assistance for Logistics and Supply Chain Management for integrating information flow among procurement, manufacturing and physical distribution processes.



SUPPLY CHAIN MANAGEMENT: ENTERPRISE RESOURCE PLANNING

Ankush Raina[§] & Nisha Nidhi^{}**

ABSTRACT

Enterprise Resource Planning is the cross functional enterprise system driven by integrated and suits of software modules that support the internal business process of the company. Enterprise Resource Planning provides a support system in transaction, processing, updating and reporting across the functions. Enterprise Resource Planning is a package encompassing all major functions of the business .Enterprise Resource Planning system deals with the planning and use of the resources used in the business. The Enterprise Resource Planning is the latest high end solution, information technology has lent to business application. This paper deals with the implementation, structure and selection Process of ERP.The ERP packages build information base and provides knowledge base for planning and control of business through the business function management

[§] Ankush Raina, Faculty Member, Oxford college of Engineering, Bangalore.

^{**} Nisha nidhi , Faculty Member, Oxford college of Engineering, Bangalore..



INTRODUCTION

The ERP solutions seek to streamline and integrate operation processes and information flows in the company to synergise the resources of an organization namely men, material, money and machine through information. Initially implementation of an ERP package was possible only for very large Multi National Companies and Infrastructure Companies due to high cost involved. Today many companies in India have gone in for implementation of ERP and it is expected in the near future that 60% of the companies will be implementing one or the other ERP packages since this will become a must for gaining competitive advantage. Most organizations across the world have realized that in a rapidly changing environment, it is impossible to create and maintain a custom designed software package which will cater to all their requirements and also be completely up-to-date. Realizing the requirement of user organizations some of the leading software companies have designed Enterprise Resource Planning software which will offer an integrated software solution to all the functions of an organization.

The ERP package built the information base and provides the knowledge base for planning and control of business functions management. The ERP is the main system interfaced or assisted by the other system in the organization. These system may stand alone or from a part of manufacturing or commercial processing system. These system provides a data base to the ERP by the basic data input directly or through the data transfer e.g The manufacturing system module of ERP is interfaced with Drawing ,Engineering database for the query and usage of drawing and it accepts the data work by process operations, for costing and for building the standards for the future .



HOW ENTERPRISE RESOURCE PLANNING IS USED BY MANAGEMENT

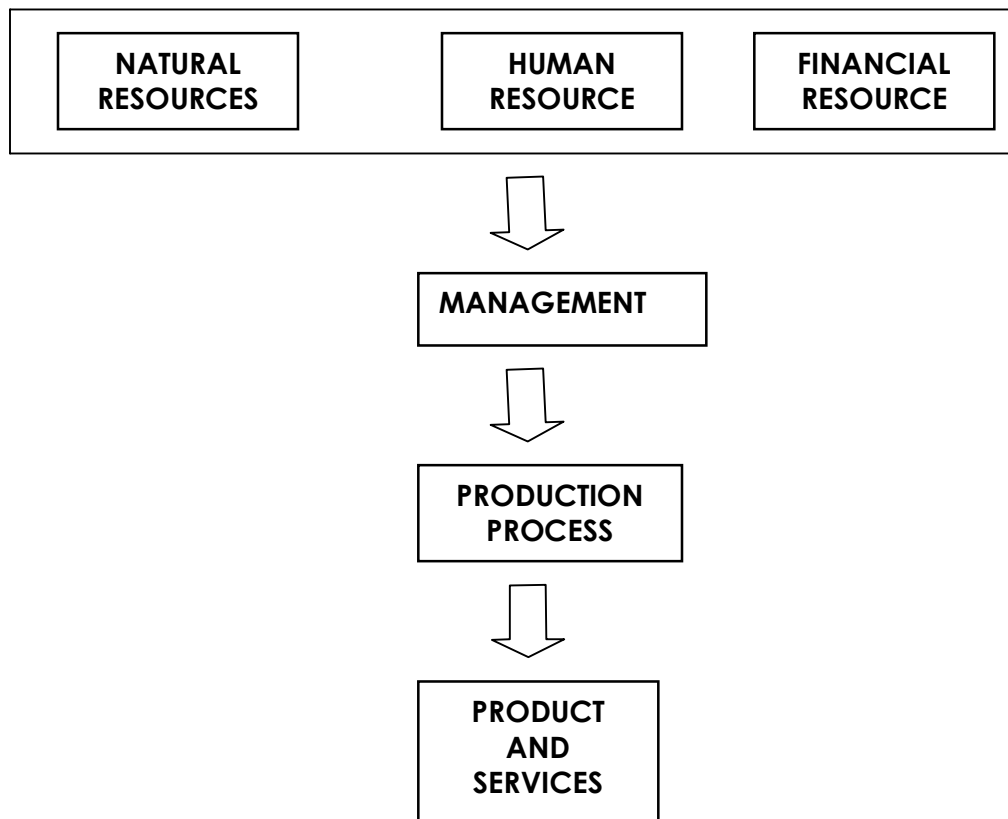


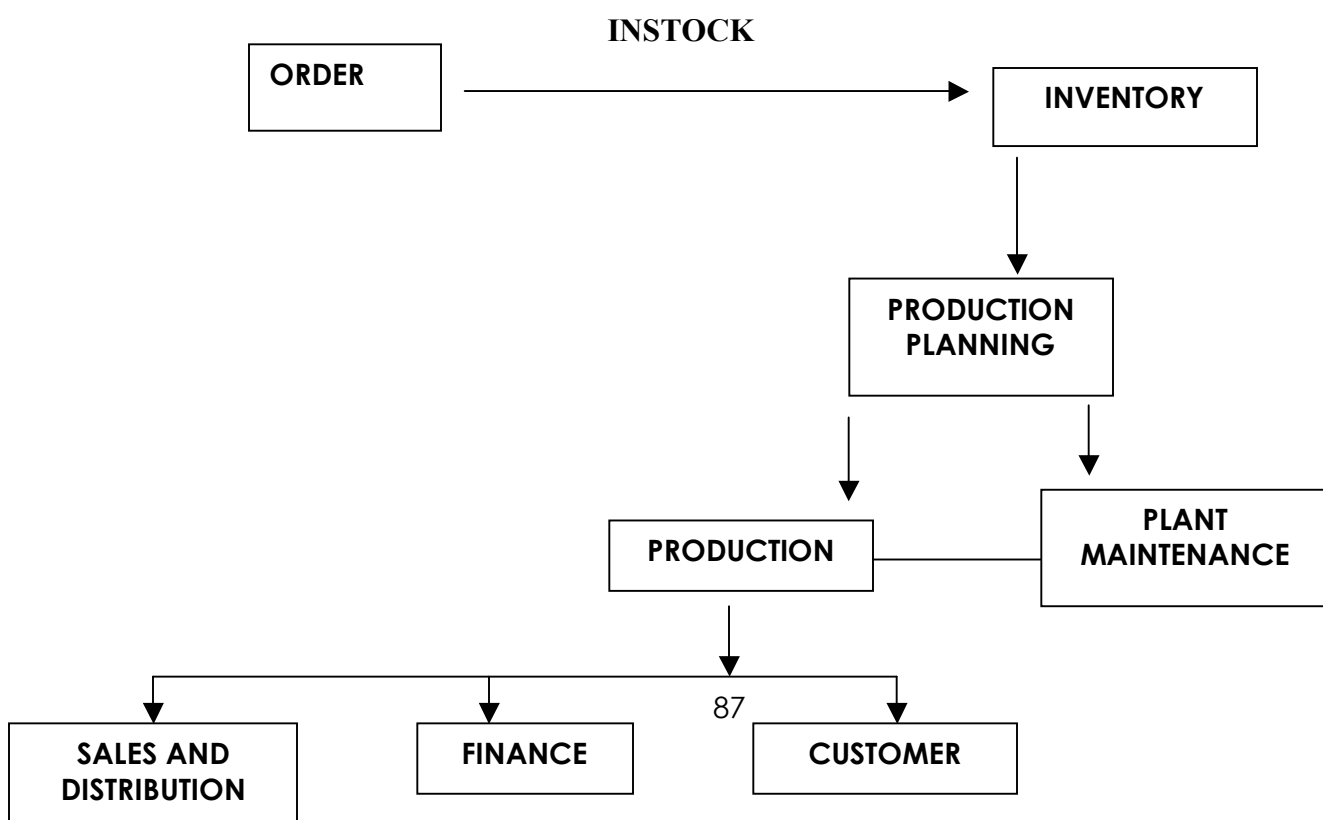
FIGURE -1

Process Flow of ERP in Industry

Computerized system existed for different business module before the ERP era, but what makes the ERP different and capable of producing dramatic result is the integration and automation of various business functions. Rather than functioning in the isolation to the need of their own department, the different module in the ERP is integrated. They send and receive data across various departments.



- The ERP improves the productivity and reduce the reaction of various procedures and tasks. Most of the tasks were done manually in the Pre ERP era, are now automated.
- A task which involves the coordination of two or more departments and takes lots of days in the noon ERP environment. However with the procedure automated and module generation, the same task will be completed within minutes and by the single person. For Example: - If the purchase order is received in the company having no ERP solution, so first the invoice / bill should be sent to the customer. Then items are checked. If the items are not in stock, then production planning is notified which in turn schedules the items for production. The manufacturing or production department receives the production plan and they check whether all the items required to make the product are in inventory. If not, the purchase department is notified and the procedure for purchasing the raw material is set in motion. If the material is available, then the production department in association with maintenance department sets the machine for production. In ERP System, the same things happen differently.





BENEFITS OF

BENEFITS

FIGURE 2 PROCESS FLOW OF PURCHASE ORDER OF A COMPANY

- Better analysis and planning capabilities.
- Use of latest technology.
- Better management of resources reduces the cost.
- Customer satisfaction increases due to shorter delivery cycle.
- Business operation transparency between business partners and customers
- Intelligent ERP downloads the decision making at the lower level, releasing the burden on the middle level.
- Due to the faster processing technology and SQL, management can see the information in the various peripherals and take different view of the business.
- Due to the client /server architecture , the application of the object and the use of front end tools, the process changes can be easily carried out.
- ERP allows automatic introduction of latest technologies like Electronic Fund Transfer (EFT), Electronic Data Interchange (EDI), Internet, Intranet, Video conferencing, E-Commerce etc.
- ERP eliminates the most of the business problems like Material shortages, Productivity enhancements, Customer service, Cash Management, Inventory problems, Quality problems, Prompt delivery etc.
- ERP provides business intelligence tools like Decision Support Systems (DSS), Executive Information System (EIS), Reporting, Data Mining and Early Warning Systems (Robots) for enabling people to make better decisions and thus improve their business processes.
- The ERP scope can be enlarged by Intranet/ Internet access .



- The ERP leads to the usage of best business procedures bringing consistency of operation in the world of business.
- Due to the support technologies like Electronic Data Interchange(EDI), E-mails, office automation, the communication is faster and system is getting directly connected.

COMPONENTS OF ERP

To enable the easy handling of the system the ERP has been divided into the following Core subsystems:

- o Sales and Marketing
- o Master Scheduling
- o Material Requirement Planning
- o Capacity Requirement Planning
- o Bill of Materials
- o Purchasing
- o Shop floor control
- o Accounts Payable/Receivable
- o Logistics
- o Asset Management
- o Financial Accounting

The ERP solutions are available on the LINUX platform and also on the Windows NT. The solution is structured in the modular fashion to cover the entire business operations. These modules are designed for data capture, data transaction validation, analysis, accounting upgrading and reporting.



SUPPLIERS OF ERP

There are many numbers of ERP suppliers who are very active in the market. Some of the companies offering renowned international ERP products include:

- o Baan
- o CODA
- o D&B
- o IBM
- o JD Edwards
- o Marcarn
- o Oracle
- o Peoplesoft
- o Platinum
- o Ramco
- o SAP
- o SMI
- o Software 2000

ENTERPRISE RESOURCE PLANNING SELECTION

Since the market offers a number of ERP Packages, the buyers has to make a choice. Each Product has its own USP and differs in their way, contents and differs in their way, contents and area of implementation. The Selection can be made in three dimensions viz the vendor, the technology, the solution scope and architecture.

1. Vendor Evaluation

- a. Business Strength of Vendor.
- b. Product share of Vendor in total market.
- c. R&D investment of Vendor.



- d. Business philosophy of vendor.
- e. Future Plans of vendor.
- f. Resource Strength of vendor.
- g. Ability to execute ERP solution.
- h. Financial strength of vendor.
- i. Perspective Plans for ERP improvement and technology development .
- j. Organization for Product and Support.

2. Technology Evaluation

- a. Client /Server architecture and its implementation (two tier and three tier).
- b. Hardware / Software configuration management.
- c. Operating system and its level of usage in the system.
- d. Interface Mechanism – OLE/ODBC.
- e. Front end and back end database management for data, Process and Presentation management.
- f. Handling of server and client based data and application logic.
- g. Download to PC packages like MS office and Lotus notes etc.
- h. Support System Technologies like bar coding, communication and network etc.
- i. Object orientation in development.

3. ERP Solution Evaluation

- a. ERP fits for business of the organization in terms of function, features, and processes Vs application scope.
- b. The degree of deviation from ERP product if installed.



- c. Each to use, Flexibility and easy to learn.
- d. Ability to migrate to the ERP environment from present status.
- e. Flexible design.
- f. The ability for the quick start on implementation.
- g. Product rating in term of security reliability and precision.
- h. Solution architecture and technology.

The methodology of selection begins with the study of organization in terms of business focus, application etc. Since the ERP is a tool that changes the style of the business management, it requires thorough understanding of business and business issues. Such a study helps to find that whether the ERP is fit for the business. It is very important to find out that ERP is fit or not, as it the important and critical success factor.

The price of the ERP is difficult to judge and often it is negotiable point in favour of business in term of competitive scenario. The implementation of ERP takes two to three years and it should take the current and future business needs into account. It is advisable for the organization to form a committee for the selection of ERP solution. It should have a functional head, a strong IT person and a person from the co-operate planning function. The committee should prepare a requirement spelling out business goals, objective and the future scenario of business. When the document is ready, the selected ERP vendor should be called for seeking the ERP offer. The document should be given to the vendor and they should be allowed to study the organization and its business. The entire vendor should select their technical proposal, explaining that whether the ERP is fit for the organization. The submission of vendor should be scrutinized by the committee for short listing. The short listed vendor is asked to give the product presentation. When the project presentation is over, the project demonstration should be arranged for detail security and evaluation. In this process the committee confirms whether the critical requirements of business in terms of information, process handling, and features are available or not. Once



the committee makes the decision, the vendor should be asked to submit their technical and commercial proposal with price and terms to offer. Once the ERP is made, the vendor and organization enter into a legal contract. Such legal contract should list the duties, obligations, responsibilities and deliveries. The ERP is a tool to manage the enterprise resource to achieve the business objectives. It is the supporting system and does not solve all the problems of business management. The success of ERP lies in its implementation with commitment.

ERP SOLUTION STRUCTURE

The enterprise resource planning solution is built in three layers namely:

1. Business Operation
2. Technology
3. Implementation

1. Business Operation

On the business side, it provides the solution for the data entry, data capture and transaction processing and database updates. It supports the analysis of the processed data in the single or multi dimensions. It offers support to comparative analysis of the

a. Budget Vs actual

b. Target Vs actual

c. Standard Vs actual and so on.

These analyses throw light on the exception condition for immediate attention and action. The ERP solution provides the decision-making capabilities through decision support system when it comes to implementation. It then provides the front-end tools to provide develop the application using various application development tools, the application logic are developed



to the business function. The tools are the interfacing tools, query tools and object oriented tools.

- 2. Technology** – The technology side of the ERP is managed through the data base management technology for data acquisition. The application development is done through client/ server technology, where server handles the specific or general function and client play the role of processing. The client/server architecture implementation could be two tier/ three tier based on the design and implementation strategy.

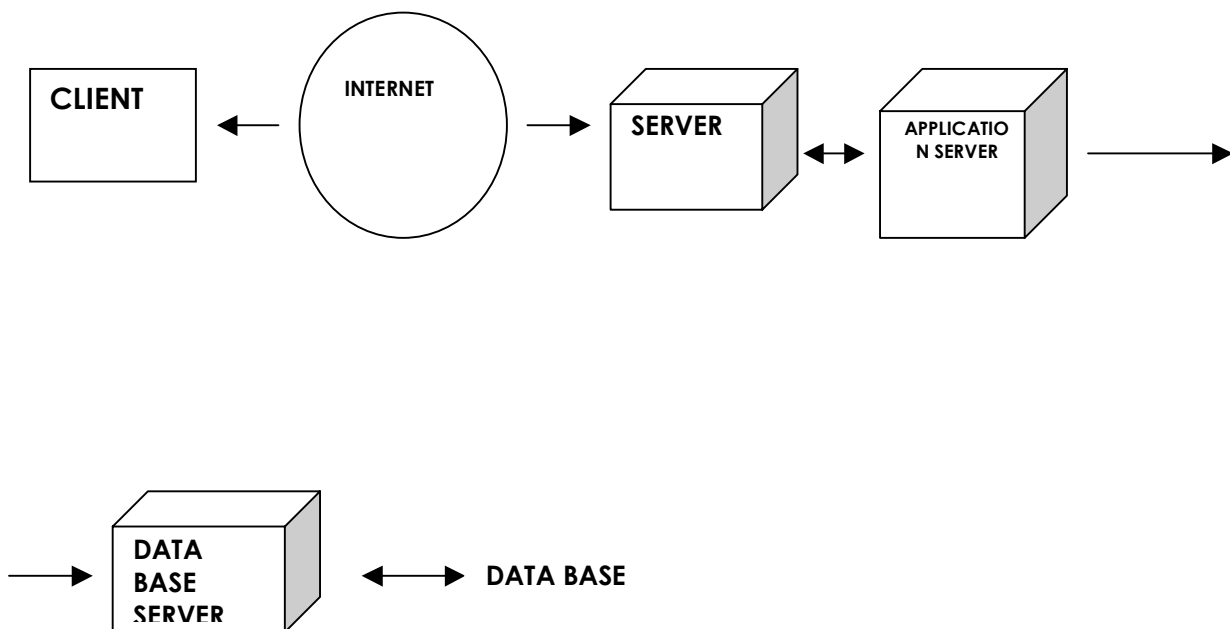


FIGURE 3
CLIENT/ SERVER ARCHITECTURE

- 3. Implementation-** The ERP implementation is multi user and calls for the network usage for the work flow, communication and access to the data base. The strong and successful data implementation of ERP calls for strong technology.

ERP IMPLEMENTATION/ METHODOLOGY

The ERP implantation follows the waterfall approach. Once the firm confirms the order, the implementation begins with the meeting between the vendor and organization. In such meeting



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

the organization issues are taken care of. Since it is a long term activity. So a preliminary planning is done to start the implementation.

Requirement Definition and Description (RDD)

Though initially the study has been carried out by the vendor, more in depth study is taken up jointly by the vendor in the project Incharge. In this phase the user are contacted for their requirement. These requirements may be in the form of data, information, function, features and processes or reports. It is necessary to understand them to evaluate the ability of ERP solution to satisfy their requirements. Since ERP is designed as a standard package, it often requires changes and modifications to suit the requirements of the business. All ERP are prepared with the standard features, functions lists. These lists are examined and new documents are prepared called as deviation RDD.

Once the deviation RDD is made, it should be approved by the authorized person in organization. In evaluation of ERP, two kind of changes emerges.

1. One major change is design needs to be changed (such changes are time consuming and vendor may charge additional for these requirements).
2. Other change minor and may not affect the design of ERP. The advantage of preparing RDD and deviation from RDD is that the users of ERP get committed to solution. Another advantage is that it provides revised specification clearly to the designer and the develops to bring out the change required in ERP.

Steps in Implementation

1. A user and vendor meeting is arranged to explain the ERP and process of implementation.
2. The RDD and D-RDD is prepared for understanding and approval.
3. The resources to carry out the changes in the system are known as customization is provided.
4. The D-ERP (Deviation ERP) is tested.



5. The solution is loaded.
6. The solution is tested on the sample data of substantial nature.
7. The solution is then demonstrated to the user for their understanding and configuration.
8. The user is then trained to run the solution and resolve the difficulties in operation of system solution.
9. The log book of the system usage is kept to note down the problems, solutions and modification carried out to make the solution more efficient and effective.
10. Standard report like checklists, ledger, trail balance and sales analysis are taken to confirm integrity of ERP.
11. The standard documentation is changed to changed version of ERP.
12. The System performance is checked in term of speed , response etc.
13. After three or four months, a review meeting with the user is conducted for the purpose of improvement, confirmation and finalization of ERP implementation.

Major Hassles in ERP Implementation

1. The resistance of the users in the acceptance of standard ERP solution.
2. The limited awareness of the users and the appreciation of Information Technology applications.
3. The ability of the users to change over from the old conventional systems to the technology based on new systems.
4. A lack of clarity on the business requirement, the customer focus and strategy of business and its impact on the ERP solution.



CONCLUSION

The growing information needs of an enterprise make it imperative to improve or replace old systems. Especially under the present Indian business environment, where the globalization has been initiated, full convertibility is coined, Infrastructure Projects are nearing completion, and it is expected that the whole business system will undergo a major shift. By now one should know that the ERP is a high end sophisticated software solution that reduces the pressure and work load of the Managers and provides accurate, timely information for taking appropriate business decisions.

REFERENCES

1. Computer Application in management, Ritendra Goel & DN Kakkar, New age International, 2004.
2. Management Information System, C.S.V Murthy Himalaya publishing House, 3/e.
3. Principle of Information System, Ralph M. stair, George W. Reynolds, Thomson Course technology, 6/e, 2004.
4. Management Information System, W.S Jawadekar, Tata McGraw Hill Edition, 2/e, 2004.
5. Information Technology For management, Turban, Mclean.
6. www.google.com
7. www.wikipedia.com



LOGISTICS AND SUPPLY CHAIN MANAGEMENT IN DEFENCE

S.PARTHIBAN^{††} & K.RAJENDRAN^{‡‡}

ABSTRACT

The defence industry which safeguards a nation must be well equipped with all the accessories and in addition, required equipment must be supplied at right time without any delay in action. This is where the field of business and defence join hands together (logistics and supply chain management). The biggest country to invest its maximum amount of income into defence (USA), feels that it is efficient in logistics, so it concentrates more on companies which make it good. Due to the rapid development of IT industry in India, defence agencies abroad are shaking hands with the Indian IT giants. This paper tries to give a clear overview about **Logistics and Supply Chain Management in Defence** and some of the case studies that prove the efficiency and enrichment of Indian IT companies.

This paper deals with Supply Chain Decisions and its types (Strategic and Operational). It has interest in Strategic decisions (location, transportation (distribution), production, inventory), Supply Chain Modeling Approaches (Network Design, Rough Cut methods, and Simulation based methods). And agreements (cases) made by The Defense Logistics Agency (DLA) and Indian Air Force with Indian IT companies (Accenture, TCS).

The above mentioned are some of the aspects dealing with Logistics and Supply Chain Management. The above listed cases prove the Indian industries capability towards providing international standards for the nation with biggest economy (USA). Whatever the industry may be if it want to flourish beyond boundaries it must have a good Logistics and Supply Chain Management

^{††} **S.PARTHIBAN**, , Lecturer, Dept .of Management ,Gobi Arts and Science College, Gobichettipalayam, Erode(Dt),Tamil Nadu.

^{‡‡} **K.RAJENDRAN**, , Lecturer, Dept .of Management ,Gobi Arts and Science College, Gobichettipalayam, Erode(Dt),Tamil Nadu.



INTRODUCTION:

In this competitive business world, all the activities indulging in an organisation must be made without delay. In the other hand the defence industry which safeguards a nation must be well equipped with all the accessories and in addition, required equipment must be supplied at right time without any delay in action. This is where the field of business and defence join hands together (logistics and supply chain management). The biggest country to invest its maximum amount of income into defence (USA), feels that it is efficient in logistics, so it concentrates more on companies which make it good. Due to the rapid development of IT industry in India, defence agencies abroad are shaking hands with the Indian IT giants. This paper tries to give a clear overview about **Logistics and Supply Chain Management in Defence** and some of the case studies that prove the efficiency and enrichment of Indian IT companies.

Logistics - is the art of managing the supply chain and science of managing and controlling the flow of goods, information and other resources like energy and people between the point of origin and the point of consumption in order to meet customers' requirements. It involves the integration of information, transportation, inventory, warehousing, material handling, and packaging.

Supply chain management (SCM) - is the process of planning, implementing, and controlling the operations of the supply chain as efficiently as possible like all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption. It also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers.

Note: Some experts distinguish Supply Chain Management and logistics, while others consider the terms to be interchangeable.

Supply Chain Decisions

The decisions for supply chain management are,

- Strategic and



- Operational.

Strategic decisions:

It is made typically over a longer time horizon. These are closely linked to the corporate strategy (they sometimes {it are} the corporate strategy), and guide supply chain policies from a design perspective. On the other hand, operational decisions are short term, and focus on activities over a day-to-day basis. The effort in these type of decisions is to effectively and efficiently manage the product flow in the "strategically" planned supply chain. Four major decision areas in SCM

- | | |
|----------------|-----------------------------------|
| 1) location, | 3) transportation (distribution), |
| 2) production, | 4) inventory, |

and there are both strategic and operational elements in each of these decision areas.

1. Location Decisions

The geographic placement of production facilities, stocking points, and sourcing points is the natural first step in creating a supply chain.

2. Production Decisions

The strategic decisions include what products to produce, and which plants to produce them in, allocation of suppliers to plants, plants to DC's, and DC's to customer markets.

3. Inventory Decisions

These refer to means by which inventories are managed. They can also be in-process between locations. Their primary purpose to buffer against any uncertainty that might exist in the supply chain. Since holding of inventories can cost anywhere between 20 to 40 percent of their value, their efficient management is critical in supply chain operations.

4. Transportation Decisions

Since the best choice of mode is often found by trading-off the cost of using the particular mode of transport with the indirect cost of inventory associated with that mode. While air shipments may be fast, reliable, and warrant lesser safety stocks, they are expensive, shipping by sea or rail may be much cheaper, but they necessitate holding relatively large amounts of



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

inventory to buffer against the inherent uncertainty associated with them. Since transportation is more than 30 percent of the logistics costs, operating efficiently makes good economic sense.

Supply Chain Modeling Approaches

To facilitate a concise review of the literature, and at the same time attempting to accommodate the above polarity in modeling, we divide the modeling approaches into three areas ---

- Network Design,
- Rough Cut methods, and
- simulation based methods.

Network Design Methods

The network design methods, for the most part, provide normative models for the more strategic decisions. These models typically cover the four major decision areas described earlier, and focus more on the design aspect of the supply chain; the establishment of the network and the associated flows on them.

Rough Cut Methods

"Rough cut" methods, on the other hand, give guiding policies for the operational decisions. These models typically assume a "single site" (i.e., ignore the network) and add supply chain characteristics to it, such as explicitly considering the site's relation to the others in the network.

Simulation methods

Simulation methods is a method by which a comprehensive supply chain model can be analyzed, considering both strategic and operational elements. However, as with all simulation models, one can only evaluate the effectiveness of a pre-specified policy rather than develop new ones. It is the traditional question of "What If?" versus "What's Best?".



The Defense Logistics Agency

The Defense Logistics Agency (DLA) is a logistics combat support organization. Its mission is to provide the best value logistics and contract management support to America's Armed Forces in peace and war around the clock and around the world.

Features of DLA:

- DLA manages more than 5 mn consumable items and
- Processes more than 30 million annual distribution actions from three inventory control points in the United States.
- There are 22,000 employees in 50 states and 28 countries around the world.
- Annual sales top \$32 billion. .
- Provides global, around-the-clock logistics and contract management in both peacetime and wartime to America's armed forces as well as several civilian agencies and 124 nations.
- The DLA manages more than five million consumable items (from groceries to jet fuel).
- It processes more than 30 million annual distribution actions (account for approximately 90 percent of the consumable items used by the Department of Defense).
- There are approximately 20,000 employees in 48 US states and 28 countries.
- The DLA had fiscal 2006 revenues of **US\$35.5 billion**, making it comparable to the 58th largest company on the *Fortune* 500 list.

Accenture helps:

Accenture helped the US government agency plan, launch and execute its Business Systems Modernization initiative. More than 700 business processes were reengineered and integrated into SAP R/3 and Manugistics software, helping the agency fulfill its vital defense functions more efficiently on the path toward high performance.

It changes the way DLA does business. The Defense Logistics Agency-Business Systems Modernization (DLA BSM) project is a \$700 million, six-year project to modernize the DLA's



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA
supply chain systems and processes—including order fulfillment, supply and demand planning, material management, procurement and financial management.

This includes

- a. Strategic segmentation;
- b. Business process design;
- c. Technology architecture design and development;
- d. Organizational design and development; knowledge transfer and training;
- e. The configuration of SAP's Sales and Distribution, etc.,

[Accenture Wins \\$252 Million Defense Logistics Agency Contract](#) : Under the new contract, Accenture will work with DLA to deliver new capabilities that are more efficient, effective and reliable supply-chain support to the military services and America's warfighters.

Accenture will continue to modernize DLA's multiple logistics systems into a single, integrated end-to-end system, extending business functions based on leading practices and replacing legacy software systems with commercial-off-the-shelf (COTS) software.

TCS Redefines Inventory Control & Logistics Management For Indian Air Force:

Tata Consultancy Services (TCS) - the world-leading technology and consulting organization, announced the go-live of IMMOLS (Integrated Materials Management Online Services)- a nation-wide systems integration project addressing the computerization needs of inventory control and logistics management of the Indian Air Force. The project was unveiled at a press conference by the *Union Minister for Defense, Mr. Pranab Mukherjee* Involving an investment outlay of around Rs. 55 crore.

TCS IMMOLS will not only obviate all problems earlier faced by IAF - including stock outs, delays, dependencies on individuals and inaccurate communications, but will also bring a host of benefits such as:

- Efficient materials management
- Assets visibility for better utilization of available resources
- Provide information triggers for mid course correction in various materials



- management processes
- Speedier demand process cycle (reduction in time, better fleet serviceability)
- Speedier procurement cycle (reduction in time, cost savings)
- Speedier repair cycle (reduction in time, cost savings)
- Reduction in inventory levels (leading to huge savings)
- Improved fleet serviceability
- Efficient spares accounting
- Savings to the Exchequer

CONCLUSION:

The above mentioned are some of the aspects dealing with Logistics and Supply Chain Management. The above listed cases prove the Indian industries capability towards providing international standards for the nation with biggest economy (USA).



SUPPLY CHAIN RISK MANAGEMENT

Karthigeyan L^{§§} & Easwaramoorthy Rangaswamy^{***}

1.0 Definition

A supply chain is defined as a set of three (or) more companies directly linked by one (or) more of the upstream and downstream flows of products, services, finances and information from a source to a customer.

The supply chain form is as follows:

- i. Basic supply chain
- ii. An extended supply chain
- iii. An ultimate supply chain

Monczka and colleagues (1998) stated that SCM is a concept whose primary object is to integrate and manage the sourcing, flow and control of materials using a total system perspective across multiple functions and multiplications of suppliers.

2.0 Activities to Implement a Management Philosophy

In adopting a supply chain management philosophy firm must establish management practice that permits them to act (or) behave consistently with the philosophy. Previous research has suggested various activities necessary to implement an SCM philosophy successfully see the below activities.

^{§§} *Karthigeyan, L. Lecturer, Stansfield School of Business, Chennai*

^{***} *Easwaramoorthy Rangaswamy, Senior Lecturer, Stansfield School of Business, Chennai; email: moorthy@stansfield.org.in .*



2.1 SCM Activities

1. Integrated behaviour
2. Mutually sharing information
3. Mutually sharing channel risks and rewards
4. Cooperation
5. The same goal and the same focus of serving customers
6. Integration of process
7. Partners to build and maintain long term relationships

2.2 SCM as a Set of Management Process

Davenport (1993) defined a process as a structured and measured set of activities designed to produce a specific output for a particular customer or market. LanLonde (1997) proposes that SCM is the process of managing relationships, information, and materials flow across enterprise borders to deliver enhanced customer service and economic value through synchronised management from sourcing to consumptions.

3.0 Supply Chain Orientation (SCO)

Supply chain orientation is defined as the recognition by a company of the systematic, strategic implications of the activities and process involved in managing the various flows in a supply chain. Although the perspectives of defining supply chain management are impede the implementation of an SCO philosophy. First, Morgan and Hunt (1994) propose that cooperation arises directly from both relationship trust and commitment.

Antecedents to SCM are the factors that enhance or impede the implementation of an SCO philosophy. First, Morgan and Hunt (1994) propose the cooperation arises directly from both relationship trust and commitment.



4.0 Scope of SCM

According to Christopher (1992) leading companies have realized that the real competition is not company against company but, rather supply chain against supply chain. Ellram and Cooper (1990) suggest that effective supply chain management is made up of services of partnerships among firms working together and mutually sharing information channel and rewards that build a competitive advantage. According to Webster (1992) networks are the multifaceted organizational structure that results from multiple strategic alliances. Thus, it is proposed that a network is a well recognized organization for SCM.

5.0 Drivers for Economic Globalization

A number of factors have led to the increasing globalization of the world economy. Supply chain management tools and techniques are seen as mechanisms that will allow a firm to respond to these environment changes. Supply chain management is seen as a mechanism to maintain competitive position in domestic markets in light of increasing global competition. Dealing with complexity and uncertainty in the global environment is not new; however the degree to which firms are operating on a global basis and the rate of change in the global environment over the past decade are the factors influencing globalization. Comparative analyses of SCM in different countries although not directly dealing with managing global supply chains; provide useful insights regarding the influence of cultural, political and economic factors on the supply chain process.

The literature on global strategy enriches conceptually but its relevance to supply chain management is implied rather than explicit. At the same time concept of SCM are frequently linked together to strategy in the literature suggesting commodity between the two viz., Houlihan (1988)



6.0 Global Logistics

The dominant theme in the logistics literature is the increased complexity of the logistics process in a global environment. Wood (1990) used a channel framework to categorize types of complexity as 1) Transactional 2) Documentation 3) Distribution channel. Rao and Young (1994) examined the role of third-party logistics providers in an international context. Using a case study approach these researchers conducted interviews with 44 firms to drive out sourcing behaviour in an international setting.

7.0 Global Supply Chain Management

The diversity of perspectives found in the literature is illustrative of the diversity of approaches to globalization depending on their historical evolution as well as their strategic objectives (Bartlett & Ghoshal, 1998). Consequently, global supply management chain strategies differ among firms. Whatever strategy a firm pursues in its globalization efforts, it will be confronted with the added complexity and uncertainty associated with doing business in a global environment, as well as management of the added risk.

Supply chain managers need to ensure that the configuration operation of global supply chain activities is appropriate to the firm's strategic objectives. The firms engaged in conducting business beyond domestic borders should consider the implications of each in light of their globalization strategies. The key strategic consideration for supply chain managers is to fit with corporate strategy. To contribute, supply chain processes and infrastructure must be aligned with and supportive of the firm's globalization strategies.

8.0 Risk Management

Given the complexity & uncertainty inherent in the global environment, management risk is an issue that must be addressed by any firm doing business globally. Supply Chain Risk Management (SCRM) forms the link between your organizations, customers, and supplier's



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

business environment: it reduces dependency and promotes synergy. Existing supply chain management theories are enhanced by means of greater focus on the unpredictable factors: the 'uncertainties'. SCRM represents a new broom sweeping through your supply chain. As a result of trends and developments within your supply chain, your organization is continually faced with new or changing uncertainties. These must be addressed as quickly and as efficiently as possible. Such uncertainties are due to the following developments:

8.1 Integration and outsourcing

Reducing or outsourcing activities which involve a certain amount of risk or are not directly profitable, and commencing new activities which are closely related to the core business, creates an increasing dependency of organizations in the supply chain. Concentration and globalization, downsizing or relocation of production locations and/or sales outlets, with an emphasis on greater efficiency and economies of scale can be arrived. More demanding customer's shorter product life cycles due to greater product variety and substitutes, as well as an emphasis on continuous innovation and flexibility is mandatory today. The growing value of market information also plays an important part here. Dependency on Information and Communication Technology (ICT) and E-commerce The increasing use of ICT in order to serve the customer as efficiently and effectively as possible, and to streamline the organization itself.

8.2 Legislation

Increasing legislation on several areas is affecting not only individual companies but also entire supply chains, forcing supply chain members to collaborate. In order to become or remain compliant to different laws and regulations, areas like product liability, food legislation and strict environmental policies require new ways of finding the middle course between being compliant and remaining competitive.



8.3 Secure Supply Chain

Vulnerability to sudden supply chain disruptions is one of the major threats of today's companies. Terrorism, theft and disasters are only some of the possible causes of these disruptions. To stay in control over the resulting consequences, increasing emphasis is laid on resilient supply chains.

9.0 Supply Chain Risk

Supply Chain Risk refers to an uncertainty or unpredictable event affecting one or more of the parties within the supply chain or its business setting, which can (negatively) influence the achievement of your own business objectives.

Supply Chain Risk Management is a structured and synergetic process throughout the supply chain, which seeks to optimize the totality of strategy, processes, human resources, technology and knowledge. The aim is to control, monitor and evaluate supply chain risk, which will serve to safeguard continuity and maximize profitability. It is becoming increasingly clear that traditional supply chain management approaches must be enhanced to include means by which the new uncertainties arising from these trends and developments can be addressed.

10.0 Why Risk Management is essential?

In realizing their business objectives, organizations are very much dependent on the supply chain partners and the influence of any link in the supply chain. To ensure that the organizational objectives stand a better chance of being attained, it becomes necessary to gain a full understanding of all the developments and uncertainties that could emerge at any point in the supply chain. An effective Supply Chain Risk Management provides a number of direct benefits:

- i. The ability to anticipate and respond promptly to external trends and developments.
- ii. A focus on uncertainties rather than the certainties.
- iii. Greater influence over your supply chain partners.
- iv. Greater mutual understanding of the interests and problems of all supply chain partners.
- v. A better balance between opportunities and threats.
- vi. Management which is not based on the cost factor alone.
- vii. Competitive edge through the acceptance of controlled risks.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

- viii. By implementation of Supply Chain Risk Management, we get a multidisciplinary expertise, risk workshops using voting software, broad-based application of IT tools in all areas (such as best practices, risk management database, risk & control information systems).

Here is some suggestions that can aid mitigation efforts - company wide.

Think strategically. Effective supply chain risk management must be holistic and integrated. "A company with a strategic source-planning process will deliver risk management; a lean, effective supply chain; cost and value improvement; speed to market; and innovation," says ADR's Michels. "It is the lack of a strategic source plan that can result in a conflict of cost versus risk." A strategic source plan, he explains, can be thought of as "a business plan for a key commodity."

Although supply chain cost-efficiency measures can increase risk, says Rawlinson, "cost efficiency can also reduce supply chain risk," provided that "cost-efficient processes focus on core trading partner relationship management." The principal tool for managing this relationship is the contract, which can be written to include "transaction compliance measurement, milestone and obligation monitoring, rebate and charge-back management, and supplier scorecarding." These mechanisms increase the "visibility" of your trading partners' performance, thereby reducing risk.

Broaden cooperation. Supply chain and risk managers regularly work with colleagues in purchasing, logistics, traffic, and other departments. But sorting out the issues involved in mitigating complex risks requires a greater degree of collaboration. John Marren relates that when he held a risk management position with a previous employer, the increased reporting requirements imposed by insurers "got me working with people inside the company with whom I'd previously not had much contact." Marren, who is now director of risk management at Henkel in Gulph Mills, Penn., explains that the objective was to answer fundamental questions about the supply chain: "Is it sound? Where are the vulnerabilities? How are you planning for contingencies?" Getting the answers was not only beneficial in itself, but "got us into more of a team approach" to examining supply chain risks. Departments better understand not just the risks, but also one another.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Consider the tradeoffs. Experts agree that there are right and wrong ways of incurring and addressing supply chain risk. Think of cost and risk as variables that exist along a continuum; reducing one often comes at the expense of increasing the other. "You may increase your risks by lowering costs, because there's less redundancy in the system," says Marren. "But that doesn't necessarily mean you've increased risks imprudently, [provided] you've examined the supply chain up and down before implementation." Johnson agrees, noting that "the supply chain becomes more brittle" if a company single-mindedly pursues reduction of overt costs, as in "chasing low-cost labor" anywhere in the world, without sufficient regard for the many risks that can create.

An appropriate regard for cost is one that doesn't exclusively address cost. Thus, "the idea isn't just reducing inventory to a ridiculous value," Raman says. "Inventory protects against unanticipated events. So you need less of it if you find a way to forecast better or manage processes better. Some companies cut inventory without such improvements. That is fraught with risk." Goodyear's Leonard concurs: "You can only meet an inventory reduction objective if you improve forecasting," he says. "Otherwise you'll increase risk."

Don't ignore a risk just because you can't quantify it. For example, what are the costs of a supply chain disruption that results in a stock-out? Not just lost sales, which might be readily quantified, but lost customers, too. "It's not just the loss of those sales, but the way customers view you,"

Thus the concept of Supply Chain Risk Management helps us to overcome the drawbacks which exist in the traditional logistics management. Moreover the acceptance of risk and proper implementation of the Supply Chain Risk Management solutions will be surely giving the firms the cutting edge in the competitive world.



SUPPLY CHAIN MANAGEMENT: SMALL AND MEDIUM ENTERPRISES AND SUPPLY CHAIN MANAGEMENT.

Harini Kariappa, N^{*} & Mervin P Martin^{**}

INTRODUCTION

In today's global economy, all or portions of a company's supply chain may be outsourced. Products flow in many directions and in multiple modes. The lines between trading partners are blurring. Part of the movement to globalization is the desire to minimize costs. The challenges have raised the profile of transportation management in the boardroom as companies strive to maximize capacity, minimize costs, and still meet customer and shareholder demands for service and on-time deliveries. Supply chain management has come to the forefront of every company's business agenda. Responding to the demands of today's highly competitive global environment, traditional linear supply chains with their sequential processes are evolving into complex, global ecosystems that are highly responsive to customer needs. In the changing dynamics of manufacturing and distribution the phenomenon of outsourcing offers a big chance for small and medium enterprises to participate in exploring opportunities.

While SMEs are critical to a country's long-term development, sustainable access to finance and inclusive business design are fundamental to ensuring long-term and equitable poverty reduction and business profitability. The small and medium scale industry sector has, over the past six decades, acquired a prominent place in the socio- economic development of the country. The sector has exhibited positive growth trends even during periods when other sectors of the economy experienced either negative or nominal growth. There is a growing recognition world wide that small and medium enterprises have an important role to play in the present context given their greater resource – use efficiently, capacity for

* Ms. Harini Kariappa N, Students of 2nd Sem MBA, CMRIMS, Bangalore

** Mervin P Martin, *Students of 2nd Sem MBA, CMRIMS, Bangalore; email: mervin20_martin@yahoo.com*



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA
employment generation, technological innovation, promoting inter- sectoral linkages, raising exports and developing entrepreneurial skills.

SME's are defined in various contexts from one country to another. In many European countries, they are defined as independent firms, with fewer than 250 employees. In Japan a SME can have as many as 300 employees. In Indian context there exists no definition of SME's. In Indian context, neither small nor large enterprise is being loosely defined as medium. SME companies typically don't have the same breadth or depth of corporate finance options as large public companies do. This can limit their comparative ability to fund large investments. It is here that a company can, with little direct investment, broaden its reach by using supply chain partners. Use of third party logistics companies or contract manufacturers allows for growth without significant internal investment. Numerous small and medium enterprises have given a realistic approach in modernizing their SCM system. Due to the various constraints like – finance, infrastructure, human resources — SME's have found it easy to adapt modern SCM into their strategic ambience.

In olden days business firms had an effective supply chains, or networks, to successfully compete in the global market and networked economy. In the 21st century, there have been a few changes in business environment that have contributed to the development of supply chain networks. First, as an outcome of globalization and the proliferation of multi-national companies, joint ventures, strategic alliances and business partnerships, there were found to be significant success factors, following the earlier "Just-In-Time", "Lean Management" and "Agile Manufacturing" practices. Second, technological changes, particularly the dramatic fall in information communication costs, which are a paramount component of transaction costs, have led to changes in coordination among the members of the supply chain network .

Many researchers have recognized these kinds of supply network structures as a new organization form, using terms such as "Keiretsu", Extended Enterprise, "Virtual Corporation, Global Production Network", and "Next Generation Manufacturing System. In general, such a structure can be defined as a group of semi-independent organizations, each with their capabilities, which collaborate in ever-changing constellations to serve one or more markets in order to achieve some business goal specific to that collaboration.



DEFINING SUPPLY CHAIN MANAGEMENT

Supply chain management (SCM) is the process of planning, implementing, and controlling the operations of the supply chain as efficiently as possible. Supply Chain Management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption.

In other words Supply chain management (SCM) is the art and science to improve the way a company manages its raw components and final output in terms of a product or a service and delivers it to customers. Supply chain can be defined as the physical, financial and information networks for the logistic movement of materials, funds and related information. It starts from the acquisition of raw materials to delivery of finished products to the end users. Participants of supply chain include all vendors, service providers and customers. In essence, Supply Chain Management integrates supply and demand management within and across companies.

Some experts distinguish Supply Chain Management and logistics, while others consider the terms to be interchangeable. It is useful to bear in mind that these are the terms that are used intertwine to define and distinguish between these related terms.

Although Supply chain management is no longer a business school theory, but a track-proven technology applicable to just about every company, regardless of the industrial sector. It's a series of complex calculations that optimize enterprise plans within given set of constraints, backed up by a fully integrated suite of financial, distribution, and human resource management system. Supply Chain Management encompasses planning and management of all activities involved in sourcing, procurement, conversion and logistic management activities. Often, it also includes co-ordination and collaboration with channel partners and customers. Supply Chain Management integrates supply and demand within and across companies. Supply Chain Management execution is managing and co-ordination of the movement of materials, information and funds across the supply chain.

Supply Chain Management will have to become a major consideration for small and medium size business. Information systems have to be integrated with that of the suppliers and customers to meet their obligations in cost effective manner. Maximizing supply chain efficiencies will result in strong competitive advantages, higher rates of innovation, lower



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

inventory, use people and equipment resources efficiently, provide better delivery reliability, fewer outages and reduce cycle time. Supply Chain also involves fulfilling of a customer request. The management of an enterprise is often caught between customer's mounting demand and company's need for growth and profitability. Supply Chain Management involves in maximizing profitability, has particular relevance in the small and medium enterprise sector, which is being forced to perform or perish in the face of the global competition. In order to strive through the global competition the supply chain management has to perform certain tasks or practices. These tasks are driven by certain characteristics. These characteristics specify and define SCM, what to take up, what they should do, and what are their implications towards SME's. These can be summoned as below.

CHARACTERISTICS OF SCM

Supply chain has the following basic characteristics:

- It includes all activities and process that are required to supply the final product to the customer.
- Any number of companies may form part of the supply chain.
- A customer can also be supplier to another customer thus creating number of supplier-customer relationships.

In order to survive in the face of global competitive environment Supply Chain Management uses effective supplier – customer relationship, systematic approach in all the activities, powerful Internet technologies, which can provide means to a multifold increase in revenue, growth and market reach. Businesses must establish aggressive goals and performance measured they expect to achieve from their efforts in the supply chain. Typically goals should read as triple revenue, cut operating cost to half and get to the level of perfect customer service delivery. Such goals for the business will force a transformation of the supply chain. Elimination of non-value added



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

operations would improve bottom lines and firmly entrench small and medium businesses as vital components in any supply chain link.

Supply Chain Management requires information sharing, which creates and demands a high level of trust in supply chain partners. With supply chain partnerships, small and medium business will be required to open the information-sharing highway. The Internet today offers the most economic medium for communications and a platform for business transactions. The challenge to get this effort started is that small and medium businesses must find the best way to organize their information and process flows and capture, store and retrieve data to create a seamless flow of information, for decision making and process improvement up and down the supply chain. This up and down flow of information constitutes supply chain process. These processes can be summoned up as of below:

PROCESS OF SUPPLY CHAIN MANAGEMENT

The following is the basic process of SCM.

PLAN:

This is the strategic portion of SCM. A firm needs a strategy for managing all resources that go toward meeting customers demand for its products and services. A major part of planning is developing a set of metrics to monitor the supply chain so that its efficient, costs effective and deliver high quality and value of customers.

SOURCE:

A firm has to make a choice for its suppliers that will deliver the goods and needs to create its desired product. A firm needs to develop a set of pricing, delivery and payment process with suppliers and creates metrics for monitoring and improving the relationships. And put together processes for managing the inventory of goods and services it receives from suppliers, including receiving shipments, verifying them, transferring them to manufacturing facilities and authorizing supplier payments.



PRODUCE:

This is the manufacturing step. A firm schedules the activities necessary for production, testing, packaging and preparation for delivery. As the most metric-intensive portion of the supply chain, a firm needs to measure quality levels, production output and productivity.

DELIVER:

This is the part which is popularly known as logistics. Under this, a firm coordinates the receipt of orders from customers, develop a network of warehouses, choose to get products to customers and set up an invoicing system to receive payments.

RETURNS:

This is the problem part of the Supply Chain Management system. A firm needs to create a network for receiving defective and excess products back from customers and to support those customers who have problems with delivered products.

PROBLEMS FACED BY SME's

With regard to the processes and management of SME's, they also go through critical problems. As SMEs often are not large enough to justify centralized organizations for supply chain management involving large corporate staffs in the various business functions. The result is a focus on individual facilities and, therefore, on a decentralized supply chain organization. SMEs often don't have personnel who have knowledge of sophisticated supply chain strategy and operations. Due to which there has been evolution of number of invariability in the supply chain management of small and medium enterprises. The problems could be divided into two groups- Internal and External. Internal problems are those which are not influenced by external forces and relate to organization, structure, production channel, distribution channel, technical know-how, training, industrial relations, inadequacy of management and so on. External problems are those, which results from factors beyond the control of the industrialist. Some of them are listed below:



External and Internal problems faced by SME's

Internal

Choice of idea

Feeble structure

Poor project implementation

Faulty planning

Poor management

Quality

Marketing

Inadequate training in skills

External

Infrastructure

Financial

Marketing

Taxation

Raw materials

Technology

Policy

Industrial and financial regulations

A possible deviation or error in Supply Chains Management causes big losses and it is inevitable. Thus Small and Medium businesses must be aware of and should have the ability to improve their performance in regard to efficiency, optimize resource utilization, eliminate uncertainty, ensure consistency of service and customer satisfaction, introduce new products to hold the market against competition, maintain market visibility and reach. Small and Medium businesses needs preparation to enter into long term and well-managed partnerships. A business ability to clearly understand and apply supply chain managements concepts to customer service, profitability, cash flow, product cycle times, inventory levels and communication is critical for surviving and thriving in the supply chain. Having an understanding and harnessing the power of the Internet would be integral to the success of the supply chain strategy.



The Internet would be the hub of co-operation and enable the success of creation of an efficient and responsive supply chain. In the changed environment the small and medium sector needs to integrate itself with the overall domestic economy and global markets by gearing itself to greater interdependence by networking and subcontracting. The satisfactorily meet the present and the future requirements of the sector and national economy, a proper Supply chain network has to be set up. Single-channel supply chains are no longer the norm. All, or portions of supply chain may be outsourced in order to avoid the diversification from an efficient operation. Product flows in numerous directions in multiple modes. Change in trading partners is constant. Lines between trading partners are blurring. Each local node needs both to be self-aware and to collaborate across nodes.

Companies need fast, accurate information and specific details about orders. They need the visibility to plan their resource needs and revise plans based on business objectives. And they must reduce their time to action when responding to an unplanned event or crisis by having real-time visibility across the supply chain. In many cases, this means companies must move from managing expected outcomes of business processes to managing by exception. This shift allows them to focus resources on the areas that need the most attention instead of managing processes that are working well. In accordance with this issue companies must opt for Two-Stage model which consists of two phases carrying suppliers-to-production and the other half was emphasizing on the production-to-customer service.

Commercial transportation has become a very complex process in resolving the SCM cycle. Raw materials and parts as well as finished goods must move from point to point along a supply chain of logistics service providers and business partners. Today companies have to aggressively look into expanding their ability to reach their customers profitably and efficiency beyond their existing ecosystems. They have to explore in expanding to other geographical areas, becoming third-party logistics providers, better utilizing their own fleet, and sharing traffic with other companies. Any of these changes truly requires the ability to be Adaptive. Companies in the huge transportation industry must have fast, streamlined, and profitable business processes to satisfy their demanding customers. These processes are supported by new transportation and



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

distribution strategies, feature real-time visibility of transportation events and integrated business and logistical activities. Transportation companies must adapt to external trends such as deliveries tracked on the Internet, global trade, and offshore manufacturing. Transportation is fast becoming a key factor in determining the difference between profit and loss. It is the essential link between the extraction of natural resources; the fabrication of industrial, commercial, and consumer products; and the final distribution of goods to wholesalers, retailers, and end users. All these disruptions arise if an enterprise fails to understand its supply chain system and the problems which are stuck to it. Some of the problems which can be stated in accordance with the SCM are:

SUPPLY CHAIN MANAGEMENT PROBLEMS

Supply chain management must address the following problems:

- *Distribution Network Configuration*: Number and location of suppliers, production facilities, distribution centers, warehouses and customers.
- *Distribution Strategy*: Centralized versus decentralized, direct shipment, Cross docking, pull or push strategies, third party logistics.
- *Information*: Integration of systems and processes through the supply chain to share valuable information, including demand signals, forecasts, inventory and transportation etc.
- *Inventory Management*: Quantity and location of inventory including raw materials, work-in-process and finished goods.
- *Cash Flow*: Arranging the payment terms and the methodologies for exchanging funds across entities within the supply chain.



- *Logistic Instability:* It deals with problems relating to planning implementation and controlling the physical flow of materials and final goods from points of origin to points of use.

Supply chain execution is managing and coordinating the movement of materials, information and funds across the supply chain. The flow is bi-directional, that is the process can happen to and fro and also the other way round. If SCM's set up a proper distribution channels composed of right kind of distribution strategy would lead a SME to meet with its prior objectives. Also flow of information has to be systematic so that there are no obstacles while the process is on the run. In fact inventory control and cash flow are the primary challenges when considered SCM. Both play a major part in SCM. Hence management of both the issues must be a primary concern. Efficiency and Effective logistics systems mean higher standards of living for all SME's. Though the cost of market logistics can be high, a well-planned market logistics programme can be a potential tool in competitive marketing. In all marketing channels, the products must be moved in the right quantity at the right time to a specific place in order to be delivered most efficiently to the user.

In order to have a flow of supply chain events with out any hindrances, companies need the ability to do the following:

Monitor supply chain activities and compare plans and forecasts with actual results

Notify the proper employees about process deviations in real time

Simulate the consequences of an event, which provides guidance for decision making

Control the process throughout the adjustment of various parameters such as process time and mode of transport

Measure performance based on user-specific performance criteria



ACTIVITIES/FUNCTIONS OF SCM

Supply chain management is a cross-functional approach to managing the movement of raw materials into an organization, certain aspects of the internal processing of materials into finished goods, and then the movement of finished goods out of the organization toward the end-consumer. As organizations strive to focus on core competencies and becoming more flexible, they have reduced their ownership of raw materials sources and distribution channels. These functions are increasingly being outsourced to other entities that can perform the activities better or more cost effectively. The effect is to increase the number of organizations involved in satisfying customer demand, while reducing management control of daily logistics operations. Less control and more supply chain partners led to the creation of supply chain management concepts. The purpose of supply chain management is to improve trust and collaboration among supply chain partners, thus improving inventory visibility and improving inventory velocity.

Several models have been proposed for understanding the activities required to manage material movements across organizational and functional boundaries. SCOR is a supply chain management model promoted by the Supply Chain Management Council. Another model is the SCM Model proposed by the Global Supply Chain Forum (GSCF). Supply chain activities can be grouped into strategic, tactical, and operational levels of activities. Unlike activities, SCM does possess their own characteristics which are independent in nature. They describe the whole process in simple means. The main ingredients of supply chain include customers, suppliers, distributors and producers.

Conclusion

Hence Supply chain management aims for business automation, which means replacing and minimizing manual work involved in business processes. While small and medium-sized enterprises (SMEs) can enjoy a number of behavioral advantages over their larger counterparts in the innovation process, they can also suffer from a number of mainly material disadvantages. This could hence be recovered if the small and the medium enterprises follow a neat, systematic



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

and procedural way of supply chain starting with: Supply Chain Strategy, Supply Chain Planning, Supply Chain Enterprise, Asset Management, Procurement, Product Lifecycle Management and Logistics. Therefore, Supply Chain Management (SCM) is the methodology to improve business efficiency in finding raw components for the business products or services and delivering it to the customers in time.

Although many companies are moving towards integrated supply chain management, more and more companies should start giving focus on managing and coordinating all SCM activities collectively.



SUPPLY CHAIN MANAGEMENT: SUPPLIER RELATIONSHIP MANAGEMENT

Afzal Basha^{†††}

ABSTRACT

The paper introduces and discusses definitions and concepts from the supplier relationship management area. This review has the goal to provide readers with the basic conditions to understand the market mechanisms and the technological developments of the SRM market. Further on, the work gives a picture of the actual business environment in which the SRM vendors are in, and the main trends in the field, based on the main SRM functionalities i.e. e-Procurement, e-Sourcing and Supplier Enablement, which indicates users and software providers the future technological developments and practises that will take place in this area in the next couple of years.

Supply Chain

During the last three decades, supply chain management has been both an important and a productive aim of corporations. By working to coordinate the production, shipment, and delivery of the goods required to meet their business needs, companies have been able to more easily meet the demands of their customers. However as the 21st century unfolds, supply chain management is evolving into what many experts refer to as synchronized supply chains.

With synchronized supply chains, the overall goal is the same as with traditional supply chain management. There are three key differences, however. One is that companies work with their vendors in order to coordinate their processes and to achieve simultaneous production. Another difference is that the Internet and other types of technology are incorporated into the process to make those processes run smoother and more efficiently. Finally, the buying

^{†††} Afzal Basha, IV SEM MBA, Indian Academy School Of Management Studies, Bangalore;
email: afzalbasha2006@gmail.com



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

organization will need to hire, train, and restructure their workforce in order to be able to accommodate this type of supply chain management.

Effective supply chain management solves many of the problems encountered by businesses today. First, the vendors involved in the chain will actually have a clearer idea of what the buyer needs and can then adequately provide for these needs. Slow response times and delays in project start dates also become less frequent because the automated supply chain helps shave the time off of the order placement and fulfilment process. Furthermore, Internet-enabled supply chains generally result in lower costs for all parties involved because when secure relationships are established and when the supply and demand for products is in alignment, the total prices paid by organizations are generally much lower.

INTRODUCTION

Modern economical environment is gaining far-reaching complexity and competition. Companies of all sectors are facing continuous changes in the market forces due to the liberalization of trade and the impact of new

Communication means, improved logistics services and Electronic banking systems, and other factors, that have lead to a clear increase in global competition. This new economical environment and the globalization Process are changing the competition behaviour across Industries. These changes are leading to a revolution in Business strategy that has been postulated by numerous strategy researchers. Organizations had to rethink their way of doing business, based solely on their internal resources toward a more dynamic strategy, benefiting from their internal improved operations and closer communication with their business Partners to overcome those challenges. In resume, as Ohmae (1994) has predicted, the modern information technology is making traditional borders obsolete. Not only between nations, but especially between organizations, creating a “global village”. This phenomenon has created a new business environment in which companies compete no longer as a single legal entity, but as supply chains, and information has become the most valuable asset for companies, which has to be managed and distributed to their stakeholders. Hence, the application of information technology and the Formation of electronic networks have become an important part of corporate strategy. This



statement is especially true in the management of company's relationship with their suppliers. In this work, the focus of the analysis will be on the market and functions of the information systems that support the business processes between organizations and their suppliers

Supplier relationship management

Supplier relationship management is a comprehensive approach to managing an enterprise's interactions with the organizations that supply the goods and services it uses. The goal of supplier relationship management (SRM) is to streamline and make more effective the processes between an enterprise and its suppliers just as customer relationship management (CRM) is intended to streamline and make more effective the processes between an enterprise and its customers.

SRM includes both business practices and software and is part of the *information flow* component of [supply chain management](#) (SCM). SRM practices create a common frame of reference to enable effective communication between an enterprise and suppliers who may use quite different business practices and terminology. As a result, SRM increases the efficiency of processes associated with acquiring goods and services, managing inventory, and processing materials. I.e. Supplier Relationship Management (SRM). Here are included transaction systems such as electronic sourcing, electronic procurement and supplier enablement. Supplier relationship management systems were developed to coordinate and automate the process concerned with the supplier integration and communication.

Supplier Relationships

All successful companies build strong relationships with their suppliers. Companies are not isolated entities that simply purchase goods and services from individuals who happen to be able to supply them at that particular time. Companies typically make larger purchases. In reality, successful companies recognize the need to build bridges between their organization and the vendors that they work with by establishing strong buyer/seller relationships. Supplier relationships are different from simple purchasing transactions in several ways. First, there can be a sense of commitment to the supplier. For example, if a vendor sells light bulbs, he can feel confident that the buyer will come to him the next time the company he represents



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

requires a new shipment of light bulbs. Another element of these supplier relationships is advanced planning. Buyers don't just communicate with suppliers when a procurement need arises; they also contact them in order to discuss their future needs and to determine how best to satisfy those needs by working together. While both of those distinguishing features are easy to spot, a third element is also important. The company's attitude and view of its suppliers matters a lot for business success. Companies that forge supplier relationships think of these vendors as partners and not just simple commodity providers. This difference in orientation can have a profound affect on the way an organization communicates and works with its suppliers. This in turn affects efficiency and profitability.

One ramification is a vendor's knowledge of the buyer's business. When vendors are viewed as commodity providers, they generally don't take the time or are not given the opportunity to learn the details of the business or its vision for the future. However, vendors that are deemed to be partners are encouraged to become knowledgeable about the company, its processes, its products, and its goals. The result is greater buyer satisfaction with the services provided by the supplier.

A study of IT directors found that vendors who were considered commodity providers delivered unsatisfactory service almost half of the time while suppliers who were thought of as partners delivered excellent service some of the time and good service most of the time. Obviously, the example illustrates how important it is to have strong supplier relationships, but many businesses simply don't know how to foster an environment where purchasing personnel have an attitude of partnership with vendors. The change is not as difficult as they may think. It does not have to cost them the savings they achieve by shopping around either. First, businesses need to find a small number of suppliers to work with. Companies should carefully evaluate potential vendors and their backgrounds in order to select the suppliers from the group that will best fit the needs of the business. After they pick these vendors, companies need to negotiate contracts with the vendors and to sit down with them in order to engage in some forward planning. Both of these steps are critical in establishing the stability in the supplier relationship that is necessary for both parties to feel comfortable. Furthermore, the future planning makes it more likely that the vendor will have the



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA
resources and qualified staff available when the buying company requires them.

Overall, vendors and buyers are both better served when they come together to form strong, mutually beneficial, and secure business relationships for non-commodity type goods and services. When these relationships exist, they can drive the growth and profitability of both organization and prevent purchasing and execution problems.

Supplier Management Relationship

Supplier relationship management is the part of the supply chain management, which deals with all aspects of the business relationship between companies and their suppliers. SRM, on the other side, describes the business structures and processes required by companies to communicate with their suppliers, while providing methods, processes and tools to support the different phases of a direct supplier relationship, e.g. identification, evaluation, qualification, and if necessary termination.

For all the talk about supply chains and e-procurement, many companies still have not seen the real benefits of either of these business approaches. The reason is not the technology. The reason is that dealing with suppliers and managing that relationship can be tricky even under the best of circumstances but when they add in more technology and major changes, things can might become even trickier. However that doesn't mean companies should switch to more modern methods of handling procurement and working with vendors, it just means they need to become more knowledgeable about how to effectively manage their supplier relationships. One of the first steps of creating a supplier relationship is, of course, choosing the supplier. When companies switch to an e-procurement method they usually need to streamline their supplier choices and these choices need to be based on more than just a quoted price. For example, it may cost Vendor A \$20 to ship goods and it may cost Vendor B \$40, but if Vendor A doesn't ship to all of the cities a business works with, doesn't have the technology based installed to make communication seamless, and doesn't offer any value-added services to the deal, then that low price may look a lot less appealing. Another way to boost supplier relationships is through technology. Setting up a strong



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

communication network that allows for the real-time transfer of information in both directions helps create a feeling of partnership that is normally missing from these relationships. Explaining to suppliers how they will be helped and how important they are to the big picture can also help make them feel more comfortable in the relationship. Opening up communication to allow suppliers to view forecasts, inventory, and performance ratings further builds on the foundation and makes the relationship more secure.

Furthermore, companies can do more to ensure that their suppliers are receiving their business. When businesses establish e-procurement arrangements, suppliers assume that they will receive the orders for all of the products needed by that company from their catalogue. An office supply store, for example, anticipates that the company will order their pens, envelopes, and office furniture through them. However, many companies have found that employees who are resistant to the new technology continue to go out and make purchases outside of the system. This problem can hurt the vendor/buyer relationship because it is taking away profits from the supplier. Businesses, therefore, need to take steps to ensure that those types of »maverick« purchases do not occur.

Finally, both sides of the relationship need to realize that things won't also be perfect. Some products won't live up to buyer expectations; some invoices won't be paid correctly. However, those types of problems can be minimized simply by ensuring that a four-way inspection process is in effect on the buyer's side so that the goods are checked according to the order form and that the invoices are paid promptly. Additionally, buyers and sellers should decide in advance on how to settle problems with defective goods or overall buyer dissatisfaction. Knowing how to handle difficulties helps rectify the problems easier and makes the relationship move more smoothly in the long run.

SRM Advantage

Supplier relationship management (SRM) system refers to collaborative software that enables execution of supplier facing business practices-allowing companies to work with their supplier base for mutual benefits. It involves leveraging the cost & efficiency related benefits mutually,



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

through consolidation of supply base, centralization of procurement, managing the supplier performance & collaborating with the suppliers. Different practices of SRM such as supplier consolidation, strategic sourcing, strategic collaboration, contract management & supplier performance management allow an organization to accomplish the following specific goals.

- Reduction in overall spend
- Selection of best supplier
- Supplier relationship management –the strategic imperative advantage
- Product innovation
- Organizational visibility
- Minimization of risk
- Optimization of supply chain.

Supplier consolidation & strategic sourcing: To Derive the best with less

The holistic approach to SRM involves linking all the best practices across source-to-settle process, Viz., spend analysis, strategic sourcing procurement, settlement, and compliance monitoring & supplier management. Using SRM, the spending on services procurement can be consolidated & cost savings can be realized. It also facilitates strategic sourcing' the process of evaluating the needs & selecting the right/best supplier, based on historical performance.

Supplier Collaboration: To optimize Value Chain

Exchange of demand & availability data, performance monitoring & contract renewals with suppliers is critical for collaborative performance. SRM facilitates collaboration & involves selecting a few strategic suppliers to construct a business model, which will bring compelling business offering to target customers. Through strategic collaboration, the buyer & supplier organization can share information & co-manage processes resulting in reduction in costs, improving security of supply & enhancing the ability to serve customer.

SRM can help companies work directly with suppliers to produce plans & schedules that are feasible & optimal & thereby maximize the benefit from closer relationship with strategic suppliers.

Contract management: To leverage on compliance



Today, commercial relationships have become complex, which involve multiple business processes & business partners throughout supply chain. The complexity is further accentuated with conditions & terminology relating to price, shipment, payment, quality, volume breaks, rebate policies, discounts & so on.

Identification & efficient management of all contracts with suppliers is an underrated process. Thus, contract management as component tool of SRM has evolved for development & maintenance of client/partner business agreements in a structured manner. The effectiveness of contract management lies in automation: streamlining the management of each contract through the stages of planning, negotiation, storage maintenance & analysis.

SRM Reality

Supplier Relationship Management (SRM) may not have had a strong following a few years ago, but today more businesses are moving toward the implementation of software that helps streamline those connections so that both vendors and buyers can reap the benefits of the technology. In 2001, just under half of companies already had SRM technology in mind for their next project while more than a quarter of businesses planned to implement SRM sometime after 2002.

Even though those numbers seem to suggest that SRM technology isn't growing as quickly or being adopted as widely as analysts once thought, the reality is that the real problem is simply that not enough business decision-makers are even aware that this software exists and do not understand its benefits. Many managers and decision makers claim that had never seen this type of software demonstrated or even used. Most people who have seen SRM in action recognized immediately the benefits such technology could have for their business.

There are many reasons why companies who have witnessed the power of SRM technology are eager to spend the money necessary to get started. One of those reasons is that SRM software does tend to work well with most existing ERP systems and actually helps those systems to achieve their full, promised potential as well. Others who are actively involved in purchasing for major corporations have commented on the structure SRM software brings to the



entire sourcing process. After all, instead of dealing with hundreds of separate suppliers alone, the software does most of the work for them.

Besides these benefits, other companies are using SRM software to achieve a number of other advantages. First, the software does help reduce the cycle time on sourcing projects. Instead of going through acres of RFPs and comparing a wide array of quotes, the software actually helps bring all of this together into a simplified selection process. Another way that SRM software cuts down on the time spent on sourcing is that projects can be saved and then reposted later, so if the company's needs are going to be recurring then this can save a great deal of time. SRM software also makes it easier for companies to select suppliers. One way it does this is by making it easier to compare the different prices quickly. Additionally, the software allows buyers to figure in the past performance of vendors into the equation. For example, it may be tempting to choose Vendor C on the basis of its lower price to deliver raw materials but since the last shipment Vendor C sent was of bad quality materials that had to mostly be scrapped, the buyer may want to change his or her mind.

The technology also makes communication between the buyer and seller faster. Since the transfer of information can be done in real-time, the vendor can check the buyer's inventory to determine whether new shipments are needed and the buyer can instantly submit orders over the Internet without reducing his overall productivity. Likewise, questions related to orders can be answered by checking in on the details via the Internet so no human interaction or human-related delays have to interfere with the work. Another benefit is that SRM software makes it easier to standardize purchasing decisions. Most companies have no clear idea of why they choose which suppliers to work with, but with this software thinking about those factors becomes more important and readily apparent.

Unfortunately, even though the benefits are real for businesses that use SRM software effectively, not everything can be expected to run smoothly. Getting suppliers to join the party



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

and setting realistic expectations related to return on investments are some major obstacles to the technology's success. However once those problems are overcome, and they can be overcome with good strategies and implementation, companies can begin to streamline some of the most important relationships their business maintains.

Four steps to SRM success

The first step is integration. An enterprise cannot offer SRM to its suppliers until it has automated and integrated its own internal processes. As SRM draws on information generated throughout the enterprise, including, but not limited to, product life cycle management, supply chain planning, enterprise resource planning and customer relationship management, this information should flow from a single data source.

Secondly, suppliers need to be connected to the enterprise. They should be able to inquire, view and transact directly with the buyer's system. The method of connecting suppliers to the business must be affordable, scalable and relatively straightforward to implement and use. The range of interface options available to suppliers - XML, EDI, web services, portals or email - means that their investment in linking to the buyer's system can be kept to a minimum.

Thirdly, once a single view of the supply chain has been enabled, analytical tools can be added to help identify the areas of greatest opportunity for both the buying organisation and the supplier base, and to monitor performance. Business intelligence tools assist decision-making and can help increase profitability for both parties.

For example, if over fifty percent of a month's projected inventory of a particular item is sold within the first week of the month, the supplier is automatically notified to deliver additional stock, ensuring that the buying organization has sufficient supply to meet customer demands, while simultaneously boosting its own revenue.

Finally, a culture of collaboration must be fostered across the supply chain, and suppliers viewed as a source of competitive advantage, rather than cost. Gartner notes that properly managed supplier relationships 'can contribute to enterprise innovation and growth', while a poorly managed supply base 'will drive up costs and slow new product initiatives'.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

An integrated, connected supply chain can help lower costs, as manufacturers and suppliers are able to set joint production, inventory and fulfillment schedules against real-time market data.

Supplier relationship management then represents an opportunity to improve the accuracy and speed of buyer-supplier transactions, while improving collaborative working practices to the benefit of both parties, driving continuous improvement and lowering total cost of ownership.

Supplier Relationship Management Software

Managing relationships with suppliers can be complicated, but it is also important to the overall performance of the company. In many cases, the answer is as simple as choosing a software tool that can help streamline supplier relationship management (SRM). Epiq offers products that are designed to help strengthen those relationships. The company provides a number of features that can be used individually or that can be grouped together to meet the needs of the business. These features and tool can help manage supplier relationships, inventory costs, and multi-organizational collaboration, as well as other key elements of the vendor/buyer connection.

One of the key benefits of this type of product is that it allows buyers to communicate with their vendors in real-time via web-based programs. The tools also automate much of the negotiation process and simplify online bidding for projects so it is easier to form an initial relationship for both parties. Plus, Epiq created the product to be used by even novice computer users so it does not require any advanced knowledge or skill to be able to use its capabilities effectively.

The E-procurement product provides other benefits as well. Instead of using a complicated system to place orders with vendors, Epiq's program is accessible using an ordinary web browser. Thus, any employees with familiarity with the Internet can comfortably and knowledgeably work within the e-procurement parameters without a great deal of training. Also, the SRM features give buyers the opportunity to lower their costs and to open up projects to more potential suppliers by allowing competitive bidding for available projects. While this may seem detrimental to the vendor/buyer relationship, the reality is that such a system allows sellers



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA
to promote their value-added services and to figure out alternative ways to lower their costs while also making it possible for them to get their foot in the door with new buyers.

Because of the real-time communication in SRM, businesses can find out exactly when they can expect deliveries and suppliers can know exactly when the buyer's inventories are in need of replenishing. These two aspects alone can help both parties reduce the amount of time they spend on the phone checking on shipment times and on inventory levels, plus it means that neither party will have any negative surprises such as a last-minute rush order or a delayed shipment to deal with.

One of the biggest advantages of using SRM software to help boost the supplier/buyer relationship is that it costs less. Not only will the buyer save money thanks to the competitive bidding, but they will also save on other elements. For example, fewer employees are needed to manage the extra tasks related to supplier relationship management since most of them are either automated or simplified through the software. Employees can be devoted to other productive areas since it will take considerably less time and energy to keep the relationship running smoothly. Furthermore, since paperwork is almost completely obsolete with these systems, businesses will save on the costs of forms, printing, and storage. Additionally, since the system of finding a supplier and negotiating contracts is also made easier with the software, the costs of both of these relationship elements can drop significantly.

The bottom line is that supplier relationships are too important not to manage carefully, but most companies cannot do it alone. It is important to have the specific knowledge and expertise of a competent vendor in order to skilfully navigate the waters of Supplier Relationship Management.

Supplier Relationship Management System

As businesses are starting to realize, suppliers are an essential part of success. Without the right materials being delivered in a timely fashion, a manufacturing plant can literally come to a complete halt. Without reliable shipping agents, none of the created goods can reach their destination on time and in good condition. As more businesses are recognizing the importance



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

vendors play in their success, they are also beginning to implement more strategies for helping them deal with sellers in ways that make the relationships mutually beneficial. These approaches have come to be known collectively as supplier relationship management.

Usually done with the assistance of software, supplier relationship management can have a number of benefits for both parties. For buyers, they gain a reliable source of the goods they need at a reasonable price and with dependable results. They also don't have to look for a new vendor each time they want to buy those goods. For sellers, they receive a steady source of business and revenue. While these benefits may already sound impressive, they are merely the beginning of the possible benefits an organization can realize. Further collaboration between suppliers and buyers can bring even more advanced benefits, such as constantly monitored inventories and real time information.

All of these benefits are only possible, however, when the buyer has taken the time to successfully implement SRM software and has planned how the program can work to make the relationship better for both groups.

There are a number of important steps to this process.

First, businesses really need to be technologically prepared. Most companies that successfully adopt SRM systems have also taken the plunge into ERPs and SCM as well. These other systems help organize and prepare the data in advance that the SRM software will need to function to its full potential. Without an ERP in place, the SRM will have to rely on spreadsheets or other legacy systems in order to function and this requires more time and preparation and often delivers less satisfactory results.

A second step is connecting the suppliers to the system. Suppliers must be able to interact with the SRM software in real-time if both parties are to use the system to their advantage. Vendors can use the software to check inventory supplies and can reorder goods when it is apparent that the levels require it. This eliminates one less thing a buyer has to monitor. Additionally, real-time data transfer means that orders can be placed much faster. **For example,**



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

one company actually reduced the transaction time of order placement from an average of thirty minutes down to five in a relatively short period of time.

Finally, buyers must have an attitude that is open to collaboration. Many companies still view vendors as simply another resource, and they don't take their needs seriously. Suppliers want to feel secure in their relationship with buyers, but they also don't want to become involved in one-sided deals. Buyers must be willing to consider how a strategy will benefit both parties in the collaboration, and they need to be able to clearly express those benefits.

SRM, once put into practice, can definitely be an asset to companies, especially those who are trying to cut down costs. Using SRM software, some businesses have been able to reduce expenses by almost a quarter. This has obviously had a significant impact on the company's bottom line. Because excess inventory does not need to be kept on hand and because orders only need to be placed when the demand arises, businesses have been able to increase their profit margins and to be more competitive in the market.

For most companies, all of these benefits can be achieved simply by creating stronger supplier/buyer relationships. Using software and implementing it into an existing ERP system, businesses are able to give vendors real-time access to important data that helps both parties accomplish their tasks in a more efficient manner. When vendors and buyers work together, the results can be impressive, particularly if they plan in advance for success.



The Supplier Relationship Management Market Trends

E-Sourcing:-The sourcing activities take place at the beginning of the Purchasing process prior to any transaction. It has its main focus on the negotiation process of direct goods and it is a critical element of the strategic purchasing. In addition, sourcing is a process to develop supplier strategy and subsequently support its execution. The main goal of these systems is to support buyers to find the most appropriate supplier for a good, and the foreground is the negotiation phase of the purchase process in which professional buyers search for the most appropriate product source for a company based on price or any other established criterion.

E-Procurement:-The definition of e-procurement is a reason for evident Confusion in the literature and in the practices. A number of definitions describe e-procurement as a general technology that allows the purchase of supplies using the Internet. This paper shortens this general view of e-procurement to software that enables organizations to purchase indirect and

MRO goods online, automates the buying processes and centralizes all spending data. The technology has progressed from enabling simple transactions to cover broader categories such as services procurement, as well as the post-procurement stages, such as invoicing, reconciliation and settlement.

Business Process Outsourcing (BPO)

During the last years there was a wave towards the Application of service providers in the supplier relationship management market. Although earlier utilization of those services led to a reduction in process improvement benefits, because of workflow and integration issues. Currently, a research from Gartner showed that 42% of the European respondent and 36% of the American respondents are already using some form of procurement BPO. The delegation of IT-intensive purchasing processes to an external provider that, in turn, owns, administers and manages selected processes, based on defined and measurable performance metrics.

The factors in favour of business process outsourcing e.g. rapid deployment, lack of IT resources, access to new technology/skills and cost, are convincing supply chain managers to



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA
invest on these services and their respective integration projects rather than massive implementation and enterprise-wide deployments.

Contract Management

The benefits of contract management is gaining more and more attention from companies, given the amount of manual processes currently involved in contract negotiation and compliance procedures, there is no reason that contract management applications vendors cannot double or triple their installations over the next few years . The contract management providers can offer their systems in two ways: As a part of their Sourcing-Suite or as a Standalone solution. Since companies have different requirements and processes regarding contract management, there are opportunities for both business models. Technically speaking, contract management system has started its deployment on the buy-side with the management of supplier contracts. Nonetheless, the market should start a convergence between sell-side and buy-side contract management solutions, that should provide to companies a central document management, reports, analysis and compliance rules, based on an unique master data . Enterprise are also starting to enhance the integration between contract management solutions and other sell-side and buy-side systems, such as pricing, order management, and invoicing in order to gain visibility and to prevent revenue leakage and lengthy processes.

Services Procurement

Service procurement processes are still a source of high costs to companies, and due to its complex and heterogeneous purchasing processes, few companies up to now have tried to support those processes via the application of web-based information systems. Nonetheless, this scenario is changing, the survey “E-business-Barometer 2006/2007” have shown that around 70% of the industrial enterprises in Germany rated services procurement as a high or very high relevant aspect of their

SRM activities. Different from the MRO (Maintenance, Repair and Operations) materials, services procurement processes have hardly data transfer standards, and few IT vendors provide specialized tools to support this business process. Hence, there is a need to develop electronic data transfer models and standards to foster the development and application of web-based



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA
information systems during the services negotiation and buying process between companies and their suppliers.

Some initiatives in this direction have already taken place in Germany with the research projects Services Standardization and AIR-CRAFT. Nevertheless, further developments have to be done by the IT vendors in order to build appropriate tools and interfaces to facilitate the management of service procurement, since companies are seen this area as the next frontier in their e-procurement projects.

Spend and Supplier Intelligence

The transparency of the purchase processes and data is a key factor for an e-procurement program success. However, currently only one in every five companies applies spend management tools to control their procurement activities. On the other hand, the selection of suppliers based just on product price has led to numerous disadvantages to suppliers and buyers. These disadvantages have made purchasing departments to change from a price based supplier Selection to a broader selection model, in which suppliers are no longer selected, based solely on prices, but also in aspects such as product quality and warranty. The utilization of business intelligence technology to extract and analyze possible cost savings and support the design of supplier selection/evaluation and spend saving programs in a company is a major goal of modern purchase departments. Since most researches suggest that those systems still in its infancy and most companies have still not deployed this technology, the market of spend and supplier intelligence applications should continue its high growth rate in the next years. The near future developments in this area should focus on reporting and analytical features as well as Key Performance

CONCLUSION

So far companies have invested their time, resources & budgets for gaining customer relationships through sales force automation & applications. But optimizing customer relationship also demands streamlining & strengthening back-end related process & support of the value chain. An SRM solution provides vision across the entire supply base to increase the value of business relationships as a result of



which will prove their ability to deliver value. SRM provides an efficient, cost-effective way to automate the business process in order to include all suppliers across the globe so that more can be learned about them, their performance could be assessed better, and sustainable relationships could be built with ones that do things right. Thus, underlying fact that winning customers requires winning suppliers has to be realized by forward-looking companies, who should extend their focus to managing supplier relationships. The SRM market is constantly growing. The ERP providers e.g. SAP and Oracle. Especially in the area of strategic sourcing much investment has been done with the purpose to improve or reinforce the current developments in the area of contract management,

Service procurement, spend and supplier intelligence and process integration, among others.



SUPPLY CHAIN MANAGEMENT: SUPPLY CHAIN AGILITY INDUCING WORLD CLASS PERFORMANCE FOR THE 21st CENTURY

VS Chauhan*

Introduction :

In its generic sense, supply chain can be described as a stream of processes involving movement of products from the customer order through various stages namely materials stage, supply, production, and distribution of final products to the customer. In today's business world, depending up on the size and the type of products produced, all firms have supply chains of varying degrees. These networks get supplies and components, convert these inputs into the final products and then distribute them to their respective customers. Supply chain management involves the management of events in this process.

Effective management must take into consideration the coordination of all the different links of this chain as fast as possible without compromising on quality or customer satisfaction, and, at a same time ensuring the costs minimum.

The process begins with obtaining a customer order, followed by production, storage and distribution of products and supplies to the ultimate customer. Customer satisfaction is extremely important. Supply chain process covers customer orders, order processing, inventory, scheduling, transportation, storage, and customer service. An information service network is essentially necessary to coordinate all these activities to ensure overall supply chain effectiveness.

* *Prof. V.S. Chauhan, Professor, Indian Academy School Of Management Studies, Bangalore;
email: nehaniketa@gmail.com*



The very basic reason for the network and key to the success of a supply chain depends on :

1. The speed at which these activities can be concluded.
2. The realization of the customer needs and
3. Customer Satisfaction.

The major benefits grow out of an effective supply chain management are reduced inventories, lower operating costs, smooth product availability and high degree of customer satisfaction.

Decisions associated with supply chain management are of the long-term as well as short-term. **Strategic decisions** deal with corporate policies, and look at overall design and supply chain structure. **Operational decisions** refer to day – to – day activities and issues of an organization. These decisions must take into account the strategic decisions already in place. Hence, the firm must structure its supply chain through long-term analysis and at the same time focus on the day-to-day operations. Constraints like market demands, customer service, transport considerations, and pricing must be understood clearly to enable structuring the supply chain more effectively. These factors are dynamic in nature and change constantly, and , many a times, unexpectedly. The organization has to realize this and be prepared to structure the supply chain accordingly.

A thorough knowledge and understanding of the demand patterns, service level requirements, distance considerations, cost elements and other related factors helps in structuring sound supply chain. Since factors are highly variable in nature, this variability needs to be kept in mind while taking up the supply chain analysis process. The interplay of these complex considerations could have a significant bearing on the final outcome of the supply chain analysis process.

The Challenges of 21st Century

Under present volatile business scenario, competition has assumed new dimensions. A global re-segmentation of markets is imposing stiff foreign and domestic competition on worldwide



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

economies. The ability to compete is being determined by the degree of responsiveness to customers and key markets - how fast the firm delivers, how good the quality is, what the price is, and what value the customers perceive they are getting. Markets are demanding quick customization of products.

Over the next few, may be ten years, worldwide manufacturers will face stiffer competition in most markets. Clearly the pressure is on to be the best, nothing less. They must concentrate on satisfying the demands of the market: designing and building the best quality product in the shortest possible time frame. Taking dramatic steps to become agile in the supply chain has become essential for organizational survival and growth in the next century.

Firms must focus on moving information and products as rapidly as possible through retail, distribution, assembly, manufacture, and supply. All physical and logical events within the supply chain must be enacted swiftly, accurately, and effectively. **The success keys are flow and time.** The faster materials, information, and decisions flow through an organization's supply chain, the faster it can respond to the changing demands of the market.

The coming next few years will emphasize radical development of the corporate supply chain infrastructure, inducing major changes to the organization. The focus will be on quickly introducing new customized high quality products and delivering them with unprecedented lead times. The end result will be a new effective organization capable of making swift decisions, and manufacturing and delivering products with exponential velocity. Large scale radical changes are essentially required in the way we operate in the office, in the factory, with our suppliers, and how we market and move products to the end customer to accomplish this superior performance.

Firms successfully emerging from this radical transformation will be the ultimate winners and business leaders - quick, and resourceful firms. These enterprises will be world-class competitors, organized to respond to a dynamic market with precision, unprecedented speed, agility in delivery and new product introduction. They will be capable of achieving world class quality with substantially less non-value-added cost. Each company will be developed uniquely to suit its specific needs, but one characteristic will fit them all--they will all be agile.



Becoming agile means competing and leading in the next century. Companies not only require a thorough overhaul of their infrastructures to be able to introduce and build new products quickly and accurately, but also need an acculturation process fueled by heavy involvement. It takes time to enact changes of major proportions, and calls for a careful and detailed planning.

Approach towards becoming agile :

1. A Comprehensive, Systematic Master Plan is Essential

A comprehensive and systematic master plan is needed to effectively manage a large-scale effort. An exclusive management transformation program using state-of-the-art technical application tools which emphasizes a continuous improvement approach is needed. Such exclusive management transformation program creates a master plan that systematically enacts supply chain agility. It encompasses the entire supply chain from customer through production, assembly, supply, warehousing, and distribution.

2. The Supply Chain Development Model

At the heart of any supply chain management program, it is the supply chain development model. Managing large-scale change requires a comprehensive master plan as well as manageable stages in order to accomplish the whole task. The integrated model approach provides that plus more. It is the shell for a master plan to manage a large-scale transition of capability in an organization. It consists of three dimensions.

First Dimension : The Closed Loop

Large-scale change requires managing the effort in phases or stages to effectively control progress. The first dimension consists of four stages, looped as a continuous process:

- (1) Diagnosis and Concept Development,



- (2) Detailed Action Planning,
- (3) Building Capabilities, and
- (4) Performance Results.

A brief description of each of the stages is as follow:

Stage 1, Diagnostics and Concept Development, assesses the supply-chain competitiveness of the firm and builds a vision the desired supply chain. The evaluation begins with a diagnosis and comparison of business objectives against existing capabilities and performance. A rigorous diagnostic effort in all supply chain keyholes, production, supply, inventory location, transportation, and information, reveals where the existing supply chain can achieve immediate competitive advantage for the organization.

A vision of where the company should be, is developed with respect to the five performance drivers: velocity, flexibility, quality, cost and service. The performance gap between present performance and that of the vision is identified, and recommendations are made on which keyholes to leverage to obtain world class performance. This could be a strategic combination of one or several keyholes: production, supply, inventory, location, transportation, and information. An action plan is developed to close the performance gap for those keyholes to be leveraged. Supply chain simulation models are developed where appropriate for extensive analysis and comparison of alternatives.

Stage 2, Detailed Action Planning, is basically an engineering phase that further develops the master plan in detail that is created in Stage 1. This effort focuses on the specific keyholes to be leveraged: any combination of production, supply, inventory, location, transportation and information. During this phase, the long-term supply-chain structure is designed in detail using new process and information technologies, organization structure, suppliers, inventory stocking policies, modes of transportation, new locations of plants and distribution centers. The focus is to streamline product, part and information flow, create operational flexibility, induce velocity of parts products and information, improve quality of performance, reduce overall cost and substantially improve customer service. This effort positions the enterprise for long-term world-class supply chain performance.



Stage 3, Building Capabilities, is the stage of the effort when detailed plans to achieve world-class supply chain agility and performance are executed. New technology, capital, people, and resources are effected through team building and high involvement activity. New plant and distribution locations are leased or constructed, master contracts with new component and transportation suppliers are signed and implemented, new equipment and information technology are purchased and implemented, and new inventory stocking policies are executed where required to achieve world class performance.

Stage 4, Assessment of Performance Results, is the stage when results of the plan are measured for performance success of the five drivers: velocity, flexibility, quality, cost and service. The master plan is a continuous closed loop process, and once performance drivers are assessed, the major activity returns to stage 1 for further diagnosis and development. This allows each firm to choose certain keyholes to leverage initially and work on others in subsequent iterations of the closed loop.

Second Dimension : Six Keyholes

In order to develop and implement supply chain agility, there must be an optimal balance in six key areas. The second dimension consists of six keyholes to be assessed and leveraged either individually or in combination.:

Strategic decisions regarding production focus on what customers want and the market demands. This first stage in developing supply chain agility takes into consideration what and how many products to produce, and what, if any, parts or components should be produced at which plants or outsourced to capable suppliers. These strategic decisions regarding production must also focus on capacity, quality and volume of goods, keeping in mind that customer demand and satisfaction must be met.



Operational decisions, on the other hand, focus on scheduling workloads, maintenance of equipment and meeting immediate client/market demands. Quality control and workload balancing are the critical issues which need to be considered when making these decisions.

Next, an enterprise must determine what their facility or facilities are able to produce, both economically and efficiently, while keeping the quality high. Since most of the firms cannot provide excellent performance with the manufacture of all components in-house, Outsourcing is an excellent alternative to be considered for those products and components that cannot be produced effectively by deploying organization's facilities.

Firms must have to select their vendors carefully for needed raw materials. While selecting a vendor, focus should be on developing velocity, quality and flexibility and at the same time reducing costs or maintaining low cost levels. In short, strategic decisions should be made to determine the core capabilities of a facility and outsourcing partnerships.

Further strategic decisions focus on inventory and how much product should be in-house. A delicate balance exists between too much inventory, which can cost anywhere between 20 and 40 percent of their value, and not enough inventory to meet market demands. This is a critical issue in effective supply chain management. Operational inventory decisions revolved around optimal levels of stock at each location to ensure customer satisfaction as the market demands fluctuate. Control policies must be looked at to determine correct levels of supplies at order and reorder points. These levels are critical to the day to day operation of organizations and to keep customer satisfaction levels high.

Facility Location decisions depend largely on market demands and determination of customer satisfaction. Strategic decisions must focus on the location of manufacturing plants, distribution and stocking facilities, and placing them in prime locations to the market served. Once customer markets are determined, long-term commitment must be made to locate production and stocking facilities as close to the consumer as is practical. In industries where components are lightweight and market driven, facilities should be located close to the end-user. In heavier industries,



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

careful consideration must be made to determine where plants should be located so as to be close to the raw material source. Decisions concerning location should also take into consideration tax and tariff issues, especially in inter-state and worldwide distribution.

Transportation

Transportation decisions are closely related to decisions concerning inventory and how customer demands are fulfilled. Using air transport obviously gets the product out quicker and to the customer expediently, but the costs are exorbitantly high as opposed to shipping by boat or rail. Yet using sea or rail often means having higher levels of inventory in-house to satisfy quick demands of the buying organization. It is wise to keep in mind that approximately 30% of the cost of a product is encompassed by transportation, choosing the correct mode of transportation is a critical strategic decision. Above all, customer service levels must have to be met, which often determines the final choice of the mode of transportation. Many a times, this may be an operational decision, but strategically, an organization must have transport modes in place to ensure a smooth movement of its goods.

Effective supply chain management requires obtaining information from the point of end-use, and linking information resources throughout the chain for speed of exchange. Overwhelming paper flow and disparate computer systems are unacceptable in today's competitive world. Fostering innovation requires good organization of information. Linking computers through networks and the internet, and streamlining the information flow, consolidates knowledge and facilitates velocity of products. Account management software, product configurators, enterprise resource planning systems, and global communications are key components of effective supply chain management strategy.

The third dimension consists of five performance levels of focus for change strategy: Velocity, Flexibility, Quality, Cost and Service. They are used in all four stages to monitor success and must all be well addressed for supply chain effectiveness. The following describes each of the performance drivers:



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Velocity is the rate at which raw materials, parts, components, finished products and information travel through the supply chain. As each element is able to move faster through the supply chain of events, lead times compress and less inventory is required to support demand.

Flexibility is the ability to adapt to new or changing demands in the market. It includes design flexibility and production flexibility. Design flexibility is the company's ability to introduce new products and modifications to current products. Production flexibility is the company's ability to change product mix within short lead times, such as day to day.

Quality is the degree of excellence performed in designing, selling, producing, and delivering products and information. It is the conformance to requirements in measuring if the information, product, part or component does what it is supposed to do. Quality includes form, fit, function, reliability, consistency and accuracy.

Costs are the total costs of the conversion and movement through the supply chain per unit. The cost of adding value per unit is a measure of the productivity of the supply chain.

Customer service is a quantitative as well as qualitative measurement. The quantitative approach is the more traditional method of calculating customer service based on a comparison of orders placed to orders shipped. The qualitative approach measures the customer's satisfaction with service received.

Optimizing the Supply Chain

Dynamic simulation models can be very helpful in attempting to optimize the trade-offs between production, supply, inventory, location, transportation and inventory. These models are efficient and capable of handling a high degree of complexity of algorithms when attempting to balance velocity, flexibility, quality, cost and service within a chain of supply. A rigorous "What-if?" exercise can predict the impact to the bottom line for various alternatives. Global models, as well as local geographic models, can estimate quantifiable outcomes to statistically high degrees of accuracy. The dynamic simulation is a powerful decision making tool for both the diagnostics / concept development and detail planning stages.



CONCLUSION

For the organizational survival & strategic growth in the 21st century, the rule of the game seems to get radically changed .

Note :

One of the US consulting firm, Rockford Consulting Group (RCG) is involved in developing & offer necessary services. RCG has the extensive consulting experience in the field of consultancy & gives long-term assistance to many firms in a variety of industries. RCG has a cadre of the best supply chain consultants in the world today, providing high quality professionalism through the use of experience and innovation. RCG also provides technical expertise, team facilitation, leadership, and direction in deciding how client will meet the challenge. Equally as important, RCG trains their clients to sustain new methods of manufacturing and the consequential benefits over time. Your company will benefit directly from this training.

Rockford Consulting Group has come up with a comprehensive and systematic Supply Chain Development Model which can be utilized for restructuring a company's supply chain. It can be used to induce supply chain agility for achieving world-class performance in the 21st century.



SUPPLY CHAIN MANAGEMENT: ENTERPRISE RESOURCE PLANNING AN EFFECTIVE TOOL FOR MANAGERIAL DECISION MAKING

Vijaya, G.S*

Abstract

Enterprise Resource Planning is an effective tool for the managers to make decisions in this changing world. Enterprise Resource Planning is a software solution that addresses the enterprise needs taking a process view of the organization to meet the organizational goals by tightly integrating all functions of the enterprise. In today's intensely competitive marketplace, companies can benefit strategically and tactically from enterprise resource planning (ERP) systems, if implemented correctly.

ERP package is a solution to the information management problems. ERP packages if chosen correctly, implemented judiciously and used efficiently have the ability to raise productivity and profits of companies dramatically. But many Companies fail in this because of incorrect selection of a package, incomplete and haphazard implementation and inefficient and ineffective usage. The most crucial factor that decides the success of an ERP implementation is how the manager uses the System. Even the best ERP system can fail if the managers are not interested in using it correctly and efficiently. To receive total and complete employee support and participation, the organization must make it a point to educate its employees about the potential benefits and give them the requisite training.

This paper discusses about the enterprise resource Planning as a managerial tool. For this purpose three packages SAP, BAAN and PEOPLESOFT are considered and case studies are carried out for each package. The main Research Objectives are to identify the tools which contributes in effectiveness of ERP and its application to enhance managerial effectiveness based on factors like reducing cycle time / faster information processing, improving financial management, laying foundation for e-commerce, etc. The research is both explorative and descriptive in nature.

Keywords—SAP, BAAN, PEOPLESOFT, after implementation benefits, Comparison

* Mrs. G.S.Vijaya, Assistant professor, Department of Management Studies, Nitte Meenakshi Institute of Technology Yelahanka, Bangalore; email: vidvijaya@yahoo.co.in



SUPPLY CHAIN MANAGEMENT: ENTERPRISE RESOURCE PLANNING AN EFFECTIVE TOOL FOR MANAGERIAL DECISION MAKING

INTRODUCTION

Enterprise Resource Planning is a Systematic method of dynamically balancing and optimizing the resources of a company. When used effectively it can enable a company to achieve world-class results in growth, profitability, product and service development. Enterprise Resource Planning means planning all the resources i.e., man, machine, money and materials of an entire enterprise for all its business functions and units. It is an integrated software application that covers all the operational business functions from production planning, sales, distribution, materials management, financial accounting, human resources and quality management.

Enterprise Resource planning helps to establish world-class best business practices and brings transparency in the organizations. Managers need to understand that ERP implementation should be in line with the overall business strategy. Enterprise Resource Planning is a massive software engine that seeks to provide one seamless interface to all the departments, organization so that each department understands how it fits within the organization's macrostructure and how it impacts that macrostructure; Here managers face a very crucial role in facilitating enhanced communication between departments, better knowledge management and improved processes. Enterprise Resource planning sits between system and users regardless of where they are in the pipeline. It knows all the different data collection points and it must interface with all the different formats of the particular data. It also intelligently routes the orders to the appropriate department at the appropriate time, reducing the number of times a human has to enter data can dramatically reduce error. ERP also takes all the data and formats it so that each department can perform its required function.

Managers need to take decisions everyday. Change is an inevitable aspect of life or whose existence finds validity in the presence of life. Even time would lose its significance in



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

the absence of change. As change manifests itself in a variety of ways, it does not hold the same connotation across people, situations and contexts. Times change, people change, things change, situations change and do so organizations

ERP systems can help to assure competitiveness, responsiveness to customer needs, productivity and flexibility in doing business in a global economy. Implementing ERP enables companies to re-engineer business practices around “best practices” and to leverage integrated information resources. The success of ERP depends upon effective management, organizational change and the use of advanced technology. Today almost all the organizations are turning to some sort of Enterprise Resource Planning (ERP) package as a tool to their information management problems. ERP Packages if chosen correctly, implemented judiciously and used efficiently have the ability to raise productivity and profits of companies dramatically. But many Companies fail in this because of incorrect selection of a package, incomplete and haphazard implementation and inefficient and ineffective usage. The most crucial factor that decides the success of an ERP implementation is how the manager uses the system. Even the best ERP System can fail if the managers are not interested in using it correctly and efficiently. To receive total and complete employee support and participation, the organization must make it a point to educate its employees about the potential benefits and give requisite training.

In this paper we try to evaluate the ERP System as a tool for decision-making in the Managerial Context. Three ERP Vendors SAP, BAAN and PEOPLESOFT are selected for this purpose. We also try to discuss the advantages ERP systems. We also focus on few disadvantages and we try to identify how these limitations can be overcome.

RESEARCH METHODOLOGY

This research is based on an extensive literature review of ERP systems and on the fieldwork. This research is both descriptive and explorative in nature. The main empirical evidence drawn from interviews with few of the employees who are using ERP systems in their Organization. The interviews were semi structured in nature and lasted for some time.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

In the explorative stage, preliminary research was carried out to understand the effectiveness of ERP systems in the Organization. Extensive Explorative research was taken up to thoroughly understand the problem towards establishing priorities. For this purpose we have used literature survey and experience survey. The sampling frame is some of the Companies who have implemented ERP systems in their organizations. The area of Research is restricted to management perspective only.

Enterprise Resource Planning Systems are a major investment. Companies have invested huge amount of money, using a variety of business justifications, including the replacement of numerous legacy systems, reduction in cycle times from order to delivery and reduction in operating costs. The on-line, real-time operational data that ERP systems provide enable managers to make better decisions and improve responsiveness to customer needs. There is the evidence that organizations are satisfied with ERP.

The Research Objective was to identify the factors which contribute in effectiveness of ERP and its application to enhance managerial effectiveness based on factors like reducing cycle time, faster information processing, reduced operating costs. The evaluation of packages is also done on the internal and external business parameters. Here the main aim was to find the after implementation benefits

What is ERP?

ERP systems are the software tools used to manage enterprise data. ERP Systems help Organizations to deal with Supply chain, receiving, inventory management, Customer order management, production planning, shipping, accounting, human resource management and other business functions (Somers and Nelson, 2003). Originally, erp packages were targeted at the manufacturing industry.

Installing ERP System has many advantages-both direct and indirect. The direct advantages include improved efficiency, information efficiency, information integration for



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

better decision-making, faster response time to customer queries, etc. The indirect benefits include better corporate image, improved customer goodwill, customer satisfaction and so on.

THE STUDY

Companies who have started using SAP, BAAN and PEOPLESOFT packages can be compared with the earlier legacy system used in their organizations. One of the major drawbacks of legacy systems was that it didn't have an integrated approach. If a person wanted some information, which has to be derived from any of these systems, he had to get the necessary reports from both the systems and then correlate and combine the data.

But in reality, an organization cannot function as islands of different departments. The production planning data is required for purchasing department. The purchasing details are required for the finance department and so on. So if all the information islands, which were functioning in isolation, were integrated into single system, then the impact of that would be dramatic.

For example, if the purchasing department can see the production planning details, it can make the purchasing schedule. If the finance department can see the details of the purchase as soon as it is entered in the system, it can plan for the cash flow that will be necessary for the purpose. Because the systems work in isolation, collecting and analyzing the data needed for the functioning departments, as well as getting information about some aspect that is dependent on more than one department, becomes a difficult task. But no business executive or decision-maker can take good decisions with these isolated data which is collected. If the information that is generated is accurate, timely and relevant, then these systems will go a long way in helping the organization to realize its goals. This is the strength of ERP systems-integration and automation and that is why implementation of ERP systems will help in improving the accuracy of information and help in better decision making for the managers. All the three ERP Package users, with whom we interacted, had the same opinion.



Major ERP Players in the market

There are various ERP Vendors available today, who are very active in the market. Some of the Companies offering renowned international ERP products include –

- SAP, BAAN, PEOPLE SOFT, ORACLE, .IBM, RAMCO etc.

These Vendors offer slightly differing features in their products; still the major modules are same in all of the products. Our study is restricted to SAP, BAAN and POPLESOFT

SAP

SAP was born of a vision shared by five system analysts who were, at one time employed by IBM in Mannheim, Germany. These five entrepreneurs developed an idea for a business application that would incorporate various business activities into a single software application. The goal of these analysts was to provide a complete software solution that supported end-to-end business processing in a real time execution environment. SAP R/3, which is the market leader in this segment, offers the following modules;

Financial Accounting, Treasury Controlling, Enterprise Controlling, Investment Management, Production Planning, Materials Management, Plant Maintenance and Service Management, Quality Management, Project System, Sales and Distribution, Human Resources Management, Business Information Warehouse.

Today SAP is considered to be the most exhaustive ERP system. SAP R/3 also allows the connectivity to Internet and the business through it for the mobile and distantly located users. Other Vendors also provide more or less similar functionality in their bundle of product Today SAP is recognized as the fourth largest independent software supplier in the world and it ranks as the global leader in business application software.



BAAN

The BAAN Company is among the top software providers worldwide. Founded in 1978 by Jan Baan in Netherlands, this company is always innovating in the ERP world and has added functions to the base product developed over the last 10 years.

The Baan Company offers the so-called Baan series products, which feature component open architecture and integrated business application functionality. Their product Baan 1V is one of the better ERP solutions available. Baan 1V is specially designed to meet the needs of key vertical markets such as hybrid manufacturing, process and project driven industries. BAAN 1V offers not only an integrated solution but also extends supply chain support beyond the boundaries of an organization to support trading partner management. It allows organization to continuously change according to market demand and provides a real management tool to improve business.

PEOPLESOFT

People soft provides enterprise-wide business applications software solutions. This includes enterprise solutions such as supply chain management. They started in 1987 with a human resources management system. People soft advantage service offerings are grouped in five key areas and designed to deliver comprehensive business value throughout an ERP system's lifecycle. Flexibility is built into the program's components and service packages, enabling each service solution to be tailored to individual needs.

RESULTS

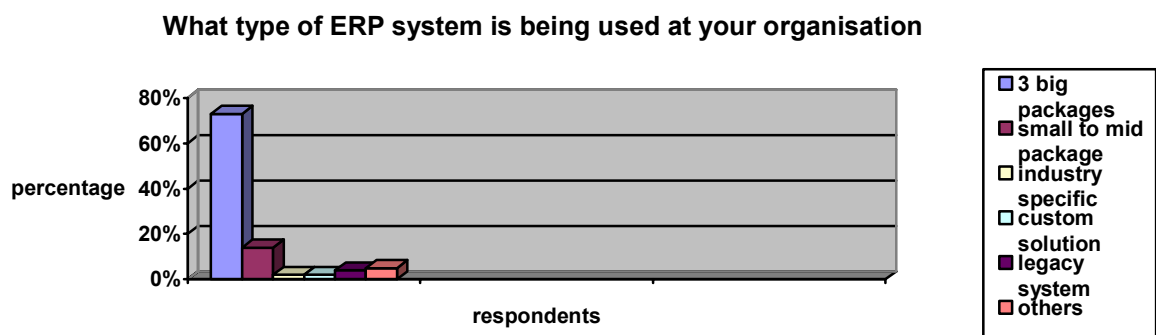
ERP seems to be catching up the most with the Indian Organizations. According to the study the awareness level is increasing in the organizations, as it is not just an IT tool, it is basically a management solution, which enforces organizational discipline, which helps to change the organizational mindset. Organizational readiness to change will depend on the top management initiatives, organization culture, financial health and its relationship with the workforce. The



Organizations have got the benefit after implementing ERP systems compared to the earlier legacy systems they had in their respective companies. Few of the direct benefits of ERP systems are business integration, flexibility better Analysis and planning capabilities use of latest technology.

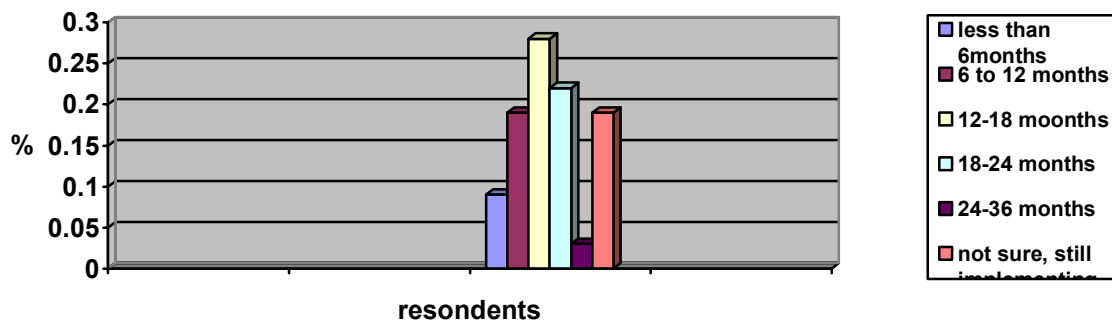
Assessment of Business Factors in ERP evaluation

Business Factors in ERP Evaluation	Respondents (%)
Profit	25%
Market expansion	27.27
Resource availability	45.45%
Customer Service	68.14%
Mobilization	13.63%
Others	4.54%

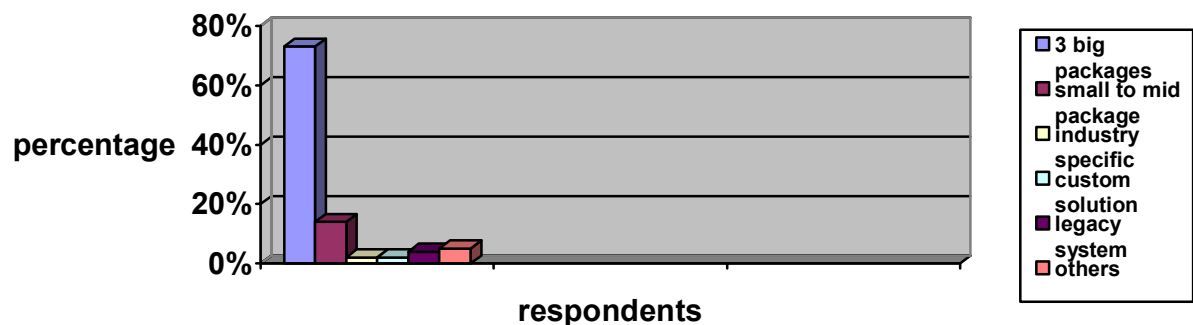




How long did it take to implement ERP



What type of ERP system is being used at your organisation



Limitations of ERP

1. Managers cannot generate custom reports or queries without help from programmer and this inhibits them from obtaining information quickly so that they can act on it for competitive advantage
2. ERP systems provide current status only such as open orders. Managers often need to look past and the current status, to find trends and patterns that aid better decision-making.



3. The data in the ERP application is not integrated with other enterprise of division systems and does not include external intelligence

CONCLUSION

Most Companies are not satisfied with the current systems, Software Vendors develops the sophisticated, all encompassing and integrated software packages to address the needs of modern business Companies which find these packages to be feasible

No package is perfect. We cannot get a perfect fit package. It is impossible to get a system that will perform exactly as the company does business, but the aim should be to get the system that has the least number of differences. Due to Globalization, there has been a significant amount of uniformity, standardization and simplification of the core business practices and processes across the world. It is estimated that even the best ERP packages, custom tailored to a company's needs meets only 80% of the Company's functional requirements. The remaining 20% has to be identified (during gap analysis) and then suitable solutions are implemented.

The intangible benefits of ERP are improved Customer Satisfaction, better integration with Vendor, increased flexibility, reduction in quality costs, better capacity utilization, improved decision making ability and so on. The success of an ERP implementation depends on a lot of factors like having right package, having the right implementation methodology and co-operation of end-users. Successful ERP implementation will definitely improve productivity. ERP Package is an enabling tool to help the users do their job better and faster.



REFERENCE

- [1] Shankar Ravi and S.Jaiswal (1999), Enterprise Resource planning, Galgotia Publications.
- [2] Alexis Leon (2000), ERP Demystified, Tata McGraw Hill Publishing Company Ltd.
- [3] Alexis Leon (1999), Enterprise Resource planning, Tata McGraw-Hill Publishing Company Limited.
- [4] Vinod Kumar Garg & N.K.Venkitakrishnan (2003, Enterprise Resource Planning), prentice – Hall of India.
- [5] Dr.S.C.Rastogi & Dr.J.S.lamba, Baan Institute India, Hyderabad, ERP Demystified, Dataquest November 15, 1998.
- [6] Sagar Paul, Consultant, Price water house Coopers, ERP Demystified, Dataquest November 15, 1998.
- [7] www.management.support.com/erp.htm
- [8] www.erpfans.com
- [9] Integrated and agile business-the ERP way, productivity Promotion Journal Quarterly, April-June 1999/97
- [10] Mary Somner, Pearson Education



SUPPLY CHAIN MANAGEMENT: LOGISTICS, SUPPLY CHAIN FOOD AND PROFITABILITY

Varun Singh Raghuwanshi & Gourab Maity*

ABSTRACT:

This article discusses Supply Chain profitability and the impact of 4 major drivers – Inventory, transportation, Facilities and information in terms of Supply Chain Responsiveness and efficiency. It also highlights logistics and Food supply Chain.

Critical factors in Supply chain profitability:

Introduction: As the nature of business changes so does the nature of competition. As business integrate vertically or forms alliances termed Supply Chains, competition as we knew it between Holden and Ford but between their respective Supply Chains- which may include the Retailer, Distribution Centre, transporter, Manufacturer, Supplier,.....

Thus, a Supply Chain is an alliance and linking of various trading partners or business in a continuous pipeline along which flow material, information and funds in either direction. Thus, SCM is the management and coordination of this movement of material, funds and information to maximize the overall profitability while satisfying the customer with the right product, in the right location and at the right time.

Attributes of a Supply Chain: There are 2 main attributes of a Supply Chain:

1. Responsiveness
2. Efficiency.

*Students, MEDA, Bangalore; email: bar2000002@yahoo.co.in



Supply Chain Responsiveness includes a Chain's ability to accomplish the following:

1. Respond to a wide variation in demand
2. Meet tight deadlines and short lead times
3. Handle a large variety of products
4. Achieve high customer service levels

Responsiveness however, comes at cost. This factor leads to the second major characteristic – Supply Chain Efficiency. Supply Chain Efficiency is the cost of designing, making, storing and delivering a product to a customer. There other factors, which make up the total cost and, these are discussed later.

Thus, Supply Chains range from those that focus on being responsive (Dell computers, Amazon.com) to those that focus on efficiency (Campbell's cash and carry, McDonalds) with a goal of customer satisfaction at the lowest possible cost.

Critical drivers in a Supply Chain:

There are four critical drivers that affect a Supply Chain's performance and profitability and enable it to be more responsive these are:

1. Inventory
2. Transportation
3. Facilities
4. Information

We now analyze how each of these factors affects Responsiveness and Efficiency, which in turn have a direct bearing on Profitability.



Inventory

Inventory, which is an Asset in the Balance Sheet, but which really should be treated as a liability, exists in a Supply Chain as a buffer to smooth out mismatches between Supply (which build inventory) and Demand (which consumes inventory). All entities in the Supply Chain, suppliers, manufacturers, transporters distribution centers and retailers will hold some level of inventory at some time or the other. This inventory can exist in the form of raw materials, components, work-in-process and finished goods. Inventory increases Customer Service Levels by holding stock ready for immediate shipment in response to customer demand or demand from any upstream trading partner.

It also reduces production costs at upstream operations by allowing suppliers and manufacturers to undertake large production runs or campaigns to achieve economies of scale.

On the flip side, it increases cost through having buffer inventory sitting at various stages in the supply chain; this cost of course being the inventory carrying and handling (or double- handling) cost.

Thus, inventory has a beneficial impact on Responsiveness, but a negative impact on Efficiency by increasing costs. A responsive Supply Chain can thus locate large quantities of buffer stock close to the customer's point of consumption while an efficient Supply Chain will reduce cost by utilizing centralized warehousing or Distribution Centers.

Transportation

Transportation is the movement of product between trading partners. Transportation also has a dramatic impact on Supply Chain Responsiveness and Efficiency. Faster modes of transportation will increase response times while batch size can either increase or decrease costs. Sophisticated routing software using Linear Programming can help in making decisions regarding the quantity, mode and timing of product movement between manufacturing plants and distribution. Other ancillary factors



involved in transportation include customs clearance, bonded warehousing, cross docking, HAZCHEM compliance, etc.

FACILITIES

If inventory is what is being moved and transportation is how it is being moved, then facilities are where it is moved. Within a facility, inventory is transformed by adding value through manufacturing or stored and then transported to another facility.

As usual there is a trade-off between the cost of the number, location and type of facilities and the level of responsiveness that this infrastructure provides.

The transportation method in linear programming can help in making decisions regarding how many facilities are needed and where they should be located and the optimum mode of transportation, taking into account labour costs, overheads, fuel costs, quantities dispatched, minimum stocking levels, etc.

INFORMATION

Information is a unique commodity in the marketplace that does not fit nicely into any traditional price theory. It has no intrinsic value and depends entirely upon demand for its price. It has no utility until applied by the user. It is not given up when sold. Its utility diminishes with time. Yet, information is for sale and has a price.

Although an intangible, the existence and operation of supply chains in their present form is due entirely to advances in information technology (IT).

Information serves as a binding agent between the various entities in a supply chain, allowing them to coordinate their activities, minimize throughput time and cost and maximize customer service levels and profitability.

Downstream partners depend on information supplied by upstream entities. Independent demand from the ultimate consuming customer acts as a trigger for replenishment at distribution centers. When the distribution center reaches the re-order point for a product, a signal acts as an independent demand input into the master production schedule (MPS) at the manufacturing site. This scenario is standard



distribution requirements planning (DRP) and most ERP software would have this functionality as standard.

The MPS processor would then balance supply and demand within the manufacturing facility and if a net requirement exists for the product, planned order would be created as input to the MRP engine. the MRP process would then blow through the bill of material, level by level, generating manufacturing orders for placement with suppliers. This is the standard MPS/MRP scenario and is the predecessor and part of all ERP systems today.

LOGISTICS

It is the art of managing the supply chain and science of managing and controlling the flow of goods, information and other resources like energy and people between the point of origin and the point of consumption in order to meet customers' requirements. It involves the integration of information, transportation, inventory, warehousing, material handling, and packaging.

The operating responsibility of logistics is the geographical repositioning of raw materials, work in process and finished inventories where required at the lowest cost possible.

THE DABBAWALAS—FEEDING MUMBAI:-

We are going to discuss about the food logistics of Dabbawalas of Mumbai.

TEAM WORK AND TIMING

The entire system depends on team work and meticulous timing. tiffins are collected from homes between 7.00 am and 9.00 am, and taken to the nearest railway station. At various intermediary stations, they are hauled onto platforms and sorted area-wise distribution, so that single tiffin could change hands three to four times in the course of its daily journey.

At Mumbai's downtown stations, the last link in the chain, a final relay of Dabbawalas fan out to the tiffin's destined bellies. Lunch hour, the whole process moves into reverse and the tiffins returned to suburban homes by 6:00 pm.

To better understand the complex sorting process, let's take an example. At Vile Parle station, there are four groups of dabbawalas, each has twenty members and each member



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

services 40 customers. That makes 3200 tiffins have to be collected by 9.00 am, reached the station and sorted according to their destination by 10.00am when the 'dabbawala special' train arrives.

The railway provides sorting areas on platforms as well as special compartments on trains traveling south between 10.00 am and 11.30 am. During the journey, these 80 dabbawalas regroup according to the number of tiffins to be delivered in a particular area, and not according to the groups they actually belong to. If 150 tiffins are to be delivered in the Grant road station area, then four people are assigned to that station, keeping in mind one person can carry no more than 35-40 tiffins .



SUPPLY CHAIN MANAGEMENT: TRADE ISSUES AND LOGISTICS NETWORK CONFIGURATION

Seerangarajan, R. * & Dwarakan, N. **

ABSTRACT

It is readily apparent that global trade and supply chains are becoming increasingly significant in enhancing the trade efficiency. In any country, the majority of the goods that are marketed are from overseas and significant portion of it from imports between foreign affiliates and parent companies. In many way international supply chain management is similar to domestic supply chain management spread over a larger geographical area.

The logistics network consists of suppliers, warehouse, distribution centers, retail outlets, raw materials, and finished products that flow between the facilities.

This paper explains the issues in the design and configuration of the logistics network, global market forces, technological forces, global cost forces, political and economic force, risks and advantages of international supply chains, issues in international supply chain management, regional differences in logistics, availability of information system and strategies. This text will be an assessment of existing practices and suggestions for improvement.

* Dr. R.Seerangarajan, Professor, Department of Rural Industries and Management, Gandhigram Rural University, Gandhigram – 624 302, Dindigul District.

**Mr. Dwarakan, N Research Fellow, Department of Rural Industries and Management, Gandhigram Rural University, Gandhigram – 624 302, Dindigul District.



**SUPPLY CHAIN MANAGEMENT: VENDOR MANAGED INVENTORY WITH RFID: A
MODEL DISCUSSION OF PHARMA INDUSTRY**

Mahalik Debendra*

Abstract

Organizations are sourcing materials from different source at different point of time which is a continuous process, which requires information as a vital input. In the present context due to the competition, every one or the other wants focus on core activity and outsource other non core activity as far possible, which in term has evolve the concept of 3rd party managing the inventor. Information has its importance in inventory management but in the absence of timely and accurate data, supply chain is compensates for the lack of information with inventory. Not only does poor information flow build supply chain inventories, but it also leads to increases in demand and inventory in tern involve costs. In this paper a concept frame has been suggested for a successful outsourcing of inventory management with the help of the RFID technology.

* Mr. Debendra Mahalik, Lecturer, PG Dept of Business Administration, Sambalpur University, Jyoti Vihar; email: debendramahalik!@dataone.in/debendra_mahalik@hotmail.com



INTRODUCTION

Pharmaceutical industries are focusing more on product, research and development. Recently, the industry is giving it due importance to logistics and inventory by focusing on more on supply chain activities such as delivering the product to the end-customer at the right time, right place and at a competitive price cost. A report by Ernst & Young entitled, Indian Pharma Distribution, reveals, “With the introduction of VAT in most of the states, the squeeze on domestic margins and increasing government pressure to contain retail drug prices, the reform in the Indian pharmaceutical supply chain is imminent”. Since business is highly competitive today, success largely depends upon the efficiency of supply chain. Supply chain is very critical as it maintains the complex network relationship between the organizations (drug manufacturers), trading partners to source raw materials, delivery products, retailers and hospitals. In this respect maintaining required inventory and managing the entire is one way to increase efficiency of the whole system. This concept has evolved the third party managing the entire inventory giving less pressure on retailer and distributor in Pharmacy industry.

Vendor Managed Inventory VMI is a streamlined approach to order fulfillment. it, the supplier and not the retailer, is responsible for managing and replenishing inventory using an integral part of VMI. Vendor Managed Inventory ((VMI) is the process where the vendor assumes the task of generating purchase orders to replenish a customer’s inventory. It is a means of optimizing the inventory and leaving it to the preview of supplier or a 3rd party s decision. In this case sharing information like inventory data and manufacturing data and also they even authorities to generate even purchase order for other official purpose. The 3rd parties are in better position to understand different requirement and control the flow of material from supplier to the retailer premises.

Information is the vital but in the absence of timely and accurate consumption data, each node in the supply chain compensates for the lack of information with inventory. Not only does poor information flow build supply chain inventories, but it also restricts each company’s ability to react to increases in demand, causes extended outages, service interruptions and lost sales.

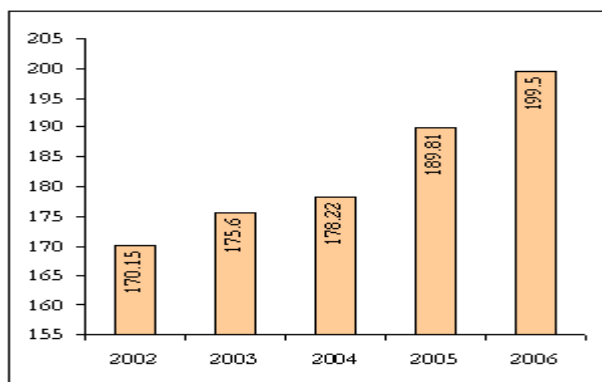
Industry Overview: In a recent report by McKinsey reveals that Indian pharmaceutical industry has the potential to reach US\$25 billion by 2010. The logistics costs of the industry in packaging,



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

transportation, marketing, cold storage, etc been growing at a CAGR of 5–7% from 2002 onwards. The market size of Indian pharmaceutical logistics was US\$199.5m in 2006 and the industry has been growing at an average annual growth rate of 4% since 2002. From the cost composition point of view, the major logistics costs in the pharmaceutical industry include packaging, distribution, inventory etc

Chart 3: Market Size of Indian Pharmaceutical Logistics (US\$m)



Source: Cygnus Research

With the growing competition among major pharmaceutical players in the industry, inventory control plays a significant role in pharma value chain as lots of inventory exists in the supply chain either at the end of the retailer or at the shipper due to poor information capturing and flow. Around 30% is shared by different channels of distribution. Hence, pharmaceutical companies are ready to spend to improve efficiency of inventory management and supply chains. Inventory Information is vital, but issue before the planner is to how efficiently these data can be entered in to the system, which is error prone and continuous task. Automatic data capture and feeding gives better result in terms of processing. Recently automatic data capturing mechanism are increasing in use, Radio frequency identification is one such technology can be used for automatic data capturing.

RFID: The Radio Frequency Identification (RFID) technology has been drastically developed and improved for decades and is currently a popular AIDC (Automatic data capturing) system.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Its capability to remotely retrieve data can be utilized to replace the traditional approaches for item identification and data capture (e.g. manual entry or barcode mechanism). The key components of the RFID technology are the tag, reader and IT backbone (e.g. the EPC network). An RFID tag is a small object that can be attached to or incorporated into a product. Usually, an RFID tag stores a unique ID number and sends the stored ID via radio frequency. An RFID reader is a device that can receive the radio signal from the RFID tag. The IT backbone is used to gather the information from RFID readers and import the RFID information into the backend systems (Byfield, 1996). As an item with a RFID tag passes through a RFID reader, the tag sends the corresponding ID number to the reader. The reader then passes the ID number to a computer or backend application system via the IT backbone to figure out the identity with respect to the ID number. The RFID tags can be classified into two categories, namely passive tags and active tags (Howes et al., 1999). Passive RFID tags do not have their own power supply and the incoming radio-frequency scan (from a RFID reader) provides the power for the tag to send a response. On the other hand, an active tag has a power source and has a longer range and larger memory than the passive one. The unit price of an active tag is much higher than a passive one and, therefore, the passive tag is usually the candidate solution for supply chain applications in the real industry.

Barcode has been widely applied in logistics activities for checking identities and quantities of items. Using the barcode technique, the operator has to scan the barcode one by one via the barcode reader in order to confirm identities and numbers of goods. It is time-consuming as the number of items increases. On the other hand, as items, case or pallets with RFID tags pass the designated area, the RFID reader can automatically receive signals from the tags. The RFID technology can be used to detect item locations, distribution history of items, and item quantities in the supply chain and immediately transmit the logistics information to the backend systems for efficient decision support. Therefore, it can seamlessly integrate the physical and information flows through a collaboration platform and facilitate information integration of entities in the supply chain (Turtle, 1997). The RFID technology is expected to induce another industrial revolution after the internet technology. With the RFID technology, tremendous changes in operation model of enterprise supply chain will take place in the near future (Raza et al., 1999). The previous research focuses mainly on the RFID hardware designs (Foster and



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Burberry, 1999; Engels and Sarma, 2002) and few studies focus on the RFID application issues (e.g. the RFID application model and cost-benefit analysis). In order to enhance the operation efficiency and data entry accuracy, enterprises have been dedicated in evaluating various applications of the RFID technology in production flow and shop-floor control, logistics management and merchandise tracking, and supply chain management. In the near future, taking advantage of RFID features to facilitate enterprise operation and management efficiency will be one of the essential topics for RFID technology development (Karkkainen, 2003). Currently, the RFID technology has been applied mainly in the organizational activities such as merchandise classification and tracking, data collection and analysis, production control, product authentication and authority identification (Smaros and Holmstrom, 2000; Hind, 1994). Recently, the RFID technology has gradually extended its applications to inter-organizational activities in order to improve efficiency of supply chain operations.

Recently, several large-scale enterprises (e.g. Wal-Mart (eWeek, 2004), Gillette (Boycott Gillette, 2003) and Benetton (Vigilant.tv, 2003)) have planned to implement the RFID technology for efficient IQC (inbound quality control), warehouse management, inventory replenishment, OQC (outbound quality control) and delivery tracking. The US Department of Defense (RFID Journal, 2004) also requests suppliers to attach the RFID tags on the military supplies. In addition to the RFID users, the RFID IT backbone solution providers, system integrators and high-tech companies such as Dell, Microsoft, Sun and IBM have also been dedicated to development of RFID techniques and application software. In addition to the US, the RFID technology has also drawn a lot of attention from the researchers, R&D centers and enterprises in Europe, Japan and other countries.

In spite of the advantages of the RFID technology, there exist some technical and managerial problems for RFID applications including the reliability, identification range, implementation cost and EPC standards. As for the supply chain applications, the RFID tagging mechanisms can be classified into item tagging, case tagging and pallet tagging where the RFID tags are attached onto items, cases and pallets, respectively. Since the unit price of an RFID tag is still too high for organizations to afford the item tagging mechanism. For this reason, at the current status, the RFID tags are mainly applied to reusable pallets, cartons or cases and the



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

identity of each item on the pallet (or case) cannot be accurately revealed (Riabtsev et al., 1999). In order to motivate more RFID applications in the supply chain, quantitative cost and benefit analysis on RFID implementation as well as representative and successful implementation cases are required.

Literature review

The critical issues related to logistics management and SCM are to integrate the inventory, distribution and sales information and to make the integrated logistics information visible to the other organizations in the distribution and sales channels in real time (Caputo et al., 2004; Hsieh and Lin, 2004; Trappey et al., 2004; Wu et al., 2004; Helo and Szekely, 2005). The real-time inventory information enables manufactures in the upstream to capture the real customer demands and to prevent over production or insufficient inventory. The key point of inventory information integration is the real-time acquisition and recognition of distribution information. Compared with the traditional approaches for logistics data capture and identification (e.g. manual data entry or barcode), the RFID technology enables automatic data capture, data identification and information interchange and, therefore, merchandise tracking, product sorting, and distribution data collection and analysis can be efficiently accomplished (Prater et al., 2005; Smith, 2005). Commonly, the benefits for enterprises to implement the RFID technology are to prevent excessive inventory, to reduce labors for logistic operations, to efficiently and accurately check item identities and quantities and to realize JIT philosophy (Sangani, 2004; Ollivier, 1995).

Purchasing system: In a normal process, in Pharme sector the retailer place an order to the supplier through electronically or by post for purchase of certain materials. After receiving the order, supplier supply the material in to the premise of the manufacturer and payment is released only after the goods or materials received in usable condition. This process is continuous and the manufacturer has to place order each time the material fall below a predetermined level or as decided by the management. This process is very repetitive and works fine for industry where the requirement of a particular material is small and not frequent. But where the same activity is repetitive and purchaser has to do a continuous task for procurement of materials or goods for



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

sale. In this process the purchaser has to do a continuous and repetitive job, which involves resource. This problem can be overcome by Vendor inventory Management (VMI), Where the supplier will have to take a lead role to maintain the inventory level with transferring the risk of maintaining quality and quantity at vendor premises.

Model: The purpose system will try to automate the inventory management process by using the following

- RFID tag in each packet of drugs (the information in each packet will vary according to need and typical information line no of tablets/bottle, price, MFG date etc.)
- RFID reader and at the counter of retail outlet will capture all information pertaining to purchase and demand
- Technological Connectivity and Software requirement
- Collaborative Planning
- Execution and payment mechanism
- Assessment

The vendor/supplier will have an advance information processing solution, where he will receive continuous information from the vendor's premises through a reliable communication medium, which will automatically capture by software through the tags. VMI data can be communicated via EDI, XML, FTP or any other reliable communications method. There are software tools, which are available which can manage effectively the entire demand of the business. This software tool is dynamic enough to automatically detect and adjust to changing demand patterns, goals and constraints. Exceptions based to allow for an automated flow of information and product when the outcomes are within expectation. If exceptions are detected, they are analyzed for degree of importance and the user is automatically prompted for action.

A Collaborative Planning model consists of sharing data, and jointly developing forecasts and/or production schedules amongst supplier chain partners. This collaborative process occurs at the tactical or item level. The 'buyer' collaborates with the supplier on demand/usage plans in order to develop an agreed upon consensus forecast of future demand that both companies will use to drive their business. This strictly collaborative model is applicable to supply chains where a few, distinct items generate substantial volumes of business. In this environment it is valuable for



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

people to review and arrive at consensus on forecasting and replenishment plans. In business environments where thousands (or 10's / 100's of thousands of) SKU's have to be managed daily, collaboration at the tactical (item) level is impractical, costly and error prone. The more effective collaborative process is at the strategic level, where overall service and inventory investment goals are agreed upon, along with the constraints within each company. The collaborative planning stage is critical in establishing the goals and key performance indicators for the VMI relationship. Periodically, this stage is revisited to review current performance and adjust or reconfirm the goals and constraints. The impact of this strategic collaboration is a commonality of metrics and focus between supply chain partners.

Execution

In dynamic, volume intensive supply chains inventory conditions can change suddenly. One day inventory levels are adequate, the next day the inventory may be depleted (due to increasing sales!) or critically low, creating the likelihood for a service interruption. Each day the current supply chain positions (inventory, booked orders, special commitments, in-transit and future requirements) are analyzed against the plans to automatically determine the course of action. When the Collaboration and Planning stages are done properly, the Execution stage becomes automated with very few exceptions, requiring scant human interaction on a daily basis. Furthermore, the Execution stage can provide suppliers with valuable information beyond a purchase order quantity, enabling improvements to the order fulfillment and inventory allocation processes.

Assessment

The Assessment stage tells the review the process of VMI partners how they are doing against the goals. And within the software, diagnostic information is fed back into the planning stage in a continuous effort to close the gap between theory (plan) and reality (result). In many instances a VMI relationship is the first time supply chain partners both have access to, and are measuring performance using the same metrics. When two companies are focused on the same goals and have access to the same key performance metrics, a true supply chain partnership emerges, resulting in a better performing supply chain.



CONCLUSION

Vendor managed inventory by RFID technology has its own merits and demerits like high initial cost and regular maintenance cost. But in long run organizations will get benefits. To implement successfully VMI requires careful collaborative planning and trusted relationship between partner together with top management commitment and support. Done effectively, VMI delivers tangible results like improve inventory and lowering cost and improve customer satisfaction. In order to get such benefits some of the parameter needs to be taken care like Setting, review and maintain performance goals. Vendor managed inventory depends on a lot on trust and promote collaboration (Fawcett et al., 2004). So trust and mutual agreement is one factor along with the technological factor is the success factor for VMI.

Reference:

1. Nilay Shah, Imperial College London, "Pharmaceutical Supply Chains: Key issues and Strategies for optimization".
2. Robert B Handfield, (2004), "A report on supply chain performance in the life science – An overlooked Opportunity".
3. Cheri Grace, (2004), "The effect of changing intellectual property on pharmaceutical industry prospects in India and China", DFID.
4. Evalueserve, (2001), "Sample report on Pharmaceutical Industry India".
5. Sangita Viswanathan, (2004). "A cover story on outsourcing survey on pharmaceutical sector, www.pharmaquality.com.
6. Byfield, I. (1996), "Developments in RFID", Sensor Review, Vol. 16 No. 4, pp. 4-5.
7. Engels, D.W. and Sarma, S.E. (2002), "The reader collision problem", IEEE International Conference on Systems, Man and Cybernetics, Vol. 3, p. 6.
8. eWeek (2004), "Suppliers, competitors balk at Wal-Mart's RFID lead", available at: www.eweek.com/article2/0,1759,1643386,00.asp
9. Foster, P.R. and Burberry, R.A. (1999), "Antenna problems in RFID systems", IEE Colloquium on RFID Technology, Vol. 3, pp. 1-5



10. Helo, P. and Szekely, B. (2005), "Logistics information systems: an analysis of software solutions for supply chain coordination", *Industrial Management & Data Systems*, Vol. 105 No. 1, pp. 5-18.
11. Hind, D.J. (1994), "Radio frequency identification and tracking systems in hazardous areas", paper presented at the Fifth International Conference on Electrical Safety in Hazardous Environments, pp. 215-27.
12. Howes, R., Williams, A. and Evans, M. (1999), "A read/write RFID tag for low cost applications", *IEE Colloquium on RFID Technology*, Vol. 4, pp. 1-4.
13. Karkkainen, M. (2003), "Increasing efficiency in the supply chain for short shelf life goods using RFID tagging", *International Journal of Retail and Distribution Management*, Vol. 31 No. 10, pp. 529-36.
14. Smaros, J. and Holmstrom, J. (2000), "Viewpoint: reaching the consumer through e-grocery VMI", *International Journal of Retail & Distribution Management*, Vol. 28 No. 2, pp. 55-61.
15. Ollivier, M. (1995), "RFID enhances materials handling", *Sensor Review*, Vol. 15 No. 1, pp. 36-9.
16. Turtle, J.R. (1997), "Traditional and emerging technologies and applications in the radio frequency identification (RFID) industry", paper presented at the IEEE Radio Frequency Integrated Circuits (RFIC) Symposium, pp. 5-8.
17. Howes, R., Williams, A. and Evans, M. (1999), "A read/write RFID tag for low cost applications", *IEE Colloquium on RFID Technology*, Vol. 4, pp. 1-4.
18. Raza, N., Bradshaw, V. and Hague, M. (1999), "Applications of RFID technology", *IEE Colloquium on RFID Technology*, Vol. 1, pp. 1-5.
19. Riabtsev, A., Zakopailo, I., Piletsky, U., Irinarhov, V., Goncharov, V., Istratov, V. and Barcovsky, A. (1999), "The versatile RFID system", *Proceedings of the Third Russian-Korean International Symposium on Science and Technology*, 2, pp. 709-11.
20. Vigilant.tv (2003), "Benetton RFID tags: won't be disabled at checkout?", available at: <http://vigilant.tv/article/2947>
21. Sangani, K. (2004), "RFID sees all", *IEE Review*, Vol. 50 No. 4, pp. 22-4



SUPPLY CHAIN MANAGEMENT: WAREHOUSING AND LOCATION DECISION

Govinda Gowda.H.G & Sehar.S*

1.1 INTRODUCTION:

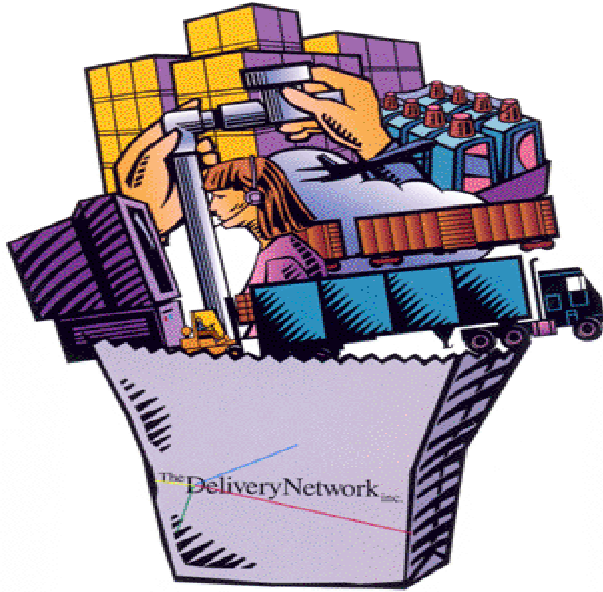
A Warehouse is location to store inventory with adequate facilities. Every company stores its goods while they wait to be sold.

Experts estimate that 20% of all orders are filled imperfectly. Thus, the ability to meet customer demand by getting the right products to the right place, at the right time, and in the right condition is an essential competency with bottom-line implications.

SCM's Warehouse Management system solution enables you to see what inventory is or will be available, organize work and align resources and labor to satisfy customer requirements, and optimize fulfillment and distribution processes to ensure that products are delivered on time and in full, each and every time. The result improved supply chain management with end-to-end fulfillment from order inception to delivery.

Location decisions are a critical element in strategic logistics planning. The ramifications Facility of siting facilities are broadly based and long - lasting, impacting numerous operational and logistical decisions. High costs associated with property acquisition and facility construction make facility location or relocation projects long - term investments. But although important, cost optimization is progressively being sided by logistic service considerations in the site location decision - making process. The location decision was meant to adapt to dynamic changes in business environments surrounding the firm's supply - chain operations.

* Students, Indian Academy School of Management Studies, Bangalore-560 043;
email:gowda_0212@yahoo.com



1.2 Importance of warehouse & location decision

A Warehouse is typically viewed as a place to store inventory. However in many logistical system designs, the warehouse is more properly viewed as a switching facility as contrasted to a storage facility. While effective distribution systems should not be designed to hold inventory for an excessive length of time, there are occasions when inventory storage is justified.

2.1 Warehouse layout and design:

The physical arrangements of storage racks, loading and unloading, areas, equipments, offices, rooms and all other facilities.



2.2 Potential warehouse locations

It is also important to effectively identify potential locations for new warehouse. Typically these locations must satisfy a variety of conditions.

- Geographical & infrastructure conditions
- Natural resources & labour availability
- Local industry & tax regulations
- Public interest

As a result a limited number of locations would meet all the requirements

2.3 Warehousing operations

- Receiving goods
- Identifying goods
- Sorting goods
- Dispatching goods
- Holding goods
- Retrieving goods
- Marshalling goods
- Dispatching goods
- Preparing records & advices



2.4 Warehouse costs

- **Handling costs:** these include labour & utility costs that are proportional to annual flow through the warehouse.
- **Fixed costs:** these capture also cost components that are not proportional to the amount of material that flows through the warehouse. The fixed cost is typically proportional to warehouse size (capacity).
- **Storage cost:** these represent inventory holding costs, which are proportional to average positive inventory levels.

2.5 Types of Warehouse

Industries / companies might own private warehouses or rent space in public warehouses or both. Both have their advantage and disadvantage. Owning a private warehouse brings more control, ties up capital, and is less flexible if locations change.

On the other hand, public warehouses charge for rented space, provide additional services for inspecting, packaging, shipping and invoicing goods but at cost, and offer wide choice of locations and warehouse types.

- **private warehouses:** a private warehouse is operated by the firm owning the product. The actual facility, however, may be owned or leased. The decision as to which strategy best fits an individual firm is essentially financial. Firms with very specialized customers or products are often motivated to develop their own warehouse facility.



- **Public warehouses:** public warehouses are used extensively in logistical systems. the classification of public warehouses has been developed on the basis of the range of specialized operations performed,
 - ✓ **General merchandise:** are designed to handle general package commodities such as paper, small appliances, and house hold supplies.
 - ✓ **Refrigerated:** handle & maintain food, medical items & chemical products.
 - ✓ **Special commodity:** are designed to handle bulk material or items with special handling considerations, such as tiers or clothing.
 - ✓ **Bonded:** are licensed by the government to store goods prior to payment of taxes or duties.
 - ✓ **Household goods:** these are designed to handle and store large , bulky items such as appliances & furniture
- **Contract warehouse:** This combines the best characteristics of both private & public operations.

19 YEARS RELIABLE SERVICES
CALL NOW- FOR RATES- /DETAILS
MMUMBAI -MOBILE- +91- 09322259456

MOX INDIA SERVICES

**WAREHOUSE - OFFICE / COMMERCIAL PREMISES-
RETAIL SPACE , INDL.FACTORY PREMISES -RETAIL SPACE**

BUY-SELL- RENTAL / HIRE -LEASE INVESTMENT -JV

MULUND WORLI NARIMAN POINT, SOUTH MUMBAI, CENTRAL WESTERN
SUBURBS KANDIVALI CHEMBUR BHANDUP SEWREE FORT CUFF PARED VASHI

**MUMBAI
BHIWANDI
PANVEL
ANDHERI
THANE
NAVI MUM**



Basic types of Warehouses are

- **Bonded warehouse:** Warehouse which are bonded under the customs and excise act and municipal corporation regulations, facilitating deferred payment of customs, excise or octroi duty.
- **Field warehouse:** which are managed by a public warehousing agency in the premises of a factory or company which needs the facility for borrowing from a bank against the certification of goods in storage or in process by an independent professional warehouseman
- **Cold storages:** cold storage facilities are provided for perishables against payment of storage for the space utilized by different parties.
- **Agricultural warehouse:** Used for storing agricultural produce grown in certain area
- **distribution warehouse:** ones located close to the manufacturing concerns or consuming areas these are designed to move goods rather than just store them. They are large and automated warehouses designed to receive goods from suppliers, take orders and deliver goods to customers.
- **Buffer storage warehouse:** these are built at strategic locations with adequate transport and communication.
- **facilities:** used for storing foodgrains or fertilizers etc. by or for the government for easy marshaling and supply to various far-off or nearby consuming areas in response to the orders of the government or government agencies.
- **Export and import warehouses:** they are located near the ports from where international trade is undertaken.

2.6 warehouse management system helps companies to

- Reduce inventory
- Increase labor productivity
- Improve shipping accuracy
- Increase inventory accuracy at location level
- Boost perfect order rates



- Reduce direct operating costs and increase overall revenue



2.7 Could You Be Put In Charge Of The Warehouse?

Whether they are happy about it or not, it is becoming more and more common for purchasing professionals to be made responsible for management of the warehouse. Therefore, do not be surprised if warehouse management is added to your list of responsibilities in the near future to prepare for this trend, let's explore the similarities between purchasing and warehouse management. Like Purchasing, warehouse management has many best practices. A couple best practices recommend the use of effective slotting tools and bar coding.

Effective slotting tools include the placement of high-volume items close to the point of shipping, use of clear slotting information under each item on the shelf, using the same slotting information on pick documents, and sorting the slot numbers into a sequence that supports a “no-backtrack” path for the picker.

Bar codes can help ensure that the right incoming product is put in the right place and that the right outgoing product is picked in the right quantities. “By using bar code picking, not only can you pick faster, but you can also pick with virtually 100% accuracy.” In this method bar code implementations pay for themselves within six months, which leads to the most attractive aspect of warehouse management for purchasing professionals the opportunity for cost savings.

The fixing of an inefficient warehouse operation can produce labor cost savings of 30 to



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA
50%. So even if you've never dreamed of being the purchasing and warehouse manager, such an expanded role may help you deliver more measurable bottom line results.



3.0 Suggestions

1. Contract warehousing is suggested as it is long term, mutually beneficial arrangement which provides unique and specially tailored warehousing and logistics services to client.
2. Either effective slotting or bar codes can be used for the accuracy of information.
3. The location decisions can be adapted to dynamic changes in business environments surrounding the firm's supply - chain operations.

4.0 conclusions

Warehousing & location facilities help better storage & accuracy. The warehousing should not be for a longer period of time but occasionally



Impact Of Physical Infrastructure On Logistics Management In India

*Kalpana Raghavendra **

Abstract

Infrastructure and its development play a key role in improving & sustaining a country's growth. Logistics management is one of the most important sectors today's companies are targeting for quick and timely availability of inputs and supply of output to customer. India is set to emerge as one of the world's largest economies. This is not achievable unless infrastructure improves. Although, the e-infrastructure related to computers and telecom has improved in the last few years in the country, the physical infrastructure related to improvement of Roads, construction of fly-overs, Trains, Airports and modern Ports have not shown similar improvement. This paper brings out the status of infrastructure & its reasons and how it will effect the logistics management of companies & measures taken by India in improving the same. The paper also makes a comparison of infrastructural status of India & china the two major growing economies of the world which are vying with each other in attracting FDIs in all sectors.

* Faculty Member, Indian Academy School of Management Studies, Bangalore-560 043;
email: kapolnr@gmail.com



Introduction:

Logistics is the art of managing the supply chain and science of managing and controlling the flow of [goods](#), [information](#) and other resources like [energy](#) and people between the point of origin and the point of consumption in order to meet customers' requirements. It involves the integration of information, [transportation](#), [inventory](#), [warehousing](#), material handling, and packaging. The vital driver of supply chain management is logistics infrastructure.

Infrastructure (airports, seaports, roads, bridges, etc.) are all important to a country in terms of attracting investment and business and to a company when it is time to decide where to locate an investment, build a factory, establish a regional office, etc. How easy a country is to travel to and the modernity and efficiency of its air and seaports is always something a company and its executives need to consider to invest in a country.

India has long been a fertile ground for sourcing highly skilled IT and engineering services, but it's estimated that manufacturing and retailing is the next boom. In 2005, India was forecasted as the greatest consumer market opportunity, receiving the highest Foreign Direct Investment (FDI) confidence index.

Currently, [India sits atop the global retail opportunity index as the greatest underserved market in the world](#). This has significant opportunities for companies waiting to sell in this market. India's retail industry, the 9th largest globally and valued at \$330 billion. In 2006 government relaxed FDI in retail sector allowing upto 51% looks very lucrative. The world's largest retailer wal-mart has already cashed on the opportunity.

For years, the government neglected India's crumbling infrastructure, and the costs of that neglect are now obvious. The World Bank indicates that a lack of reliable, reasonably priced power is the single largest constraint on the country's businesses. From roads and railways to ports and airports, and from power plants to hydrocarbon infrastructure, India ranks among the lowest in the world in terms of infrastructure availability. Logistics Management relates not only to information transfer but also physical transfer/movement of material & goods from one place to another. This paper brings out how private participation in the e-infrastructure has contributed its significant growth & has helped logistics management while poor physical-infrastructure has hampered it. Two countries that are virtually on every company radar screen at the moment are



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

China and India. There are many reasons for these choices, most of which are relatively well known, but one needs to understand the pluses and minuses of the entire picture before making a decision on where to go to in Asia, be it to start a new manufacturing operation, to enter a joint venture or to sell to a growing domestic market. China and India often are compared in the same breath by western executives weighing sites for expansion or outsourcing, but the reality of the situation is that in terms of infrastructure, China is decades ahead of India – an important consideration for industries reliant on strong power, water, transport or information infrastructure.

Physical infrastructural conditions in India

Opportunities in India

India has long been a fertile ground for sourcing highly skilled IT and engineering services, but it's estimated that manufacturing and retailing is the next boom. In 2005, India was forecasted as the greatest consumer market opportunity, receiving the highest Foreign Direct Investment (FDI) confidence index. Fueled by a rising young, highly-educated, middle-class population, India's economy is heading towards a boom.

India initiated an ambitious reform programme, involving a shift from a controlled to an open market economy.

Currently, India sits atop the global retail opportunity index as the greatest underserved market in the world. This has significant opportunities for companies waiting to sell in this market. India's retail industry, the 9th largest globally and valued at \$330 billion

India's economic boom, fueled by a rising middle class and changing consumer needs, will accelerate in the next decade as significant economic reforms increase opportunity. India has entered numerous trade agreements and opened its borders to bilateral trade. The issue on everyone's mind is FDI, which is currently allowed in services, manufacturing and wholesale trade & also in retail industry as in February 2006, the country relaxed its FDI for retail, now allowing 51 percent direct investment for single-brand retailing. Many see this opening the doors for more multinational brands to enter the increasingly consumption-focused country.

Middle-class spending increases. GDP for 2006 was nearly \$900 billion, and is expected to rise 6 percent a year for the next decade



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

This economic boom is responsible for an emerging middle class—some 300 million strong today. And by 2010, 49 percent of the population will be considered middle to high income. With India's personal consumption rates at a staggering 67 percent of GDP—second only to the United States—this middle-class spending on luxury goods is creating a white-hot market
By 2010, 45 percent of its population will be in the prime-spending demographic of 20-49 years of age.

Effects of poor Infrastructure

As a result of the under-developed trade and logistics infrastructure, the logistics cost of the Indian economy is over 13 per cent of GDP, compared to less than 10 per cent in almost the entire Western Europe and North America.

Lack of good quality infrastructure is costing India 1-2% growth in GDP every year.

Loss due to poor roads & congestion is around Rs 200 billion per annum (2005-06).

Loss due to power shortage is 68 billion dollars of GDP

India's supply chains are built on slow transit networks fed by poor roads, ineffective ports and little distribution infrastructure. In India, there is no such thing as next-day delivery, no transport company to manage nationwide deliveries, and limited distribution channels marketing foreign products to local areas. Logistics infrastructure is severely lagging the country's growth and costs are extremely high.

According to the India infrastructure Report (IIR), currently 5.5 percent of the GDP is invested in the infrastructure (US\$52 billion) by 2005-2006.

The total infrastructure sector needs to be increased to 7 percent within the next three years and 8 per cent by 2005-06.

According to Datamonitor, the logistics industry in India is currently hampered due to poor infrastructure such as roads (over 70 per cent of freight transportation in India is via roads), communication, ports and complex regulatory structures.

Limited physical infrastructure.

Roads & Railways



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

India has one of the largest road networks in the world, yet less than half of the roads are paved . The poor condition of roads translates directly to shorter vehicle lifespan, which increases operating costs and reduces efficiency. Off the highways, firms can only run trucks smaller than 20 feet

National Highways (NH) form only 2 per cent of the entire road network in India, but handle over 40 per cent of the national road freight traffic, putting enormous pressure on the highway infrastructure. Also, on an average a commercial vehicle in India runs at a speed of 20 miles per hour (mph) compared to over 60 mph in the mature logistics markets of Western Europe and the USA.

India is deficient in land-based transport infrastructure, be it roads or railways. A global comparison reveals that the per capital availability of road and railway infrastructure in India is one-third that of a large developing country like Brazil.

Over-burdened ports.

India has a long coastline, but its port system isn't well utilized. Seventy percent of the seaborne trade is handled by 2 of its 12 major ports, while 180 minor ports go virtually unutilized. As a result, turnaround time far lags other global ports with vessels taking up to 3½ days to debark. Even within its large ports, India can't support 6,000 TEU containerships, which make up 25 percent of today's shipping volume. In addition, the twelve major ports of India handle volumes higher than their full capacity, resulting in pre-berthing delays and longer ship turn-around time.

Power

A growing economy needs power, both for domestic and industrial use. India is highly energy-deficient. The power consumed by an average US citizen per day is equal to that consumed by an Indian in more than 20 days and a growing manufacturing industry needs more power to meet its energy needs, provides tremendous growth potential for companies in the power sector.

AIRPORTS

Air travel has made the world shorter, but it's still beyond the reach of most Indians. As the economy grows, the number of people travelling by air will explode, which will require expansion of the existing airports and building new ones. Currently, India has 125 airports in total, of which, 12 are international ones. But there is huge scope for improvement in passenger traffic. Currently, only 71 persons out of every 1,000 individuals travel by air every year in India.



Non-existent warehouse standards.

There is virtually no complex distribution center set-up, no standards for suppliers, and little vendor compliance. Beyond that, firms will find there is little vacant DC space available. Firms entering the country will have to build this infrastructure, which will include supplying their own electricity, running water and road access.

Disorganized trucking operations. Two-thirds of fleets have less than five vehicles, making it difficult for shippers to manage the plethora of carriers required to handle shipment volumes

Comparison of china & India with respect to infrastructure

Two countries that are virtually on every company radar screen at the moment are China and India, but one needs to understand the pluses and minuses of the entire picture before making a decision on where to go to in Asia, be it to start a new manufacturing operation, to enter a joint venture or to sell to a growing domestic market.

In 2003, China received \$53.5 billion in FDI. more than 10 times that of India at \$4.3 billion. In 2004, the disparity was even greater, with China attracting more than \$153 billion in new agreements.

Refer: Table-1 for infrastructural comparison of India & china

Refer: Table-2 for Ranking by world economic Forum's competitiveness on India & china

Steps initiated by India to reduce logistics problems

Quick implementation of infrastructure projects are important for faster growth. Risks limiting the infrastructure projects are recognized, like the long gestation periods, high costs and budget constraints. In order to overcome these limitations the government has proposed a flexible funding scheme, to fund public-private-partnerships for infrastructure projects. For this the government has proposed India Infrastructure Finance Company and formulated a scheme to support public-private-partnerships in infrastructure.

□ Both the private sector as well as the state owned National Thermal Power Corporation (NTPC) are investing funds into building new power plants, both, thermal and hydel, and are ready to enter the arena of nuclear power generation. Along with the enforcement of Electricity Act 2003 there was a revolutionary change in the power sector of the country.



□ The National Highways Authority of India (NHAI) is strengthening and widening national highways in multiple phases as part of the National Highways Development Programme. Moreover the Department of Road Transport and Highways has drafted a national road transport policy to ensure greater participation of the private sector and the rationalization of the motor vehicle tax regime across states with a view to eliminating octroi alongside implementation of VAT.

□ Some other important steps taken in order to provide better infrastructural facilities as shown in the India Infrastructure Report are like Delhi Metro Rail, Bandra–Worli Sea Link in Mumbai, Bangalore Mass Rapid Transit Ltd., Jawaharlal Nehru National Urban Renewal Mission, National Urban Transport Policy, and Maharashtra Water Resource Regulatory Authority.

Steps initiated by companies to manage infrastructural problems

In order to reduce logistics costs and focus on core competencies, Indian companies across verticals are now increasingly seeking and using the services of third-party logistics service providers (3PLs). Realizing the potential in the contract logistics market, 3PL service providers are expanding their basket of services as companies are now looking for more than just transportation of their products and raw materials

Rely more heavily on inventory India's supply chains will not be highly reliable. Shippers accustomed to reliability and speed will have to reset expectations. To reduce the impact of highly-variable transportation, brought about by inadequate logistical infrastructure, firms must adopt proper inventory strategies . Firms will need to stage inventory throughout multiple echelons to reduce the impact of transportation variability and high transportation costs. Reside close to the market. To buffer lead-time variability, firms should set up final distribution within the independent, local markets they plan to serve.

Select a key partner. Today, third-party logistics in India accounts for a quarter of its transport industry, but is expected to grow to over \$125 billion by 2010. Including distribution,



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

the 3PL market is expected to hit \$3.6 billion by 2012. This growth is being fueled, in part, by large investments in automotive and telecom manufacturing. 3PLs like Menlo are not only managing distribution, but many are also offering innovative assembly and manufacturing manpower, as well.

CONCLUSION

The consumer opportunity in India is large, growing and relatively underserved. Companies can and should explore opportunities now, setting up regional strategies and logistics infrastructure now. Existing transportation infrastructure limitations will be a challenge, but low-cost labor will enable inventory-heavy cost-effective networks. Firms should quickly establish relationships with organized retailers, logistics intermediaries and distribution sources, but must effectively plan to manage operations within the country. India needs to go a long way in improving physical infrastructure which could help effective logistics of companies. Though India & China are the two competing economies competing with each other opportunities are more for India as the availability of skilled, English speaking workforce is more, provided the physical infrastructure improves. India is taking all measures to improve Infrastructure to enable the logistics of companies.

While lack of infrastructure is a burden, it's also an opportunity as many private & foreign companies can venture into this sector to take advantage. To take advantage of the Indian market, companies are adopting several steps to manage their logistics like 3PL, better buffer stock of inventory.



ANNEXURE

TABLES 1
Comparison of physical infrastructure & its effects of India & China

	INDIA	CHINA
LOGISTICS	Logistics cost 13% of GDP	9-10% of GDP is logistics cost
INFRASTRUCTURE COST	India invest <4% of GDP infrastructure	Invests 9% of GDP in infrastructure
ROAD NETWORK	Average speed 20 miles per hour	Average speed 50 miles per hour
	<8000 Km express highways	30,000 Km express highways
PORTS	It is <1/7 th of china at 572 Kg (Additional investment of \$ 18 billion by 2012)	The average per capita of cargo handled at Chinese ports is 4,265 Kgs in 2006
POWER	561.3 Kwtt per capita electricity usage	Per capita electricity usage rate is 1,684 Kwtt
	2002 India spent US \$ 18billion on power & transport	China spent US \$ 128 billion
AIRPORTS	71 out of 1000 travel by air	It is 151 for 1000 travel by air



FDI	US \$ 5.5 Billion in India	China received US \$ 60.6 billion - 2004
-----	----------------------------	--

Air Transport Infrastructure

*Resource: World Economic Forum's Global Competitiveness Ranking Report 2006-2007
124-countries Comparison Table: by Runckel & Associates*

	Ranking on Airport density	Ranking on Quality of air transport infrastructure	Ranking on International air transport network	Ranking on number of operating airlines
China	121	89	89	12
India	121	46	34	14



Ground transport infrastructure

Resource:

World Economic Forum's Global Competitiveness Ranking Report 2006-2007

124- countries Comparison Table: by Runckel & Associates

	Ranking on Domestic transport network	Ranking on Railroad infrastructure	Ranking on Road infrastructure	Ranking on port infrastructure
China	64	33	45	55
India	32	21	66	61



LOGISTICS MANAGEMENT – ‘WATER TRANSPORT’ AN IMPERATIVE TOOL

*Aloysius Edward J**

1.1 Introduction

In today's rapidly changing business environment, ever greater demands are being placed on business to provide products and services quicker with greater added value to the correct location and with no relevant inventory position. Customers want more quality, design, innovation, choice, convenience and service, and they want to spend less money, effort, time and risk.

The supply chain of a company consists of different departments, ranging from procurement of materials to customer service. Supply Chain Management means transforming a company's "supply chain" into an optimally efficient, customer-satisfying process, where the effectivity of the whole supply chain is more important than the effectivity of each individual department. Traditionally, marketing, distribution, planning, manufacturing, and the purchasing organizations in the supply chain operated independently. These organizations have their own objectives and these are often conflicting. Marketing's objective of high customer service and maximum sales conflict with manufacturing and distribution goals. Many manufacturing operations are designed to maximize the output and lower costs with little consideration for the impact on inventory levels and distribution capabilities. Purchasing contracts are often negotiated with very little information beyond historical buying patterns. The result of these factors is that there is not a single, integrated plan for the organization---there were as many plans as businesses. Clearly, there is a need for a mechanism through which these different functions can be integrated together. Supply Chain Management (SCM) is a strategy through which such an integration can be achieved. SCM addresses challenges through six service areas:

* Aloysius Edward J, Asst. Professor, Dept. Of Management Studies, Kristu Jayanti College, Bangalore – 560 077; email: Aloysius_edward@rediffmail.com



Supply Chain Strategy

1.2 Logistics

Logistics is one of the major areas of Supply Chain Management. Logistics - Science of managing (controlling) the movement and storage of goods (or people) from acquisition to consumption. Logistics is that part of supply chain which refers to all activities directed at planning, implementing and controlling efficient flow of raw materials, work in progress and finished goods from the point of origin to the point of consumption. Difference between acquisition and consumption is a matter of space and time. The main object of logistics management is to simplify the chain to control total cost, enhance total quality, magnify customer satisfaction and increase profit. It achieves its objects through efficient transport.

1.3 Transportation & its Functions

Effective and efficient transportation is indispensable to economic progress. Mining, manufacturing, trade and banking and agriculture are also necessary, but these activities, like many others, depend upon transportation. If there is no adequate facilities for moving goods and people from place to place, economic and social activities can not be carried on in a big way. Indeed, a more recent study finds out that every one-percentage growth in the Indian economy presumes a growth of 1.2 to 1.4 per cent in the transport sector. Efficient and Reliable transportation provides timely delivery of raw materials & finished goods, saves time and cost, maintains better customer relations and achieves better competitiveness.

1.3.1 Economic Functions of Transportation

Transportation is an economic function, that is to say, it serves along with other productive functions in the production of goods and services in the economy.

Creation of Utility Production has been defined as the creation of utility, i.e., the quality of usefulness. Transportation creates the utility of place, and to a lesser degree, that of time.



As a cost of production. Since transportation is a part of production, an increase in its efficiency helps in reducing the cost of producing goods and thus reduces their prices.

Cheaper transportation has both direct and indirect effects on cost of production. Directly, reduction in transport rates lead to overall lower production costs by lessening the outlays for assembling raw materials and shipping finished products by reducing the expense of travel.

Indirectly, cheaper transportation tends towards lower cost of production by making possible more efficient extraction and manufacturing, through promoting the division of labour and large-scale production.

Specialization and division of labour. Transportation enables society to enjoy advantages of specializations of resources, and the benefits of labour by making it possible for products to be brought from great distance, thus avoiding the necessity for local production for all conceivable commodities of need. Each economic region can thus concentrate upon the goods and services for which it is best adapted either through natural resources endowment or through historical development. It, thus, leads to a better economic use of available resources.

Large-scale marketing. Transportation helps to expand the size of market. No modern large-scale producer could operate if he will have to serve only the local market. Obviously, a large-scale production is possible when the market extends to the whole nation and in a few cases to the whole world.

Consumption of wealth. Transportation is also related to consumption of wealth. It increases the quality and variety of consumable goods, thereby stimulating wants. There is more production because of the decrease in the cost of production brought about by transportation. A greater variety occurs because transportation enables a community to enjoy even those goods that could not be produced in the immediate vicinity.

1.3.2 Social and Political Functions of Transportation

- Transportation performs many social and political functions.
- Transportation raises the standard of living, making possible improved housing, clothing, food and recreation.



- It helps to break the barrier of isolation by promoting social interaction and thus promotes culture and intelligence, specially in a country of the size and population of India.
- It promotes national unity that is homogeneity among the people. Another reason is that it creates a need for political unity, by making the different parts of the country economically interdependent.
- It helps in the strengthening of national defence. It is an important agency which helps in the mobilization of the entire resources of a country in the event of war and peace.
- In modern world, transport along with energy is the basic infrastructural requirement for industrialization. The developing countries have accorded it an important place in their programmes of economic development.
- Transport provides a vital link between production centres, distribution areas and the ultimate consumers. It also exercises a unifying and integrating influence upon the economy. Important means of transport are railways, roads, water transport (both inland and overseas) and air transport.

1.4 Shipping

Shipping is a cyclical business and is affected by ship-manufacturing activity around the world. When demand for tonnage increases, new ships are ordered. Following the current surge in demand, order bookings for new ships are at an all time high. Other interesting trends in the sector include increasing ship sizes, the integration of shipping lines and port operators, efforts towards horizontal integration/alliances, etc. These trends have increased the bargaining power of shipping lines vis-à-vis other players in the value chain. The Indian shipping industry has also been increasing its capacity. Many players have developed expansion strategies and are planning to raise capital through the market to finance the same. As global competition increases, the Indian shipping industry will have to upgrade its fleet to improve its efficiency and become competitive.



With the development of newer technologies in shipping that could result in safer and less expensive sea transport, the shipping sector is well placed to sustain its advantages by appropriate leveraging of such technologies.

As a result of business cycles, long lead times in shipbuilding, global monetary dealings and competitions, the industry is subject to price volatility. Incorrect decisions could make a company go under risk management which calls for special managerial attention.

Internationally, most shipping is in the private sector. (In India, 45% is in the private sector). Management by owners is still a common practice for decisions of significance. The owner involvement is a natural outcome of the tremendous entrepreneurship. This industry calls for private stake holding, consolidation and sustained healthy growth which often demands professional management beyond what is available in owner managers. This raises the challenge of developing good strategically oriented professional managers for the industry.

The impact of canals and ports on economic and commercial development around the world is unsurpassed. Passageways between bodies of water connect continents and create efficient interstate portals for cargo ships. Canals and ports harness the capacity of water to carry extra large, bulky cargo, spurring economic growth, agricultural development, commerce and trade in all nations. Key interfacing infrastructure is poor in many countries and more so in developing ones. In a country like India, the cost of delays to ships at ports wipes out the entire foreign exchange earnings of their shipping industry. Such delays account for nearly 30% of the average freight cost of trade, thus putting the country at a major competitive disadvantage. This poses a variety of challenges to the shipping industry, both in terms of logistics management and infrastructure management.

1.5 Water Transport

Water Transport is the process of moving goods, people, etc. by barge, ship, boat over sea, ocean, lake and river. It is often undertaken for the purpose of mercantile, recreation and military purposes. In water-based transport generally, fuel costs are low and environmental pollution is lower than in transport by road, rail, or air. The waterway



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

is naturally available, which has to be 'trained', maintained, and upgraded. Water-based transport is especially effective when the source and destination are waterfront locations.

Water Transport

Handles large volume.

Connects all over the world

Provides Safe and secure method of transportation and it is cheaper i.e. cost of development of 100 kms of waterways is cheaper than 1km of highway

1.6 Water Transport in India

India has one of the greatest peninsula in the world, with Bay of Bengal, Indian Ocean and Arabian Sea surrounding it respectively in the east, south and west. India has 12 major ports and 185 minor and intermediate ports along the country's coastline. The total length of India's coastline is approximately 7600 km. There are also 7 shipyards under the control of the Central Government of India, 2 shipyards controlled by state governments and 19 privately owned shipyards. The major ports handled 423.4 million of tons of cargo for the financial year 2005-2006 with Vishakhapatnam, Kolkata Port, Chennai Port and Kandla carrying the greatest tonnage. Major ports can collectively handle 450+ millions of tons of cargo annually and port operations have improved since the mid 1990's. There were 102 shipping companies operating in India in 2000. Of which five were privately owned and based in India and one was owned by the government (Shipping Corporation of India). Kerala State in southern peninsular India is a land of backwaters, 44 rivers and a beautiful coastal line. It has around 580 sq.kms of inland waterways from north to south. Yet its water transport system is underdeveloped though it is cost effective. But in the past it was the main source of travel and goods transport.

1.7 Inland Waterways Transport (IWT)

Inland Water Transport (IWT) is an economic, fuel efficient and environment friendly mode of transport having potential to supplement the over burdened rail mode and congested road mode of transport. Waterways provide port hinterland connectivity to the remote areas along them.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Transport based on inland waterways (or inland water transport, IWT)—rivers, canals, lakes, etc. and also overlapping coastal shipping in tidal rivers—constitutes 20% of the transport sector in Germany and 32% in Bangladesh. In India it has a paltry share of (0.15%). It has received large funding in both the ninth and tenth five-year plans but has not been able to utilize it. It continues to be a significant focus area for investments, such as a Rs 300 crore investment planned by the Asian Development Bank (ADB). It is an important component of the National Maritime Development Project (NMDP).

Three major waterways have been designated as National Waterways:

the Ganga-Bhagirathi-Hooghly system, from Allahabad to Haldia, NW-1; the Brahmaputra system in Assam, NW-2; and the west coast canal system in Kerala, NW-3. Commercially, the small tidal river system in Goa, comprising the Zuari and Mandovi rivers and the Cumbarjua Canal is the most important. River inlets along the coast, especially near ports, and some canal systems as part of larger water resource development projects also appear viable as part of IWT. The river interlinking project in the country, if it comes about, opens up further possibilities.

1.7.1 Passenger Movement

IWT-based passenger movement is mainly by ferry across rivers, on short stretches along rivers, and tourism-based passenger traffic (in Goa, Kerala, Sunderbans, and northern regions).

Among factors that affect passenger movement are the following:

Travel Time. With construction of bridges, travel time by land is generally reducing. Faster ferries and launches can make IWT competitive.

Cost. The total cost of ferry plus subsequent mode of transport needs to be taken into account in planning.

Interchange Convenience. Waterway transport should be able to move seamlessly to other modes, e.g. bus and train. A study in the Kochi metro area, which suggests that IWT cannot be ignored in the future growth of the city. Inland waterways provide a convenient function in related activities, such as carriage of vehicles, tourism, and water sports.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Carriage of Vehicles (preferably in roll-on-roll-off mode). West Bengal, Kerala, and Goa have significant number of these ferry services, but a great potential exists, with faster boats, proper landing facilities, and interchange with other modes.

Tourism, Including Stay and Entertainment. In Kerala, Alapuzha, and to a smaller extent Kozhikode, are centers of this activity, especially for houseboats. Boats that provide music and dining are flourishing in Mumbai, Goa, and Kochi. River cruises, scheduled and chartered, are also available .

Water Sports. This new sector has possibilities in north and east Indian rivers. White water rafting and trekking on iced mountain stretches of rivers are examples.

1.7.2 Cargo Movement

Movement of commodities like tea, jute, and spices in the eastern sector, connected to the river port in Kolkata, was among the early commercial drivers of preindependence India. Logistical convenience of river transport, which used to be a determining factor in the location of industrial activity, may be less so today, though access to water for processing and in some cases effluent treatment is still a consideration in location.

Growth in this sector has been sluggish, with the outstanding exception of the tidal river-canal system in Goa, where the Mandovi-Zuari- Cumbarjua system moved some 30 million tons of iron ore in 2003- 04.

IWT-based cargo movement becomes viable if technological and physical viability and commercial potential exists and operating policies of carriers and associated agencies are conducive. Some factors that affect operational economics are the availability of right-of-way (waterway); carriers (navigational vessels); terminal facilities (jetties and ports), and managerial and supporting infrastructure systems.

1.7.3. Technological and Physical Viability

Water Flow. In the main waterways, water flow may have decreased over the years because of increased drawing on water arising from habitation and industrial and agricultural needs. Damming may also have brought down the extent of regular flow.

Locks. Where the physical drop of the river channel is excessive locks have to be provided to manage the height differential.



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA

Access of Cargo. The cargo has to be accessible to both ends, to ensure door-to-door movement.

Availability of Vessels and Associated Infrastructure. Private operators have a substantial fleet but have of late been scrapping vessels. Governmental help may be required to encourage them to invest in fleet maintenance and growth. The role of government-owned shipyards is important in this domain, including the Rajabagan Dock Yard in Kolkata owned and operated by the Central Inland Water Transport Corporation (CIWTC). CIWTC can provide repair facilities for other operators in the area as well. There is also a well-established industry of manufacture, maintenance, and repair of barges in Goa, some of which are operated by mining companies.

1.7.4 Operational Viability

Cost. IWT is a capital-intensive industry. Significant investment is required in vessels. Providing and maintaining the waterway and terminals requires even higher investment. Operating costs can involve vehicle costs, fuel costs, crew costs, maintenance costs, and loading/unloading costs. Contingency costs include running aground and damage to vessels.

Systems Perspective. It proposes a model for identifying the range of viable operations from the point of view of (i) the competitive fare provided by other modes, (ii) the size of barge and therefore the operating cost, (iii) the desired throughput, and (iv) the total cost to the customer.

Fleet Planning. Barge operations rely on economies of scale. Larger barges require larger water depth, have lower operating costs but higher inventory staging costs. They may also have operating restrictions. Small barges, on the other hand, may congest traffic. A range of sizes offer a better choice.

Scheduling. Scheduled runs have the systemic advantage of more certainty for customers, routine vehicle deployment, and control of operational costs. Chartering provides for more responsiveness and can reduce non remunerative runs.

1.7.5 Environmental Impact

The increased drawing of water for drinking, irrigation, construction, and other activity reduces the overall flow of water in downstream regions and makes transport operations difficult. Dams also hamper smooth transport. But where IWT is physically possible and commercially viable as part of a supply chain for a shipper, it is usually the most appealing environment



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA
friendly with its low fuel consumption and ability to carry in bulk, thereby reducing handling-related pollution and congestion.

1.7.6 Should Government Invest in IWT?

Given a sector turnover of about Rs 110 crore annually, the sector investment of Rs 308 crore (Rs 1701 crore proposed) in the Ninth Plan, and in the Tenth Plan of Rs 5665 crore (proposed) does not make commercial or economic sense. Existence of a driving cargo stream of sufficient volume is required to justify large investments. Natural draft of at least 2 m should be available for operations of craft of viable size.

Passenger movements are possible at low cost, but would need faster vessels and good interchange facilities. Launches carrying road vehicles may be a viable and cost-effective proposition in some parts of the country.

Tourism and related activities offer good potential with appropriate local investments and operational control, wherever relevant.

Technical capability and vessel supply are available in the country and a unified and liberalized policy with regard to IWT and coastal shipping will benefit the sector.

Government should invest in a measured manner, given the considerations of a possible primary driving cargo and specific geographic potential. A tie-up with the industrial location policy to drive demand would be essential.

Where Should Government Invest?

Investment based on integrated water use for irrigation, drinking and industry, and for controlled flow.

Investment due to strategic importance as an alternate route for bulk movements

Tourism-related investment

New canal systems (e.g. Narmada canal)

River linking projects, if pursued by government, should explicitly provide for IWT.

Freight carriage by IWT has succeeded where an interface exists with ports and the larger marine supply chain. A further opportunity exists if there are vessels capable of inland as well as coastal operations or there is a good interface between these two sectors. Tidal river systems are



National Seminar on Logistics & Supply Chain Management, IASMS, BANGALORE, INDIA
especially attractive because their draft availability is generally good and there is no competing demand for their saline water.

Possible driving cargo for the future depends on Bulk for export or import through ports (Mormugao, Kochi, Haldia, Kolkata), Coal to and fly-ash from thermal power plants, Construction material for the North East (dams and other large projects) and Agricultural exports.

1.8 CONCLUSION

Over 90% of the world's international trade volume and over 80% by value is transported by sea. Shipping freight costs account for between 5 and 10 percent of the commodity value. Some developing countries often pay 25-30 percent of their annual foreign exchange earnings on transportation for their imports and exports. Inefficient port operations, cargo handling, and land bridge operations tie up ships far longer than needed resulting in improper asset utilization. Concerns for quality of service, safety and the natural environment are more imperative than ever before. This calls for better management systems for coordination and planning, human resources development and use of information technology. Similarly, fluctuating foreign exchange rates and a cyclical nature of the business call for better risk management, asset management, and financial systems.

Water based transport has always been the dominant mode of transport supporting economic activity, from the early days of civilization. It continues to be the same today and will be so in the known future. Compared to other modes of transport available today, water based transport is at least four times cheaper and more environment friendly.

With increasing globalization in the world over, more international trade is in the offing. With an increased emphasis on value addition by exporting nations, especially the developing ones, manufactured goods are likely to replace raw materials for sea transport. Further, countries like India where there are long unexploited coastlines and congested land transport, coastal sea transport is likely to substitute land transport.

