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GLOBAL INTEGRATION OF SUPPLY CHAINS IN TEXTILES/APPAREL INDUSTRY

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Begin with the name of ALMIGHTY ALLAH, The Most Merciful and The Most Beneficent, whose unmerited favor and blessing have helped to accomplish this uphill task.

Author firmly believes that carrying out a project of University of Nottingham is an arduous job, and it could not be accomplished without the help of great many people. The most closely involved with the project and for whom author hold the greatest admirations include Prof. Christopher O'Brien, the project supervisor, whose instill ideas where chaos could reign was instrumental in helping us create this project. Mr. Ahmed Adeel Zia, Assistant Manager in one of the renowned textile company of Pakistan, whose endeavors in making the project more practical and realistic.

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ABSTRACT

Supply chain management is 'important'. It basically deals with the interconnection of an organization between the different processes that produce value in the form of products and services to the ultimate consumer. The final customer has the only 'real' currency in the supply chain (Nigel S, Stuart C, Robert J; 2001). It has been established that effective supply chain management enables good and services to be produced more efficiently.

This project is aimed to investigate the integration of the whole supply chain of textile/clothing industry from textile dyeing/printing industry to retail via clothing manufacturing (stitching) and buying and distribution agents. It covers the problems associated with the integration of all the partners and also endow with the proposal for improvements.

By integration author means all the supply chain partners even with the different names and ownership work as a single entity for a specific product range to increase overall efficiency.

This research focuses on the integration of the Global supply chain network. Companies need to be exceptionally global after the liberation of quotas. To get prepare for such a situation, the key steps involve collaboration and integration of the whole supply chain with always open option of switching allover the world.

When we think about textile industry in the global context, it is shown that the globalization is not a new concept in textile industry. The major retailers in clothing industry are from USA, Europe and Australia while the major textile manufacturer belong to developing countries like India, China, Turkey, Pakistan, Indonesia, Philippines, Bangladesh, Mexico etc. so, the network is already present. To integrate the whole supply chain, there are two strategies present. One is vertically integrated and the other is horizontally integrated. So, the research will deal with the comparison of both strategies.

The textile manufacturing industry specially clothing is one of the key sector deals with the critical supply chain. Clothing markets are moving toward more fashionable items (Pashigian, 1988; Standard & Poor's, 1998) as economic trends are prosperous and consumers' demand diversifies. This change requires more product variety, generating demand uncertainty that is closely related to fassionability and seasonality of the apparel product. Uncertain demand leads to many managerial problems for the apparel company, such as production planning, forecasting, inventory management, production system, and timely distribution. To reduce the risk level due to demand uncertainty, the supply chain in the Clothing industry, from raw materials to final customers, should undergo innovative and revolutionary changes that have successfully occurred in other industries.

Last part of the report comprises of the proposal regarding the improvement of integrated networks. It deals with the comparison of vertical integrated and vertically disintegrated companies based on the examples from big clothing retailers of the world. It would give some useful data regarding big retailers based on cased studies and the information from companies' websites. One could have a good understanding of the whole supply chain of textile/clothing industry, when go through this project, and can recognize the problem associated with it. It is aimed to deliver the future scenario of this industry with the reference of quota liberation as well.

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CHAPTER 01

INTRODUCTION

1. INTRODUCTION

Supply chain management is 'important'. It basically deals with the interconnection of an organization between the different processes that produce value in the form of products and services to the ultimate consumer. The final customer has the only 'real' currency in the supply chain (Nigel S, Stuart C, Robert J; 2001). It has been established that effective supply chain management enables good and services to be produced more efficiently.

One of the most significant paradigm shifts of modern business management is that individual businesses no longer compete as solely autonomous entities, but rather as supply chains (Lambert, D M, Cooper M C; 2001). Business management has entered the era of internetwork competition. Instead of brand versus brand or store versus store, it is now suppliers—brand—store versus suppliers—brand—store, or supply chain versus supply chain. In this new competitive environment, the definitive triumph of the single business will depend on ability of the management to integrate the elaborate network of business relationships of the company. Managing supply chains in today's competitive world is increasingly challenging. The greater the uncertainties in supply and demand, globalization of the market, shorter and shorter product and technology life cycles, and the increased use of manufacturing, distribution and logistics partners resulting in complex international supply network relationships, have led to higher exposure to risks in the supply chain (Christopher M, Lee

H L; 2001). Further, it is essential to understand the risks your company bears versus your suppliers and customers. The supply chain is not necessarily a win/win environment.

If we talk in a global context, almost every supply chain is international to some degree. There are always materials, components or services originating in another country that enter into the final product of the supply chain. Globalization is one of the major trends in manufacturing nowadays – Globalization of markets and globalization of partners (http://www.mel.nist.gov/proj/mi.htm). Globalization refers to an evolving pattern of cross-border activities of firms involving international investment, trade and cooperation for purposes of product development, production and sourcing, and marketing. In recent years, many developed countries have started to move their funds and technology-intensive manufacturing industries into developing countries to achieve more profits (Zhang Yansheng, a famous Chinese economist cited at www.lianghui.org.cn/english/investment). The global concept of the supply chain, however, is more than incidental. It deliberately recognizes the necessity to supply markets in multiple national markets, perhaps using overseas production. Schary & Skjott-Larsen (2001) argued that the global network is an extension of the domestic supply chain. It is more complex, faces a diverse set of environmental conditions and is inherently more difficult to understand and manage.

Lan Y, Unhelkar B (2006) argued that to become highly responsive and competitive in today's market, Integrated Supply Chain Management (ISCM) is a step forward. ISCM involves the linking of suppliers and customers with the internal supply processes of an organization. Internal processes would include both vertically integrated functional areas, such as materials, sales and marketing, manufacturing, inventory and warehousing, distribution, and, perhaps, other independent companies

involved in the supply chain (i.e., channel integration).Customers at one end of the process can potentially be a supplier downstream in the next process, ultimately supplying to the end user.

The textile manufacturing industry specially clothing is one of the key sector deals with the critical supply chain. Clothing markets are moving toward more fashionable items as economic trends are prosperous and consumers' demand diversifies. This change requires more product variety, generating demand uncertainty that is closely related to fissionability and seasonality of the apparel product. Uncertain demand leads to many managerial problems for the apparel company, such as production planning, forecasting, inventory management, production system, and timely distribution. To reduce the risk level due to demand uncertainty, the supply chain in the Clothing industry, from raw materials to final customers, should undergo innovative and revolutionary changes that have successfully occurred in other industries.

The aim of this project is to investigate the integration the whole supply chain of apparel industry from textile dyeing/printing industry to retail via apparel manufacturing (stitching) and buying and distribution agents. It identifies how best to achieve the integration of the whole supply chain and discusses the different approaches and problems associated with the path to such an integrated system.

By integration I mean all the supply chain partners even with the different names and ownership work as a single entity for a specific product range to increase overall efficiency.

The structure of this dissertation is as follows

1. Integrated supply chain: A Review
2. Textile/clothing Industry: A Review
3. Supply chain in Textile/Clothing Industry
4. Development towards the Integration of Textile/Clothing Supply chain
5. Examples of Integrated System
6. Proposal for improving Integration
7. Conclusion

CHAPTER 02

INTEGRATED SUPPLY CHAIN MANAGEMENT

A REVIEW

2. INTEGRATED SUPPLY CHAIN MANAGEMENT: A REVIEW

The term "supply chain" is used to describe the flow of goods from the very first process encountered in the production of a product right through to the final sale to the end consumer. Lam J, Postle R (2006) stated that it involves all the activities involved in delivering a product from raw material through to the customer including sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, distribution across all channels, delivery to the customer and the information systems necessary to monitor all of these activities.

As cited by Bruce M, Daly L (2004), Harland (1997) suggests that the term supply chain management can be used to describe a number of concepts – the processes inside a manufacturing organization; purchasing and supply management occurring within dyadic relationships; the total chain; and finally a total firm network. It is suggested that the emphasis of supply chain management has changed in the past two decades. It is argued that in today's markets competition is no longer based on a company versus company model, but instead is supply chain versus supply chain (Bruce M, Daly L, 1997). Nowadays, one of the few outcomes in the constantly changing business world is that organizations can no longer compete solely as individual entities. Increasingly, they must rely on effective supply chains, or networks, to successfully compete in the global market and networked economy. Bowersox (1996) suggest that in order to see success, companies need to achieve integration external to the company, with customers and suppliers. Throughout the literature, it is suggested that building partnerships with suppliers is considered to be a means by which to achieve best performance within the supply chain and that co-operation and collaboration in the supply chain are crucial to the success of the company. Supply chain has two perspectives i.e.; the internal

supply chain, the conversion process between departments, and the external supply chain, i.e. the relationships with customers and suppliers. Peter Drucker's (1998) management's new paradigms, this concept of business relationships extends beyond traditional enterprise boundaries and seeks to organize entire business processes throughout a value chain of multiple companies.

As the competition throughout the world is increasing due to market globalization, product diversity and technological breakthroughs, independent firms need to collaborate in a supply chain so that they can gain mutual benefits (Simatupang T, Wright A, Sridharan R; 2002). There is a requirement of collective know-how of each other, as well as the ability to synchronize interdependent processes, to integrate information systems and to cope with distributed learning.

Integrated supply chain management (ISCM) is a proven business strategy that has gained wide acceptance in recent years due to changing demand of customer in quality, delivery, and speed. New and efficient ways of communicating, attached with cost reduction and more interdependent supplier, provider, and customer relationships, have emerged the importance of an integrated supply chain approach (University of Tennessee and the Defense Logistics Agency, A Concept Paper, 2002).

Supply chains can be possible in both manufacturing and service organizations, and they are principally concerned with the flow of products and information between supply chain partners i.e. supply chain member organizations—procurement of materials, transformation of materials into finished products, and distribution of those products to end customers. Integrated supply chains, in current information driven world, are enabling organizations to reduce inventory and costs, add product value, extend resources, accelerate time to market, and retain customers (University of Tennessee and the Defense Logistics Agency, A Concept Paper, 2002).

ISCM involves the linking of suppliers and customers with the internal business processes of an organization. ISCM solutions allow organizations to automate workflows concerning the execution and analysis of planning, sourcing, making, delivering, returns handling, and maintenance, to name but a few. Lan Y, Unhelkar B (2006) argues that many of today's ISCM systems use primarily Web technology as the supporting infrastructure. Undoubtedly, the electronic (Internet-based) ISCM systems deliver the enterprises with a competitive advantage by opening up opportunities to streamline processes, reduce costs, increase customer patronage, and enable thorough planning abilities . However, there has been significant customer backlash concerning the inability of software vendors to deliver easy integration and promised functionality.

2.1 WHY INTEGRATION IS GETTING SO IMPORTANT

Literature review in the field of supply chain and management shows that the awareness of the importance of Supply chain thinking is based on a realization that traditional approaches to the needs of global market places are not going to be good enough. These changing customer expectations are forcing a re-appraisal of basic technological approaches in manufacturing and organizational principles. Today's consumers are increasingly sophisticated, educated, confident, and informed. They have high expectation from the product they receive (Cook S, 2002). The overall expectations of the customers are now being changed regarding Quality, responsiveness, product ranges and so on. In this project first we are going to overview few of the main expectation arising from customers that demands strengthening of the supply chain and better performance (Macbeth D, Ferguson N, 1994). Now customer wants Smaller, Faster, Cheaper, Immediate Response, Available 24/7, Convenient, Portable, User Friendly, Customizable, Personalized, Mass Customization, and so on.

2.1.1 Quality and Reliability

Quality is a moving target and what was once regarded as adequate soon becomes inferior as competitive products overtake it in the quality stakes. This is not simply a customer perception issue, important as that is. Increasing technological complexity in products, especially those integrating different materials and sub-systems, requires very high absolute levels of quality. This is demonstrated by the progression in quality measurement scales from percentages to parts per million to parts per billion.

Such perfection might be seen as unreasonable but can be argued for from two points. Firstly, if we consider not the correct results but the potential errors and their effect we realize very quickly that perfection is not only good to have, it is actually essential. For example, at even 200 parts per million (i.e. 99.998 per cent) levels of quality this would imply. As mentioned by Macbeth D, Ferguson N (1994), for American data:

380 newborn babies each year dropped by doctor;

320 lost pieces of mail per hour;

400 incorrect drug prescriptions each year;

100 incorrect surgical operations performed each week;

440 cheques deducted from the wrong account each hour;

Your heart fails to beat almost twice per day!

The second viewpoint is that quality levels can provide order-winning criteria as long as your competitors cannot match them. Any company that complacently accepts current quality standards in the market runs the very real risk that a competitor will capture some of their market with a better

quality offering. One particular aspect of Quality is Reliability which puts a duration on the length of time a product or service is expected to satisfactorily provide the desired function to the customer.

Both Quality and Reliability can be difficult to define in the absence of detailed specifications from customers. This is not always forthcoming since customer can take a view 'I don't know what I want, but I'll recognize it when I see it'.

2.1.2 More choice in existing product ranges

As customer become more discriminating they tend to expect to be able to influence producers either directly or indirectly to provide more 'perfect' fit between their needs and wants and the company's provision. An increasing variety of product offerings is difficult for manufacturers to manage, but it is well recognized that the costs of finding new customers are at least ten times greater than the costs expended in retaining existing ones. Advanced companies go to great efforts to keep in touch with their customer base to track how their needs are changing and to predict future requirements. This is not just impersonal market research; it is in fact a different view of the supply chain where the links with customers are continuing to the mutual satisfaction of customer and supplier.

2.1.3 More customization

Both of the above approaches provide increased variety of product offering in a slightly impersonal way. That is to say that while the product definitions are supposed to take customer need into account, the actual purchaser of the finished item is not known in advance and is not directly involved in specifying the precise nature of the finished product. Customization addresses this issue in that it explicitly welcomes customer input and modifies product design as appropriate. Having customers in direct contact with the manufacturing system changes the nature of the business in a

whole range of ways. The extent of customization, over what timescales, become strategic decisions and as we shall see later, the balance between the demand lead times allowed by customers and extended time to design, procure, manufacture and deliver can more or less determine the degree of commercial risk a company is exposed to.

Getting close to customers and reacting positively to their needs is one of the underlying principles of partnership sourcing and so we should welcome such moves and organize accordingly.

2.1.4 Faster satisfaction of need

While not every market requires speedy response it is another of those areas where all other things being equal it is possible to create a differentiation in customers' minds if more rapid response is possible. There are many possible time wastes in total lead time and elimination of these is triply beneficial. Increased customer satisfaction and reduced supply investment risk are local benefits while at the same time life is made more difficult for the competition. Speed is also important in that new innovations can be incorporated more quickly thus maintaining a technological lead.

2.1.5 Freedom to change late in the order cycle

A further flexibility niche to have is the ability to vary the detailed product specification late into the product manufacturing lead time. This can only be possible in products where the final order is for a particular configuration of components, sub-assemblies, software etc. as an integrated package. Radical re-design will not be possible within the order cycle lead time.

2.1.6 Increasing levels of customer service

The final area of change expectation recognizes that often customers are buying not merely a product but in fact a whole mix of product and service. In some cases the after-sales support and

the continuing maintenance activity is already expected and valued. Obviously too, a company offering to customize a product must necessarily become closely involved in understanding the details of a customer's requirements and translating them into the unique product. Due to increase in the expectation of customers, companies need to be highly responsive and cost effective nowadays. To achieve these two important targets, they have to have integrated supply chain that can eliminate wastes in all sorts of business transactions to become competitive globally.

The outcome of this chapter is the understanding of emerging business needs and supply chain integration. After reading this chapter it is assumed the reader would be able to have a fair idea of the overall expectation of customers which is changing globally due to awareness regarding the needs and wants and the swift spread of advanced technology all over the world. These changes urge companies to get integrated or linked all the supply chain partners to meet emerging business requirements.

To analyze the integrated system in textiles, firstly we go through the overview of textile/Apparel industry and its existing supply chain. The next section would deal with the general overview of the textile and apparel industry.

CHAPTER 03

TEXTILE/CLOTHING INDUSTRY

A REVIEW

3. TEXTILE/CLOTHING INDUSTRY: A REVIEW

The textiles and clothing industry is highly diverse and heterogeneous. As cited by Bruce M, Daly L, Towers N (2004), Jones (2002) argues that the definition of what precisely constitutes textiles and apparel is a matter of debate and, in its broadest sense, the sector spans chemical conglomerates producing dyes, detergents and artificial fibers, to healthcare companies producing heart valves, prosthetics, bandages, etc., to niche design driven fashion companies. Textiles and clothing are closely related both technologically and in terms of trade policy. Nordås H. K (2004) argues that the textiles provide the major input to the clothing industry, creating vertical linkages between the two. He mentioned that International trade in the two sectors is regulated by the Agreement on Textiles and Clothing (ATC) at the multilateral level, while bilateral and regional trade agreements typically link the two sectors through rules of origin accompanying preferential market access. At the micro level, the two sectors are increasingly integrated through vertical supply chains that also involve the distribution and sales activities.

According to the Standard Industrial Classification (www.wa.gov), apparel has nine separate apparel and other finished products sub sectors and 31 market segments defined by broad product categories.

- Men's and boys' suits, coats, and overcoats (SIC 231);
- Men's and boys' furnishings, work clothing, and allied garments (SIC 232)—including shirts, underwear and nightwear, neckwear, trousers and pants, and work clothing;
- Women's, misses' and juniors' outerwear (SIC 233)—including blouses and shires, dresses, suits, skirts, and coats;

- Women's, misses', children's, and infants' undergarments (SIC 234)—including underwear and nightwear, brassieres, girdles and allied garments;
- Hats, caps, and millinery (SIC 235);
- Women's, misses' children's, and infants' outerwear (SIC 236)—including dresses, blouses, and shirts;
- Fur goods (SIC 237);
- Miscellaneous apparel and accessories (SIC 238)—including dress and work gloves, robes and dressing gowns, waterproof outerwear, leather and sheep clothing, apparel belts, suspenders, garters, handkerchiefs, and other apparel; and
- Miscellaneous fabricated textile products (SIC 239)—including curtains and draperies, house furnishings, textile bags, canvas and related products, pleating and decorative stitching, automotive trimmings, Schiffli machine embroideries, and other fabricated textile products.

In the UK, all of the major retailers are in the textiles and apparel business and their buying power is able to "make or break" the success of particularly smaller suppliers, such as a young fashion design company (Bruce M, Daly L, Towers N; 2004). Retailers source globally for their textiles and apparel products to acquire these cost benefits and in time to meet their fast moving and demanding consumer needs. The trend for offshore sourcing has led inevitably to a decline within employment in industrialized nations for textiles and apparel. However, global sourcing does not always suffice to meet retailers' demands, particularly if they need to replenish a well selling stock mid-season, and so local suppliers are used in tandem with those offshore. Bruce M, Daly L, Towers N (2004) argue that managing the logistics and supply chain for textiles and apparel suppliers and retailers has to be

synchronized and is driven by the exigencies of the dynamic patterns of demand, especially for fashion items.

3.1 GLOBAL PICTURE OF THE INDUSTRY

The retail sector in the developed economies is undergoing a major restructuring. Global retailing is dominated by large organizations that are developing greater specialization by product (the rise of specialized stores selling only one item, such as clothes, shoes or office supplies) and price (the growth of high-volume, low-cost discount chains).

Furthermore, keeping the distribution pipeline filled means these retailers are developing strong ties with global suppliers, particularly in low-cost countries. Nowhere are these changes more visible than in apparel.

3.1.1 United States

Between 1987 and 1991, the five largest soft goods chains in the United States increased their share of the national apparel market from 35 to 45 per cent. By 1995 the five largest retailers, Wal-Mart, Sears, Kmart, Dayton Hudson Corporation and JC Penney, accounted for 68 per cent of all apparel sales (Gereffi G, 2001). The next top 24 retailers, all billion-dollar corporations, represented an additional 30 per cent of these sales. Thus, the 29 biggest retailers made up 98 per cent of all United States' apparel sales. The two top discount giants, Wal-Mart and Kmart, control one quarter of all apparel (by unit volume, not value) sold in the United States (Gereffi G, 2003). Although the degree of market power that is concentrated in large United States' retailers may be extreme; a similar shift from manufacturers to retailers and marketers appears to be under way in other developed countries.

They set fashion trends and shape styles. They have the power to set apparel prices for both consumers and clothing manufacturers (Lee E, Lee K Moore M; 2004).

3.1.2 Europe

Retailing across the EU has been marked by substantial concentration in the 1990s. In Germany, the five largest clothing retailers (C&A, Quelle, Metro/Kaufhof, Kardstadt and Otto) in 1992 accounted for 28 per cent of its economy, and the United Kingdom's two top clothing retailers (Marks & Spencer and the Burton Group) controlled over 25 per cent of the market in 1994 (Gereffi, 2003). M&S have over 400 stores located throughout the UK, providing nearly 12.5 million square feet of selling space. This includes their largest store at Marble Arch, London, which has around 170,000 square feet of sales floor. Outside London, the next biggest store is then located in Warrington, at Gemini Retail Park. In addition they have a growing international business, with 192 stores managed under franchise in 30 territories mostly in Europe, the Middle East, Asia and the Far East, and wholly-owned stores in the Republic of Ireland and Hong Kong.

Marks & Spencer, which had an 11 per cent share of the United Kingdom clothing market in 2001, planned to source more than 70 per cent of its apparel from lower-cost countries by 2002 (Gereffi, 2003). In both France and Italy, the role of independent retailers has declined since the mid-1980s, while the share of specialized chains, franchise networks and hypermarkets is rising rapidly.

3.1.3 Japan

In Japan, cost-conscious consumers have contributed to a decline in the leading role played by high-fashion department stores such as Seibu and Isetan. New specialty apparel retailers offering lower prices have proliferated, and many now offer Chinese apparel, which accounted for over 75 per cent of apparel imports into Japan in 2000 (Gereffi, 2003).

3.2 GLOBAL SOURCING IN APPAREL

The sourcing decisions of lead firms in the supply chain, whether retailers or manufacturers, depend on the mix of production costs, lead time, transport costs and the costs of entering and monitoring contracts with the suppliers (Nordås H, 2005). The relative importance of these factors differs between market segments. In the most time-sensitive fashion markets, lead time is vital, while in the mass market for standard garments production costs are most important, though lead time has also gained prominence in this market.

Table 1: Leading Exporters of Textiles and Clothing, 1990-2002

Exporters	2002	2002 / 1990	Exporters	2002	2002 / 1990
Textiles		Percentage point changes in world share	**Clothing**		Percentage point changes in world share
EU (15)	34.2%	-14.5%	EU (15)	25.1%	-12.6%
extra-EU	*15.2%*	*0.7%*	*extra-EU*	*8.3%*	*-2.2%*
China	13.5%	6.6%	China	20.6%	11.6%
Hong Kong, China	0.6%	-1.5%	Hong Kong, China	4.1%	-4.4%
United States	7.0%	2.2%	Turkey	4.0%	0.9%
Korea	7.0%	1.2%	Mexico	3.9%	3.3%
Chinese Taipei	6.3%	0.4%	United States	3.0%	0.6%
Japan	4.0%	-1.6%	India	2.8%	0.5%
India	3.7%	1.6%	Bangladesh	2.1%	1.5%
Pakistan	3.1%	0.5%	Indonesia	2.0%	0.4%
Turkey	2.8%	1.4%	Korea	1.8%	-5.4%
Indonesia	1.9%	0.7%	Thailand	1.7%	-0.9%
Mexico	1.5%	0.8%	Romania	1.6%	1.3%
Canada	1.4%	0.7%	Dominican Republic	1.4%	0.7%
Thailand	1.3%	0.4%	Tunisia	1.3%	0.3%
Switzerland	0.9%	-1.6%	Philippines	1.3%	-0.3%

Source: WTO, International Trade Statistics 2003

The world textile and apparel industry has undergone several production migrations since the 1950s (Gereffi, 2003).

1. From North America and Western Europe to Japan in the 1950s and early 1960s
2. From Japan to Hong Kong, Taiwan Province of China and the Republic of Korea, which dominated global textile and clothing exports in the 1970s and early 1980s
3. In the late 1980s and the 1990s, from the Asian "Big Three" (Hong Kong SAR, Taiwan Province of China and the Republic of Korea) to other developing economies. In the 1980s, production moved principally to mainland China, but also to several Southeast Asian countries (Indonesia, Thailand, Malaysia and the Philippines) and Sri Lanka.
4. In the 1990s, new suppliers included South Asian and Latin American apparel exporters. In 1983, the Asian Big Three, plus China, were responsible for two thirds; by 2001 this share had dropped to 27 per cent

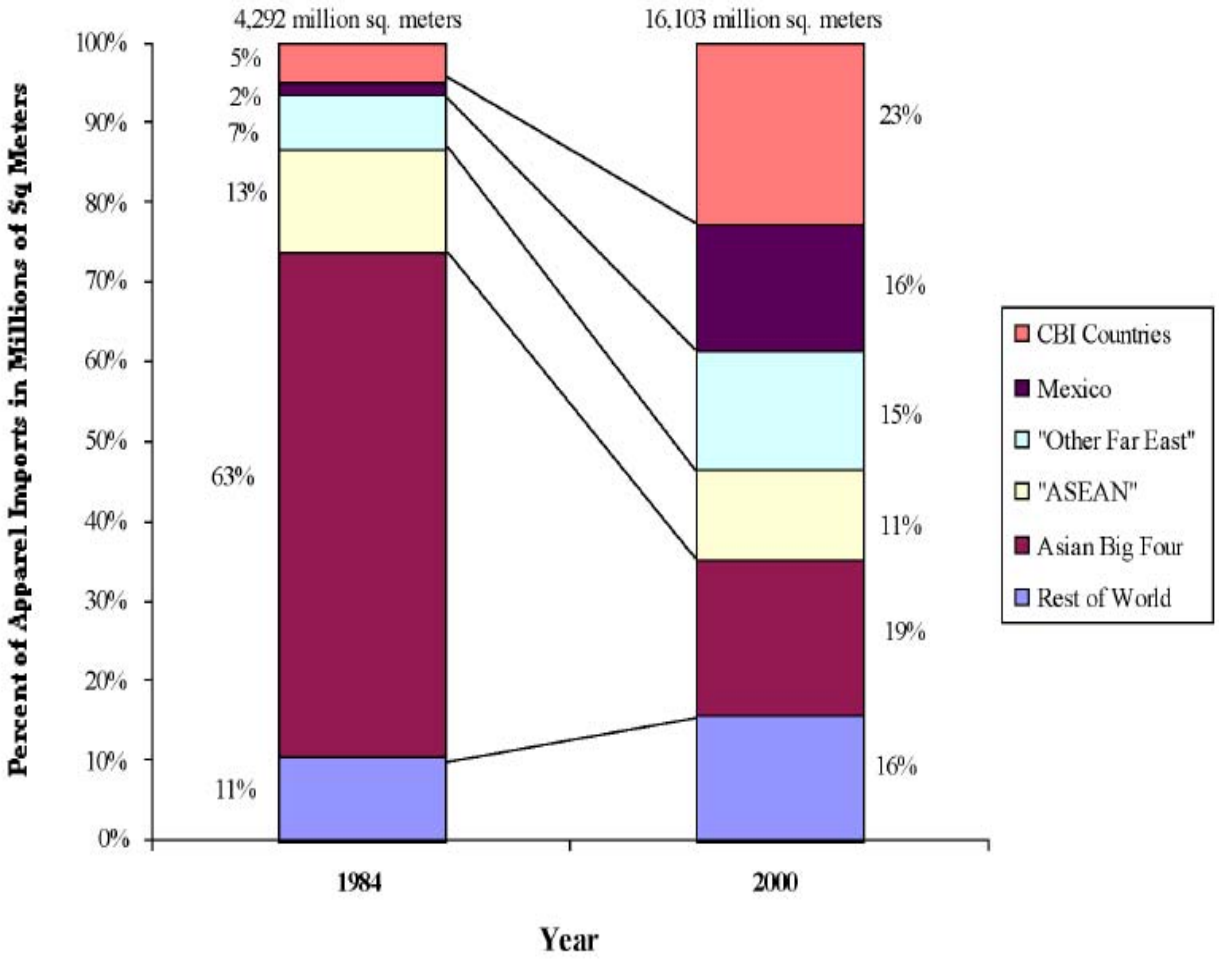
For buyer-driven value chains, the major significance of growing retailer concentration is the resulting expansion of global sourcing (Gereffi, 2003)

1992 – 49% of all retail apparel sold in the United States was made in the country

1999 – 12%

Neoclassical economics has the simplest explanation, which is that the most labor-intensive segments of the apparel value chain will be based in countries with the lowest wages. This view is supported by the sequential relocation of textile and apparel production from the United States and Western Europe to Japan, the Asian Big Three and China, when each new tier of entrants had significantly lower wage rates than its predecessor.

Figure 1: Changes in the Sources of US Apparel Imports: 1984 And 2000



Source: U.S. Department of Commerce cited by

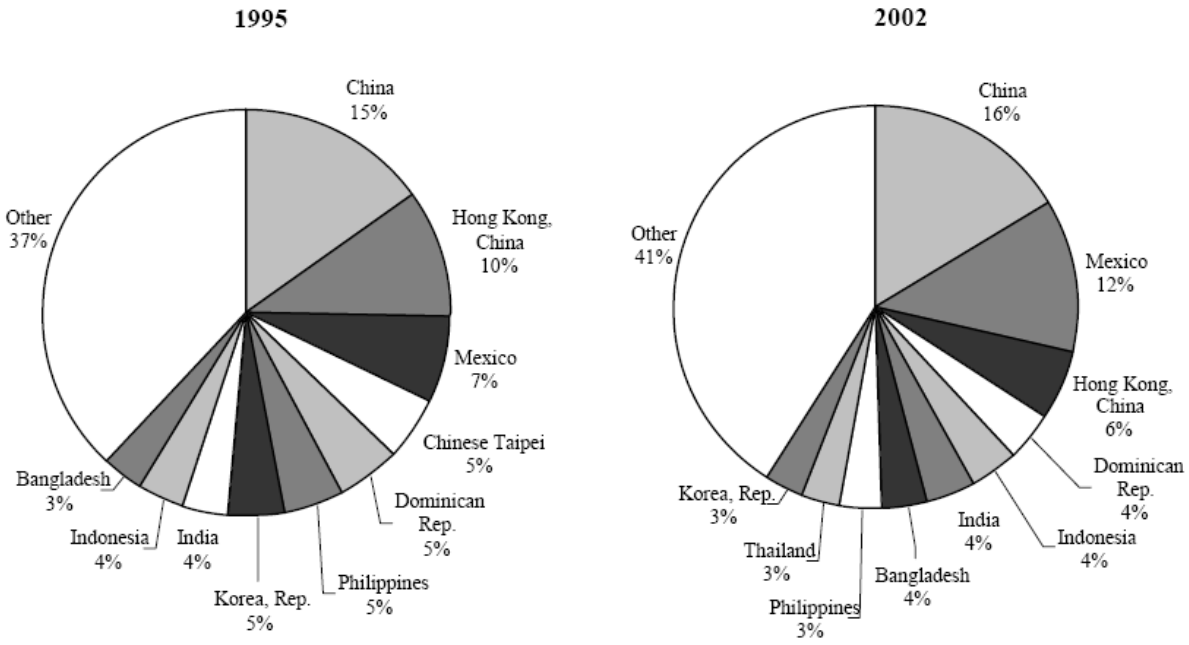
Abernathy F, Dunlop J, Hammond J, Weil D (2002)

The cheap-labor argument does not hold up as well, however, in the case of new Asian and Caribbean suppliers, whose market share expanded even though their wage rates are often considerably higher than China's (Gereffi, 2003). In the past, lead firms were mainly concerned with the cost, timeliness and quality of the products. With the growing concern among consumers about labor and environmental standards, the lead firms have put more focus on the production process and many have started to screen and monitor their suppliers more closely (Nordås H, 2005).

However, this increases transaction costs and consequently reduces the number of suppliers, thus contributing to further consolidation of the supply chains. A likely post-ATC outcome is a consolidation of the supply chain where the informal cottage industry (and so-called sweatshops) will decline in countries such as Bangladesh, Pakistan and India and be replaced by larger and more efficient formal sector producers. Furthermore, although the share of imports represented by Hong Kong SAR, the Republic of Korea and Taiwan Province of China declined in the 1990s, these NIEs still ranked among Asia's top apparel exporters to the United States in 2001, despite having the highest apparel labor costs in the region, excluding Japan (Gereffi, 2003).

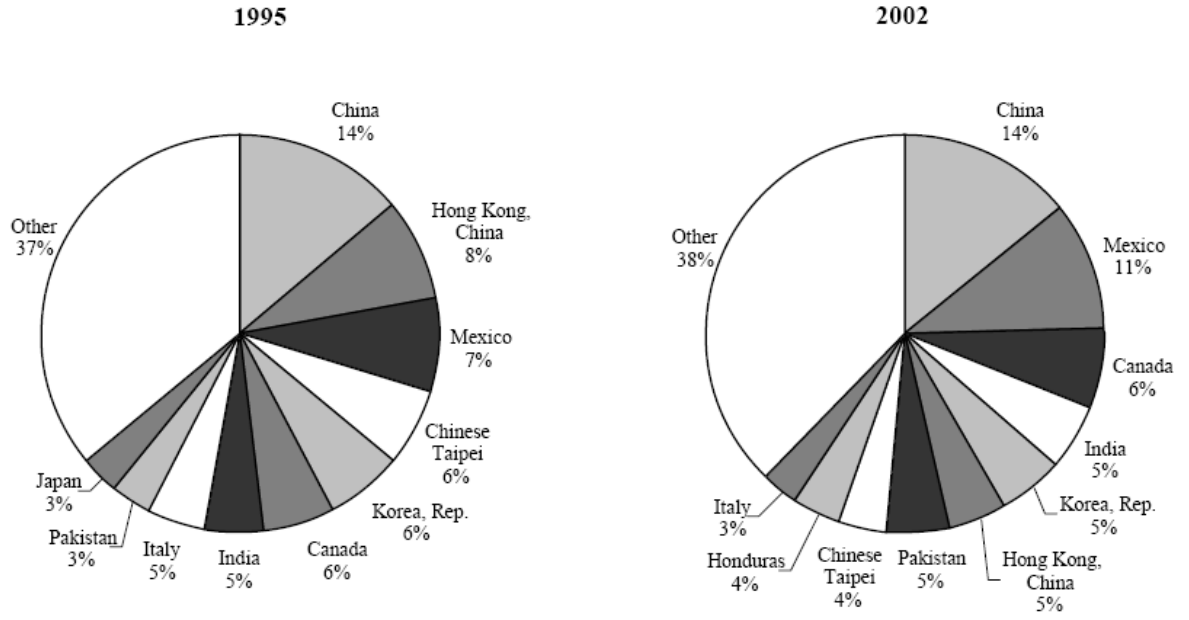
Many developing countries are come to rely on Textiles and apparel to generate national income. For at least dozen developing countries, textiles and apparel account for 25% of manufacturing exports and more than 60% of countries such as Bangladesh, Honduras, Pakistan, Nepal, and Srilanka (Centre of Research for Research and Policy Making, 2005).

Figure 2: Sources of Import of Clothing to EU



Source: Comtrade database cited by Nordås H (2002)

Figure 3: Sources of Import of Clothing to USA



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The cheap-labor argument does not hold up as well, however, in the case of new Asian and Caribbean suppliers, whose market share expanded even though their wage rates are often considerably higher than China's (Gereffi, 2003). In the past, lead firms were mainly concerned with the cost, timeliness and quality of the products. With the growing concern among consumers about labor and environmental standards, the lead firms have put more focus on the production process and many have started to screen and monitor their suppliers more closely (Nordås H, 2005). However, this increases transaction costs and consequently reduces the number of suppliers, thus contributing to further consolidation of the supply chains. A likely post-ATC outcome is a consolidation of the supply chain where the informal cottage industry (and so-called sweatshops) will decline in countries such as Bangladesh, Pakistan and India and be replaced by larger and more efficient formal sector producers. Furthermore, although the share of imports represented by Hong Kong SAR, the Republic of Korea and Taiwan Province of China declined in the 1990s, these NIEs still ranked among Asia's top apparel exporters to the United States in 2001, despite having the highest apparel labor costs in the region, excluding Japan (Gereffi, 2003).

The outcome of this chapter is the understanding of textile and apparel industry in general as well as in terms of global sourcing decisions adopted by big retailers in developed countries. Textile is served as an input to apparel industry therefore they are linked together. Due to low production cost as a major factor it has been observed that most of the suppliers for the retailers are from developing countries. Few major retailers of the world constitute most of the world apparel market share due to which they control the entire industry regarding price, quality and lead time.

The next section is regarding the global supply chain of textile and apparel industry. Considering retailer as the main business entity, it will deal with the over all supply chain structure and its partners.

CHAPTER 04

TEXTILE/CLOTHING INDUSTRY

GLOBAL SUPPLY CHAIN

4. TEXTILE/CLOTHING INDUSTRY: GLOBAL SUPPLY CHAIN

The supply chain in the textiles/clothing industry is complex. Bruce M, Daly L (2004) argues that often the supply chain of textile/clothing industry is relatively long, with a number of parties involved. So, there is a requirement of careful management of the supply chain in order to

- ⇨ Reduce lead times
- ⇨ Reduce Cost
- ⇨ Achieve Quick Response
- ⇨ Remain Competitive

Retailer plays and important role in the whole supply chain, and they normally deals with manufacturers. All the negotiation on prices, quality and delivery dates are made directly with the manufacturer. But sometimes, there are buying agents between retailers and manufacturer and the buying agents in the specific country deals with manufacturer on negotiate on all issues and deliver the goods to the retailer as per schedule. In this situation, the contract is between retailer and buying agents and the buying agents and manufacturer. From the author experience, it has been observed that some of the retailers have their won buying agencies in major manufacturing countries, so they have a better control on order scheduling.

The lean, agile and leagile approaches to supply all effectively sequence and manage the manufacturing process in order to reduce lead times. Key to this is improved customer order

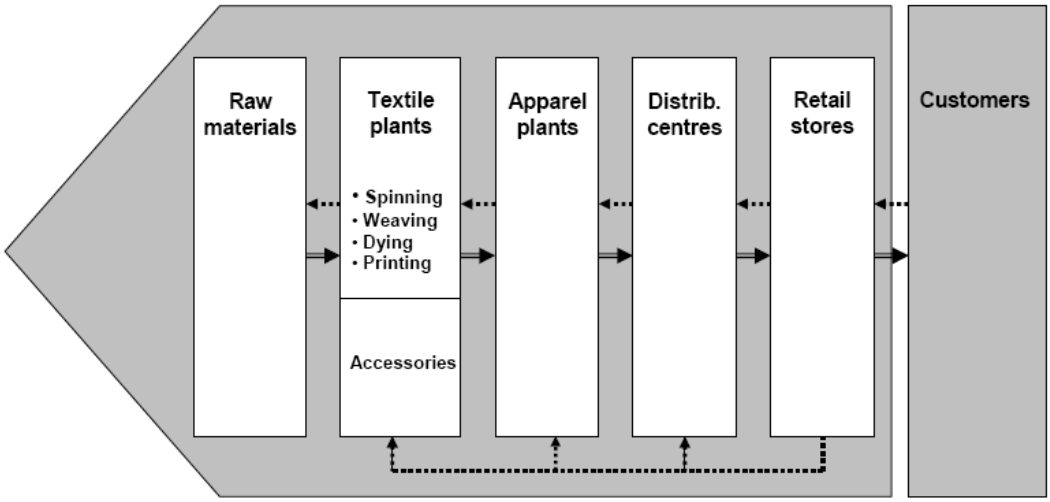
demand management and a reduction in wasteful activities. This is crucial because in all enterprises there is a finite amount of resource available. Consequently, scheduling for shop floor control in a production environment has become focused against wastage in manufacturing and supply. This is particularly relevant to the textiles and clothing industry, in response to increased competition and compounded with small businesses where the problem becomes more acute with less resource available. The challenge enterprises face is to either focus on speed and efficiency through the supply chain to replenish a pre-determined stockpile, or to produce exact quantities in response to servicing customer orders effectively. The research illustrates how companies in the sector manage to service the demands of speed and efficiency whilst responding with flexibility to demand fluctuations (Bruce M, Daly L; 2004).

4.1 SUPPLY CHAIN STRUCTURE

The supply chain in the textile and clothing sector is illustrated by Figure below. There is a flow of information represented by dotted lines, while the solid lines represent the flow of goods. The direction of the arrows indicates a demand-pull-driven system. The information flow cycle consists of order from customer or retailers to the manufacturer or sometimes to the buying agents. The production facility acts accordingly and delivers the product as per planned schedule.

At each link in the production chain to the left of the distribution centre in Figure, there are usually several companies. In order to make goods, information and payments flow smoothly, a number of logistics and business services are needed. Depending on the size and development of the host economy, such services are provided by the lead firm in the supply chain or independent service providers in the more advanced countries.

Figure 4: Supply Chain Structure



Source: Nordås (2002)

4.1.1 Flow of supply chain

The flow of supply chain as mentioned by Nordås (2002) is as follows

- ⇨ Big retailers working on lean approach typically replenish their stores on a weekly basis
- ⇨ Point of sales data are extracted and analyzed over the weekend and replenishment orders placed with the manufacturer on Monday morning.
- ⇨ The manufacturer is typically required to fill the order within a week, which implies that the manufacturer will always have to carry larger inventories of finished goods than the retailer. How much larger depends on his own lead time and demand volatility. The larger the fluctuations in demand, and the larger the number of varieties (e.g. style, size, color) the larger the inventory has to be. On the other hand, the shorter the manufacturer's lead time, the better the demand forecasts and the larger the market, the less the inventory needed

relative to sales. The size of the market matters, since the variation of aggregate demand from a large number of consumers are less than the variation over time of a few consumers.

- Upon receiving the replenishment order, the manufacturer will fill it from its inventory and then on the basis of the gap between remaining inventory and the desired inventory level, will make a production order to the production plant, of which the manufacturer may have several in different locations.

- The retailers may order large quantities of, say, shirts spread over a number of producers in several low-wage countries. In order to ensure that the shirts are similar and can sell under the same label, the buyer often buys fabric and accessories in bulk and provides its clothing suppliers with these inputs. In addition, buyers often also specify the design and assist the producers in providing the desired quality.

The clothing sector is both labor-intensive, low wage industry and a dynamic, innovative sector, depending on which market segments one focuses upon. This sector is divided into two market segments (Nordås H, 2002).

The high-quality fashion market

The industry in this segment is characterized by modern technology, relatively well-paid workers and designers and a high degree of flexibility. The competitive advantage of firms in this market segment is related to the ability to produce designs that capture tastes and preferences, and even better – influence such tastes and preferences – in addition to cost effectiveness (Nordås H, 2002). Calculating fashion is risky business and no more so than in the high end designer fashion markets (www.esrc.ac.uk), as here

- ⇨ Garments are produced to order in smaller batches than in other sectors of female clothing
- ⇨ Time lag is greatest: buying takes place around nine months ahead with upwards of 80 per cent of the budget spent before the season starts
- ⇨ Contractual arrangements between the store and suppliers commit them to receiving stock after orders are purchased, whilst re-orders are not always possible

Some risks are contained through planning and strategy meetings, monthly sales meetings with merchandisers, the head of department and the planning director to monitor stock, and 'floor-walks' with the sales team. Risk is managed also by buyers through knowledge of their markets and customers, although this is very much unspoken and implicit. The store is not dependent on formal marketing research, but values the informal, 'culturally embedded' nature of its buyers' knowledge.

The core functions of firms servicing this market segment are largely located in developed countries and often in limited geographical areas or clusters within these countries. The Emilia-Romagna district in the so-called Third Italy is one of the most prominent and prosperous textile and clothing clusters in the world, while Italy is the second largest exporter of both textiles and clothing when intra-EU trade is included (Nordås H, 2002). Navaretti et al. (2001), as cited by Nordås H (2002), argue that this market segment has also seen a significant amount of relocation of production and outsourcing to lower-cost producers, often in geographical proximity to the major market.

As discussed in study at the University of Essex, published at www.esrx.ac.uk, buyers are aware that they cannot always compete, and focus instead on styles that are either less easily copied, or defined as 'quality' items, of which there are no equivalents at high street prices. And it is not just

competitors on the UK high street that buyers keep their eye upon. On buys to cities such as New York, it is common for buyers to examine stock, shop displays and prices.

Lower-quality and/or standard products

The other major market segment is mass production of lower-quality and/or standard products such as t-shirts, uniforms, white underwear etc. these market segment is largely clustered around developing countries, often in export processing zones and/or under so-called outward processing agreements with major importers (Nordås H, 2002). They employ mainly female workers – semi-skilled and unskilled – and outsourcing to household production is quite common in the low end of the market. In the low to middle priced market, the role of the retailer has become increasingly prominent in the organization of the supply chain. The retail market has become more concentrated, leaving more market power to multinational retailers. These have market power not only in the consumer market, but perhaps more importantly they have considerable buying power. In addition, high-volume discount chains have developed their own brands and source their clothing directly from the suppliers, whether foreign or local. According to Gereffi (2001), retailers accounted for half of total garment imports in the European Union in the mid-1990s, a trend that probably has continued during the second half of the 1990s.Consumers spend a smaller share of their income on clothing than in the past, although consumers shop more frequently and buy a larger number of clothing items than before. The response from producers to the challenge of slow growth in total demand is to build on consumers' love of variety and provide new fashions and a broad variety of sizes, colors, designs etc. at a frequent rate. The textiles and clothing sectors can be seen as a supply chain consisting of a number of discrete activities. Increasingly the supply chain from sourcing of raw materials via design and production to distribution and marketing is being organized as an integrated production network where the production is sliced into specialized activities and each

activity is located where it can contribute the most to the value of the end product. When the location decision of each activity is being made, costs, quality, reliability of delivery, access to quality inputs and transport and transaction costs are important variables.

From the retail point of view, our consideration in this project will be retailers themselves, the apparel manufacturer and then the textile companies means finished fabric providers for apparel and clothing.

First we go through each of the partner to the upstream supply chain i.e. Retail sector, Clothing and Textiles.

4.2 THE RETAIL SECTOR

During the past few decades substantial changes in the retail sector have been observed.

A new concept of lean-retailing has been discussed in the modern retailing study (Bruce M, Daly L, Towers N; 2004). The fundamentals of lean retailing are:

- ⇨ Bar Codes
- ⇨ Uniform Product Codes
- ⇨ Electronic Data Interchange (EDI)
- ⇨ Data Processing
- ⇨ Distribution Centers
- ⇨ Common Standards Across Firms

The bar code technology allows retailers to monitor quantity of products sold on continuous bases down to the details on size, color and other characteristics. It also allows retailers to keep track of inventories. This information is used for adjusting the supply of garments to consumer tastes (Nordås H, 2002). Therefore there is a need of more frequent supply of garments and in smaller quantities as well. This approach is in contrast with the traditional stocking of the store i.e. stocking before the season and clearance sales at the end of the season.

Nordås H (2002) argue that bar codes added by the supplier should comply with industry standards to garments before they are shipped. They are often required to place the apparel on hangers such that it can go straight from the truck to the shop floor.

For suppliers to be responsive to rapidly changing retailers demand in terms of short lead time, small quantities, holding raw material inventory, and to carry out effective production planning, retailers need to share point of sales data with suppliers (Gereffi, 2001). Frequent communication between retailers and their suppliers has become necessary. EDI and data processing programs help smooth the communication between supply chain partners. Advanced software and automated information exchange systems are used between retailers and suppliers. A laser based technology is used in the textile and clothing supply chain which is used for reading bar codes and transmitting the information to the EDI and data processing equipment (Gereffi, 2003).

The traditional wholesalers and storage facilities are replaced by distribution centers in order to attain efficient and timely flows of goods. Along with the smooth flow of goods the flow of financial transactions between buyer and supplier also needs to be quick and efficient. The information processing system also process financial information and may be linked to automatic invoicing and thus an equally efficient flow of financial transactions between buyers and suppliers (Nordås H, 2002). The integration of flows of goods, information flow, and payments are only possible if all the

supply chain partners use compatible standards. Now, large shopping malls at the suburbs have been established at the expense of city centre department stores and boutiques. Gereffi (2003) argue that the retail sector is getting more and more concentrated and therefore they have more buying power and thus there is an increased bargaining power towards suppliers.

4.3 APPAREL SECTOR

Over the past century, the basic production technology of the apparel industry has not changed much and is characterized by the progressive bundle system. Nordås H (2002) states that in clothing production each worker is specialized in one or a few operations. The fabric is first cut and then grouped by parts of the garment, tied into bundles which can be termed as pre-assembly and then sewed together. The specialized sewing machines have been developed for the individual sewing tasks. On receipt of a bundle of unfinished garments a worker performs single task and places the bundle in a buffer. A buffer of about one day's work has been common at each operation. It takes about 40 operations before a pair of pants is complete, which implies that there is about 40 days of in-process inventory. However, for men's blazers, it takes as much as 100 operations. Although a number of improvements in terms of systematizing the operations and reducing the time at each individual operation has taken place over time, the basic system has remained the same.

The technology changes cannot be implemented in a partial fashion involving only a few operations. This would unbalance the system and any major technological change therefore needs to involve the entire system. New innovations have improved efficiency at each stage of production and improved coordination between stages and provided a more seamless interface between them. One major innovation was the automatic cutting machine which has made it possible to cut increasingly thick

layers of cloth accurately (Nordås H, 2002). Moreover, cutting machines, pattern layouts and other functions are computer-assisted and in many cases designs can be transformed to patterns which are directly fed into cutting machines via electronic networks. These innovations are mainly related to the pre-assembly phase of production, where technological developments have been more prominent than at the assembly stage. Abernathy et al. (1999), cited by Gereffi (2003), argue that in clothing sector the preassembly is the most capital intensive stage and where quality and precision is most important. Pre-assembly is therefore the stage in the production chain that is most likely to be done in-house by major clothing firms.

However in modern clothing industry, the most labor-intensive stage is the assembly stage and it is the stage that is most likely to be farmed out to lower-cost firms. The low import shares of India and China reflects the fact that most of the supply chain from textiles to ready-made clothing is located within the country. From farmers producing cotton to final garments India has a number of restrictions and regulations in the cotton industry. Viet Nam is a recent but fast-growing entrant to the world market in textile and clothing but the value-added share is very low and import content high (Gereffi, 2003). The structure of Viet Nam shows the ease of entry into the clothing sector for poor countries that lack an industrial base, including suppliers of inputs. It also suggests that strict rules of origin may substantially raise the barrier to entry for poor countries with low industrial capacity (Nordås H, 2002).

Bangladesh is another example of a country benefiting from low entry barriers in the sector. The import value of textiles was about 60 per cent of the export value of clothing in 1991, but it had declined to about 40 per cent by 2001, indicating that backward linkages have developed over time. Lean retailing is a new concept that results in great cost saving to retailers but it has imposed a

number of requirements on manufacturers, which have pushed some of the work and related costs up the supply chain to manufacturers (Nordås H, 2002). So, the manufacturers can either

- ⇨ Absorb the costs
    - o Lower margins
    - o Reduce costs by improving productivity
    - o Shortening lead time
    - o Relocating to lower-cost countries
- ⇨ Pass the costs further up the supply chain to the textile sector.

Due to the increase in the requirements from Buyer, there is a need to apply new function of value chain by garment manufacturers. As on the basis of author's experience, it has been observed that the apparel manufacturing companies are lacking production planning and coordination with the upstream supply partners that makes the job quite difficult for manufacturer for getting integrated.

4.4 TEXTILES

The textile industry is usually more capital intensive than the clothing industry and it is highly automated, particularly in developed countries (Centre of Research for Research and Policy Making, 2005). The textile industry consists of three main areas

- ⇨ Spinning
- ⇨ Weaving

- Finishing

The textile sector is less unskilled labor-intensive than the clothing sector. From the author's experience this industry is normally integrated in developing countries. All of the processes are performed in one company started from buying of raw fiber to the production of ready-to-clothing fabric.

The lead time in the textile sector traditionally, and in many markets, it is still quite long and the capital intensity of the industry results in relatively large minimum orders. This sector is relatively less flexible than the clothing and retail sectors in order to meet consumer wants seasonally. So, it considered as a bottleneck in the supply chain (Nordås H, 2002). There is a development in textile processing machineries like Germany, Switzerland and Sweden making fully automated machineries for spinning, weaving and all the chemical processing at finishing stage that include Dyeing and Printing as well. These machineries are quite popular in developing countries and all the textile companies are very swiftly moving towards automated plants.

4.5 POWER IN SUPPLY CHAIN

Retailer is considered as a powerful partner in managing the whole supply chain. This development probably started with the establishment of shopping malls such as Wal-Mart in the United States in the 1970s. Wal-Mart insisted that suppliers implemented information technologies for exchange of sales data, adopted standards for product labeling and methods of material handling (Gereffi, 2003). The approach adopted by Wal-Mart ensured quick replenishment of apparel. Due to which there is no need for retailer to hold a large inventory but also offer a wide variety. This approach has spread throughout the industry in the United States as well as elsewhere (and to other industries), shifting

the competitive advantage of suppliers from being mainly a question of production costs to becoming a question of costs in combination with lead time and flexibility.

The outcome of this section is an understanding of supply chain of textile and apparel industry including flow of material and information through retailers, apparel manufacturers and textile manufacturers. It can be cleared that the retailer sector have got most of the power in supply chain and they negotiate on prices, quality and lead times with the suppliers. It gave some information regarding two major segments in this industry i.e., fashion and commodity products. The supply chain structure for both of them is little bit different due to different form of customers' needs for both of the segments.

With the clear knowledge for the supply chain of textile and apparel industry, it is easy to go through the integration process of supply chains. The next section would give an idea for integration of supply chain especially in textile and apparel industry.

CHAPTER 05

ANALYZING INTEGRATION: A LITERATURE REVIEW

5. ANALYZING INTEGRATION: A LITERATURE REVIEW

The degree to which a firm can strategically collaborate with their supply chain partners and collaboratively manage the intra- and inter-organization processes to achieve the effective and efficient flows of Product and services, Information, Money, Decisions with the objective of providing the maximum value to the customer at low cost and high speed (Desai A, Mukherji A; 2001).

There is a concept of vertical integrated company, where a company incorporates the value-chain of a supplier and/or that of a distribution channel into its own value chain. While in disintegrated company, supply Chains are generally dominated by one of the main supply chain partners. There are possibly two types of networks; one is "producer driven" and the other "buyer-driven". There is another aspect of vertical company that produces for its own use.

Gereffi, 2000 argue that manufacturers play the central roles in coordinating production networks (including their backward and forward linkages) in producer-driven value chains. This is typical of capital- and technology-intensive industries such as automobiles, aircraft, computers, semiconductors and heavy machinery.

Buyer-driven value chains are those in which large retailers, marketers and branded manufacturers play the pivotal roles in setting up decentralized production networks in a variety of exporting countries, typically located in developing countries (Gereffi, 2003). This pattern of trade-led industrialization has become common in labor-intensive, consumer-goods industries such as garments, footwear, toys, handicrafts and consumer electronics. Tiered networks of third-world contractors that make finished goods for foreign buyers carry out production. Large retailers or marketers that order the goods supply the specifications.

A clothing export supply chain consists of an array of players; performing different activities and adding value to the consumers. The major overseas buyers are importers, large department stores, specialty stores, top labels, catalogue buyers, and other chain retailers. They usually focus on design, marketing and selling, and locate suitable clothing manufacturers to produce clothes through their buying offices or sourcing agents (*Au K. F, Ho D; 2002).*

Firms that fit the buyer-driven model, including retailers like Wal-Mart, Sears and JC Penney, athletic footwear companies like Nike and Reebok, and fashion-oriented apparel companies like Liz Claiborne, Gap and The Limited Inc., generally design and/or market—but do not make—the branded products they order (Gereffi, 2003). They are "manufacturers without factories", with the physical production of goods separated from the design and marketing. Buyer-driven value chains are characterized by highly competitive and globally decentralized factory systems with low entry barriers.

The manufacturers prepare production samples according to buyers' requirements. If the required quality is fulfilled and purchase orders are placed, manufacturers will source fabric, accessories and other materials, and schedule production and deliver products to the buyers (*Au K. F, Ho D; 2002).*

The companies that develop and sell brand named products have considerable control over how, when and where manufacturing will take place, and how much profit accrues at each stage. Thus, large manufacturers control the producer-driven value chains at the point of production, while marketers and merchandisers exercise the main leverage in buyer-driven value chains at the design and retail stages.

Table 2: Main Characteristics of Producer-Driven and Buyer-Driven Global Commodity Chains

	Producer-Driven Commodity Chains	Buyer-Driven Commodity Chains
Drivers of Global Commodity Chains	Industrial Capital	Commercial Capital
Core Competencies	Research & Development; Production	Design; Marketing
Barriers to Entry	Economies of Scale	Economies of Scope
Economic Sectors	Consumer Durables Intermediate Goods Capital Goods	Consumer Nondurables
Typical Industries	Automobiles; Computers; Aircraft	Apparel; Footwear; Toys
Ownership of Manufacturing Firms	Transnational Firms	Local Firms, predominantly in developing countries
Main Network Links	Investment-based	Trade-based
Predominant Network Structure	Vertical	Horizontal

Source: Gereffi, 2003

Apparel is an ideal industry for examining the dynamics of buyer-driven value chains (Gereffi, 2003).

The apparel value chain is organized around five main parts:

- ⇨ Raw material supply, including: natural and synthetic fibres;

- ⇨ Provision of components, such as the yarns and fabrics manufactured by textile companies; Production networks made up of garment factories, including their domestic and overseas subcontractors;
- ⇨ Export channels established by trade intermediaries; and
- ⇨ Marketing networks at the retail level

As cited by *Au* K. F, Ho D (2002) at Cooper et al. (1997), SCM requires all parties involved in producing and delivering a product to take a holistic approach to manage and integrate key business processes in order to achieve a smooth flow of information and product along a supply chain so, it is not limited to improving the relationship and co-ordination between buyers and manufacturers. To adopt this management approach successfully, organizations may have to restructure and realign their working relationships and operating systems with other related parties.

Supply chains integration can be divided into two modes

1. **Internal Integration**
2. **External Integration**

5.1 INTERNAL INTEGRATION

It deals with linking the internally performed work by different functional units into a seamless process to support customer requirements

Cross-functional team work: managers of cross functional teams use information from multiple sources to and are empowered to make immediate decisions.

Standardization: Establishment of cross-functional policies and procedures to facilitate synchronous operations

Simplification: Identification, adoption, implementation, and continuous improvement of best practices

Compliance: Adherence to established operational and administrative policies and procedures

5.2 EXTERNAL INTEGRATION

The degree to which a firm can collaboratively manage the inter-organization processes with its key supply chain members is referred as external integration. It involves

- ⇨ Customer Integration
- ⇨ Supplier Integration

5.2.1 Customer Integration

- ⇨ Building lasting and distinctive relationships with customers of choice
- ⇨ Development of customer specific programs designed to generate maximum customer success.
- ⇨ Customer focus to continuously match changing expectations
- ⇨ Accommodation of unique and/or unplanned customer requirements

5.2.2 Supplier Integration

- ⇨ Linking externally performed work into a seamless congruency with internal work process

- ⇨ Development of a common vision of the total value creation process and planning clarity concerning shared responsibility
- ⇨ Linkages of systems and operational interfaces to reduce duplication, and redundancy while maintaining operational synchronization.
- ⇨ extended management to include the supplier's suppliers

Literature review an and from the examples of existing supply chain networks, it can be deduced that the integration of supply chains specifically, in textile/clothing industry in the broader sense, can be achieved through

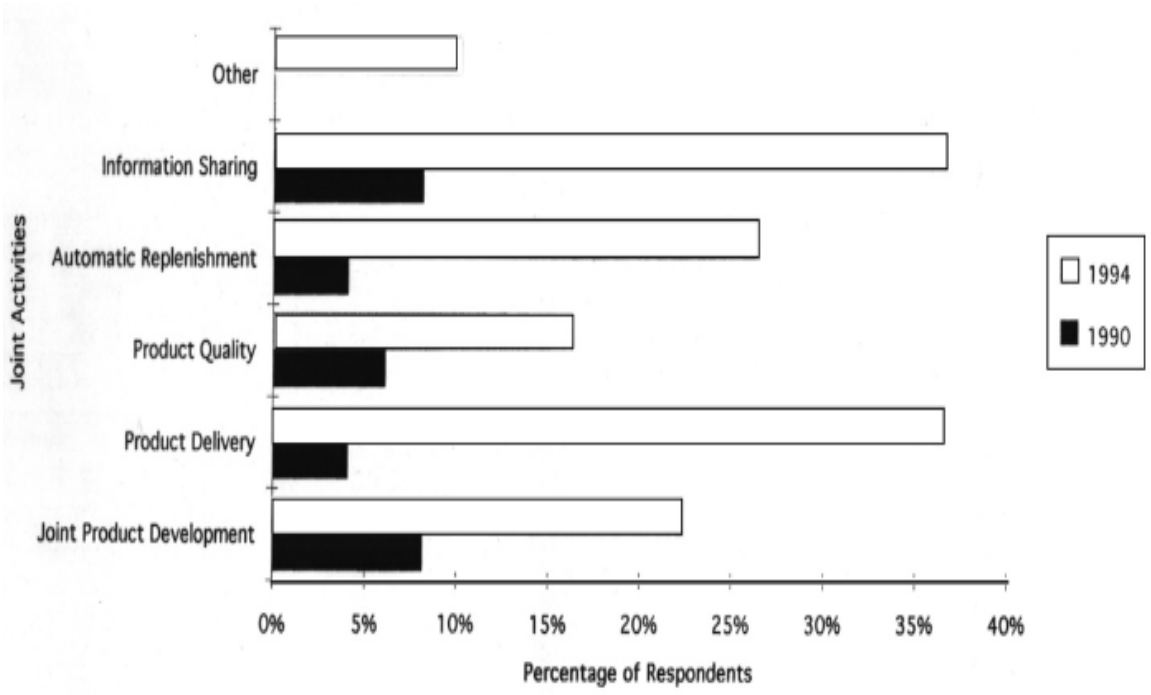
- ⇨ Collaboration or partnership between supply chain partners
- ⇨ Application of information technology (IT)

5.3 COLLABORATION OR PARTNERSHIP BETWEEN SUPPLY CHAIN PARTNERS

The character of the partnerships or collaboration is changing as new priorities are replacing traditional purchasing contracts with more sophisticated supply chain relationships involving two way communications and long-term commitments to buy and supply. The survey in UK shows an increase in information sharing from less than 10% in 1990 to over 35% in 1994 and very substantial gains in cooperation through automatic replenishment and improved product delivery arrangements (Oxborrow L, 2000). Simatupang T, Wright A, Sridharan R (2002) argue that coordination among independent firms, such as raw material suppliers, manufacturer, distributors, third party logistic

providers and retailers, is the key of attaining the flexibility necessary to enable them to progressively improve logistics process in response to rapidly changing market conditions. The movement towards faster replenishment of stocks is leading to a variety of innovations in these retailer-supplier partnerships. However, there is a sense among suppliers that much of the development of closer relations is one-sided in that it largely benefits the retailer (Oxborrow L, 2000). Examples include insufficient allowances for the added costs of services provided and the scaling back on purchasing commitments in the middle of the season.

Graph 1: Changes in Collaboration with suppliers from 1990 to 1994



Source: Oxborrow L (2000)

According To the survey (Oxborrow L, 2000), majority of suppliers in UK (58%) had no partnerships in 1994, while about 7% had partnerships with 3 or more retailers. While more supply partnerships are being formed, many of the largest retailers are deliberately reducing the number of

key suppliers with whom they deal, as witnessed by the recent decision by Marks and Spencer to drop several of its established suppliers.

5.4 INFORMATION SHARING

IT capacity is also becoming a key capability for in the retailer-supplier relationship. The use of EDI and related information technologies is growing rapidly in areas such electronic point of sales data (EPOS), computerized production planning systems, and the exchange of product specifications. Advances in information system technology have had a huge impact on the evolution of supply chain management. As a result of such technological advances, supply chain partners can now work in tight coordination to optimize the chain-wide performance, and the realized return may be shared among the partners. A basic enabler for tight coordination is information sharing, which has been greatly facilitated by the advances in information technology (Lee H, Whang S; 2000).

It is observed that the uncertainties in the supply chain of apparel industry, especially of fashion items, are due to the fact that perfect information about the system cannot be secured. While every single member has perfect information about itself, uncertainties arise due to a lack of perfect information about other members. Yu Z, Yan H, Edwin T (2001) argues that to reduce uncertainties, the supply chain member should obtain more information about other members. If the members are willing to share information, each of them will have more information about others. Therefore, the whole system's performance will be improved because each member can gain improvement from information sharing. This cooperation mode for increasing information sharing among supply chain members can be called a supply chain partnership. With partnership, the negative impact of the bullwhip effect on a supply chain can be reduced or eliminated because it can

help the supply chain members share more information to reduce uncertainties. The deficiency of decentralized control is also associated with uncertainties. Thus, with information sharing, the decentralized supply chain can achieve the optimal performance under centralized control.

The generic style information at product level is more likely to be exchanged than specifics. The most common types of information to be shared are general sales trends and demand forecasts. Production plans and supplier purchases are also used by more than one third of those surveyed who claimed to regularly share data (Oxborrow L, 2000). *Au* K. F, Ho D (2002) argues that with the adoption of the Web, e-mail, and EDI, communication with the downstream and upstream partners electronically can be improved effectively. Improvements can be made in the management of product information, processing of sales and purchase orders, demand forecast and inventory management, and delivery. All these efforts are expected to streamline, integrate, and speed up the business processes from production to delivery. These improvements in turn help the retailer to respond to customers' requirements quickly, and enhance value-adding services.

Oxborrow L (2000) suggests that systems and information are not utilized to their full capacity within the apparel supply chain. IT developments are also gradually supporting greater integration between textile and clothing manufacturers and retailers. Developments in CAD technology facilitate quicker product development and later confirmation of specifications, while computerized knitting and dyeing and finishing provide greater flexibility for quick response production and for changes in style. In addition, "CAD/ CAM and EDI have emerged as pre-requisites of carrying out business off-shore" and those firms that have invested significantly in overseas sourcing or manufacture have installed the most sophisticated communications technologies.

The information technologies represent a fundamental support in company management. In particular, the integration which is made possible by telecommunications produces an overall picture

in real time of the different activities of the various actors which are interested in the same operative process. The information from each segment of the process impacts the other, so the entire process must be taken into consideration from the outset and included in the technology for it to work. The bits and pieces approach is costly, time-consuming and has never worked (Serwetz M, Johnson N; 2005).

The relations with telecommunication support can be classified from the traditional types of relation the more advanced ones. The advance from is characterized by high levels of reciprocal services, timeliness, completeness and reliability of the information transmitted (Forza C, Vinelli A, 1997).The order management cycle in relation to every individual partner in the chain - in the characteristic phases of

- ⇨ Collection,
- ⇨ Transmission,
- ⇨ Elaboration
- ⇨ Preparation,
- ⇨ Dispatch, and
- ⇨ Payment

The order management cycle represents a set of operations in which significant benefits are produced by the use of telecommunications. In fact, it seems to be a fundamental process in which the need for information integration between supply chain partners involved - both upstream and downstream - in the value operative chain system is growing, and in which the new telecommunication services are beginning to be used effectively.

More specifically, the information exchanged electronically concerns:

- Product order;
- Exchange of administrative documents (invoices, delivery notes, etc.); and
- Exchange of information of a commercial and logistic type (price lists, material availability, sales levels, stock, requests for re-assortment, etc.).

5.4.1 Examples of Efficient use of IT

Some examples of efficient use of IT in apparel industry are as follows.

⇨ Li & Fung manages the network at a macro level, and is not involved in managing the day to day operations of the network players. To achieve transparency within the network, communication architectures are structured for seamless information transfer and exchange (Bitran G, Gurumurthi S, Sam S; 2006). Li & Fung has a standardized order executing and tracking system that is common for all partners of supply chain. They monitor performance of each player constantly and the information is shared with every partner of supply chain. This information giving them a detailed understanding of their performance gaps, ideas for addressing them, and strong incentives for taking action. In such a way they don't need to dictate anyone but everyone getting its feedback straight away. So, in this way it helps to uplift the overall efficiency of the network. As a result, suppliers will tend to focus on a small but core set of activities – those in which they have developed truly distinctive capabilities (Bitran G, Gurumurthi S, Sam S; 2006).

Oxborrow L (2000) presented some examples of the companies using information technology for improving their supply chain network.

- Levi Strauss & Co. is a multinational organization operating in the casual clothing sector targeting primarily youth. The head offices are in San Francisco. A total of about 35,000 people are employed for total sales of over six thousand million US dollars in 1994. This figure makes Levi the world's largest clothing business. Levi's European general offices are in Brussels - which controls European production of the "core business" (denim, both jeans and tops) - and sales locations and distribution in most European countries. Production plants are located in several European countries. Every sales and distribution outlet is responsible for following the local market. European sales are over 1.700 million US dollars for about 60 million garments sold. The invoices of the Italian branch exceed 380 million US dollars with sales of over 10 million garments. In terms of units sold and invoiced, Italy is one of the top four branches in the world. In such a widespread situation, the possibility to communicate between the various units was one of the priority requirements in the definition of the information systems. This vital need has made Levi a pioneering company in the area of EDI.

- The Benetton Group is a world-class company in the design, manufacture and distribution of apparel for men, women and children. The headquarters are at Ponzano Veneto, Treviso, Italy. The Group's consolidated revenues in 1994 exceeded 1,800 million US dollars and generated a net profit of 140 million US dollars. Benetton produced more than 80 million items of clothing in 1994. These came from its 35 factories which have been set up all over the world. In the course of 1994 the company prepared almost 5,000 models for its various collections, (Benetton, Sisley, 0-12), which were sold through 8,238 points of sale in more than 100 countries. The stores in Benetton's sales network are managed by independent entrepreneurs who sell the company's products. Eighty per cent of production is carried out by outside contractors who are linked to Benetton through relationships that have been

established over the years. Both the definition of the items for each collection, and the advertising campaign, commercial distribution and planning and control of the production by outside contractors are all co-coordinated centrally.

- The Coin Group is one of the largest Italian retail distributors in the non-food sector. Coin operates 40 stores directly while a further 40 franchise operations are located throughout Italy. The Group's consolidated revenues in 1994 exceeded 860 million US dollars. The Group marketing philosophy is founded on the early recognition of increasingly personalized customer requirements which are met by a "shop within a shop" strategy. Current commodities are for the most part clothing, but perfumes, home furnishings and household goods in general are also present. The product offered is closely tied to style and seasonal factors (80 per cent of sales), and only a minimum part (20 per cent of sales) has the characteristics of continuity in the selections. Market presence is carefully controlled by strategically differentiating the products sold in each segment.

5.1.2 Benefits of adopting IT

- Information technology makes it easier to communicate, share information and respond quickly to shifts in demand.
- Adopting IT reduces internal co-ordination and control costs
- Transaction costs are also reduced, thus favoring the move towards production decentralization and the market
- Easy to know which product is doing best and therefore to find out market tendencies in an aggregated way.

- ⇨ Stock situation in all the shops and to suggest exchange of merchandise between shops, whenever there are stock leftovers which are needed by another shop.

- ⇨ The sales data are used to suggest to the shopkeeper what to order

- ⇨ The risk of stock breaks or lack of merchandise for the shelves is reduced to a minimum

- ⇨ Product mix responds to the needs and expectations of the customer in more targeted and precise way

- ⇨ The establishment of new relations within the chain, based on the telecommunication exchange of information, contributes to the growing integration between the different value-operative chains.

- ⇨ The electronic integration of the design function with the production phases of suppliers (i.e. every upstream player) offers significant advantages in relation to stability, reliability and flow quality at entry.

- ⇨ Production-distribution-customer (every downstream player) integration has positive effects on the improvement of quality and the reduction of costs that permits the reduction of outflow uncertainty and variability and makes it possible to achieve greater response speed.

- ⇨ "Lean retailing" (i.e. the model of frequent shipments by suppliers to fill ongoing replenishment orders by retailers, based on real-time sales information collected at the retailer's stores on a daily basis) was caused by the development of several key information technologies. These included: bar coding and point-of-sale scanning used to provide immediate and accurate information on product sales; electronic data interchange (EDI)

used by the retailer to restock; and automated distribution centers to handle small restocking orders, rather than the traditional warehouse system used for large bulk shipments.

The outcome of this section is the understanding of integration of supply chains. Textile and apparel industry is characterized as buyer-driven value chains highly competitive and globally decentralized factory systems with low entry barriers. It has also been found that integration can be achieved by collaboration with the suppliers and implementation of IT infrastructure. Examples from textile and apparel industry showed the benefits achieved by adopting IT for integration and keeping the business competitive. It is also been mentioned that adaptation of advance technology and creating close link with the supplier through that technology and sharing risk and profits result in highly responsive supply chain.

To have a better understanding of integrated network, the next section would go through some of the examples of existing supply chains network with their benefits and issues involve in their decision for controlling their supply chains.

CHAPTER 06

EXAMPLES OF INTEGRATED NETWORK

6. EXAMPLES OF INTEGRATED COMPANIES

Due to innovations in communication and information technology facilitating more effective supply chain management, it has become possible to combine good and customized design with low costs. This can be done either by slicing up the production process into standardized components that can be customized when assembled, or by utilizing production technologies that are flexible and allow short production runs while maintaining low unit costs (Rice J, Hoppe R; 2001). Leading retail chains such as Wal-Mart, the GAP, M&S, and H&M have largely applied the first approach with global production networks and standardization while Inditex, a vertically integrated Spanish clothing firm best known for the Zara brand has chosen the second approach.

Full vertical integration occurs when a firm incorporates the value-chain of a supplier and/or that of a distribution channel into its own value chain. This generally happens either by a firm's acquiring a supplier and/or a distributor or by a firm's expanding its operations. Expanding operations means to perform activities traditionally undertaken by suppliers or distributors. A lower degree of vertical integration is commonly known as: Supply Chain Optimization or also as: Supply Chain Planning. This occurs when logistical information is exchanged between a firm and its suppliers and customers.

There are varieties of integrated systems in practice in the textile/clothing sector. Some of them are almost completely vertically integrated companies while others are working with low degree. In such a supply chain network, different companies are working in collaboration for the achievement of single task and sharing their profits and risks. While the whole supply chain is dominated by one or two main players and the others acts as a supporting players. In textile/clothing sector as discussed

above, the power goes to retailers like M&S, WALMART, JCPENNY, H&M, DEBENHAM and so many.

So there area pros and cons of both types of integrations but general trend is toward supply chain optimization rather than vertical integration. The decision of being vertically integrated or vertical disintegrated will be discussed in the next chapter but generally it depends on market requirement and the product characteristics. As in textile/apparel industry, there are pre-defined two segments i.e. commodity product and fashion product so, the decision could be based on the segment. As fashion apparel chain needs high responsiveness while commodity product chain needs low cost and large volume transactions.

6.1 DEBENHAMS' INITIATIVE TOWARDS SC INTEGRATION

Debenhams is one of the UK's premium department store groups with an annual turnover of approximately £1.6 billion. It is listed on the London Stock Exchange and has market capitalization of approximately £1.1 billion.

Based on the information cited at www.eqos.com/press_debenhams_portal_supplier.shtml on 28th of September 2006, Debenhams is a multi-channel operator and currently has 100 stores in the UK, 10 international franchise stores, a fully transactional web-site and a comprehensive home shopping catalogue - Debenhams Direct. It has an aggressive new store opening program both in the UK and internationally.

BOX 1: DEBENHAMS

www.eqos.com

Top UK retailer Debenhams has recognized the need for supply chain integration and transparent flow of information and goods. Since ordering and receiving goods are the critical business processes, enormous benefits can be gained from having complete visibility of its global supply chain.

Debenhams selected Eqos to provide a private B2B portal for managing the relationship with its international supplier operation. Eqos will be using its award-winning B2B collaborative platform to underpin the store group's B2B strategy, starting with ordering and logistics. The portal is expected to extend to include all Debenhams' external partners. The development of a private portal will enable Debenhams to achieve significant benefits.

In addition, Debenhams will replace up to four existing disparate systems and a number of manual procedures, to provide a seamless interface for all those involved in its supply chain.

Initial work will be the configuring of an order management and logistics solution. This will provide visibility, alerts and exception management for Debenhams' buyers, merchandisers and distribution centre personnel and its 700 plus suppliers, including those providing third party logistics services.

The solution will cover the delivery and tracking of purchase orders by Debenhams, the issuing of Advanced Shipping Notices (ASNs) by suppliers and, uniquely, further ASNs from the third Party "Movers" (freight forwarders and carriers). This permits goods from a single PO to be sent at different times by the suppliers and shipped via different routes or modes domestically and internationally by the carriers, with complete visibility to all relevant parties at all times. Thus the progress of goods can be managed proactively and those involved are alerted to react to unforeseen events.

Future applications will be built by Debenhams and/or Eqos and consulting partners to cover other Supplier Relationship Management (SRM) processes, such as product development, collaborative planning and supplier performance management.

6.2 THE GAP INC. SPLITS ITS SUPPLY CHAIN FUNCTION

Gap Inc. is a leading international specialty retailer with a strong portfolio of brands. Gap Inc. operates more than 3,000 stores in the United States, United Kingdom, Canada, France and Japan. The fiscal 2005 revenues of Gap Inc. are $16 billion.

The Gap re-splits the sourcing and logistics functions within the company and forces its Chief Supply Chain Officer (CSCO) to step down. This move goes against the slowly developing trend of fully integrated supply chain organizations. Specialty apparel retailer Gap Inc. split its formerly integrated supply chain leadership into a sourcing and logistics function.

According to a press release, the company will be separating the sourcing and logistics functions to better align the global sourcing team with the brands, and logistics with inventory planning and distribution

The move comes amid overall disappointing sales results for Gap Inc., parent to stores including The Gap, Banana Republic, and Old Navy.

Do Integrated Supply Chain Organizations Make Less Sense in Retail?

As noted above, the split of the supply chain function at The Gap is somewhat at odds of the growing integration of the supply chain function and the role of Chief Supply Chain Officer. However, it could be that in retail it is less beneficial to integrate across sourcing and logistics than in other sectors.

6.3 ZARA

While most apparel manufacturers were migrating manufacturing to Asia to gain cost efficiency in the 1990s, Zara recognized that speed, flexibility and innovation were key to establishing a stronghold of the market (Lee H, 2004). Although manufacturing in Spain and Portugal has a cost premium of 10 to 15 percent, the local production means the company can react to market changes faster than the competition, ensure tighter connectivity between design and manufacturing, and produce greater flexibility in product distribution.

In Zara stores, customers can always find new products—but they're in limited supply. There is a sense of tantalizing exclusivity; since only a few items are on display even though stores are spacious (the average size is around 1,000 square meters). A customer thinks, "This green shirt fits me, and there is one on the rack. If I don't buy it now, I'll lose my chance." (Ferdows K, Lewis M, Machuca J, 2005).

Such a retail concept depends on the regular creation and rapid replenishment of small batches of new goods. Zara's designers create approximately 40,000 new designs annually, from which 10,000 are selected for production. Some of them resemble the latest couture creations. But Zara often beats the high-fashion houses to the market and offers almost the same products, made with less expensive fabric, at much lower prices. Since most garments come in five to six colors and five to seven sizes, Zara's system has to deal with something in the realm of 300,000 new stock-keeping units (SKUs), on average, every year (Harle N, Pich M, Heyden L, Wendel; 2002).

Zara's single, centralized design and production center is attached to Inditex (Zara's parent company) headquarters in La CoruÃ±a (www.Zara.com). It consists of three spacious halls

- Women's clothing lines,

- Men's clothing lines,
- Children's

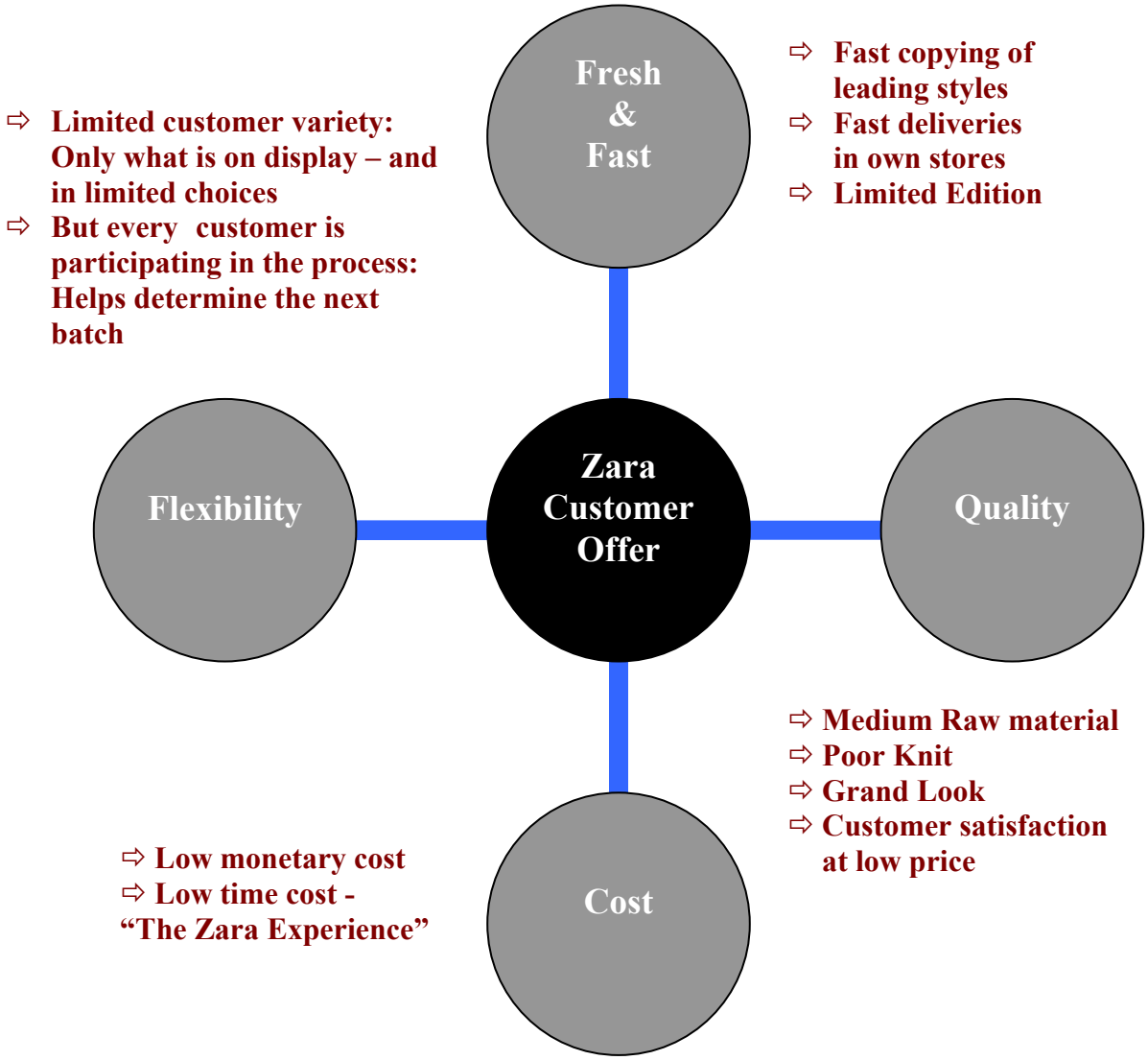
6.3.1 Main factors of Zara's Success

- Constant & Easy Exchange of Information
- Use of PDAs
- Centralized Operations

Constant & Easy Exchange of Information

This "fast fashion" system depends on a constant exchange of information throughout every part of Zara's supply chain—from customers to store managers, from store managers to market specialists and designers, from designers to production staff, from buyers to subcontractors, from warehouse managers to distributors, and so on (Ferdows K, Lewis M, Machuca J, 2005). Most companies insert layers of bureaucracy that can bog down communication between departments. But Zara's organization, operational procedures, performance measures, and even its office layouts are all designed to make information transfer easy.

Figure 5: Zara's Customer Offer



Source: Figure based on the information extracted from the lecture given by Heyden L. in 2006 titled Business Model Competition: M&S versus ZARA

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Use of PDAs

Zara is careful about the way it deploys the latest information technology tools to facilitate these informal exchanges. The relative absence of technology provides further evidence of the depth of control exercised at Zara. Customized handheld computers support the connection between the retail stores and La CoruÃ±a. These PDAs augment regular (often weekly) phone conversations between the store managers and the market specialists assigned to them. Through the Personal Digital Assistants (PDAs) and telephone conversations, stores transmit all kinds of information to La CoruÃ±a—such hard data as orders and sales trends and such soft data as customer reactions and the "buzz" around a new style (Ferdows K, Lewis M, Machuca J, 2005). While any company can use PDAs to communicate, Zara's flat organization ensures that important conversations don't fall through the bureaucratic cracks.

Centralized Operations

Zara runs its own manufacturing facilities, which gives it more control over its supply chain. All this goes to show that solving the increasingly complex supply-chain equation is not just a question of good technology, but also of the right corporate culture.

Zara has flourished on the principle of being responsible for its products all the way from initial conception to the customer. Ironically, this involves defying many industry norms. For instance,

while rivals choose to minimize cost and risk by owning fewer assets, Zara only outsources the production of clothing which is not subject to seasonal variation (Ferdows K, Lewis M, Machuca J, 2005). Zara carries out all operations under the same roof of its La Coruna headquarters. Informality rules the roost and functions such as design, production and marketing all rub shoulders with each other. This set up essentially removes the need for information to travel through widely dispersed channels.

6.3.2 Benefits

- ⇨ Shortens delay

> Zara has a design-to-manufacture-to-retail cycle of fewer than 30 days; its competitors hover at three to eight months. The result for Zara has been sustained sales growth of more than 10 percent a year for the last 10 years, and a net profit margin of 10 percent, compared with an industry average of 3 percent (Lee H, 2004).

Spanish retailer Zara has hit on a formula for supply chain success that works. By defying conventional wisdom, Zara can design and distribute a garment to market in just fifteen days

From Harvard Business Review

- ⇨ Minimizes bureaucracy
- ⇨ Provides the opportunity for more immediate comment and feedback
- ⇨ Allows speedier decision making
- ⇨ Lessens the potential impact of changes in circumstances such as an amendment to retail orders

Box 2: ZARA

(Ferdows K, Lewis M, Machuca J, 2005)

Unlike most companies, which try to excise redundant labor to cut costs, Zara makes a point of running three parallel, but operationally distinct, product families. For each clothing line, there are dedicated design, sales, and procurement and production-planning staffs. A store may receive three different calls from La CoruÃ±a in one week from a market specialist in each channel; a factory making shirts may deal simultaneously with two Zara managers, one for men's shirts and another for children's shirts. The information flow for each channel is fast and direct, making the overall supply chain more responsive.

In each hall, floor to ceiling windows overlooking the Spanish countryside reinforce a sense of cheery informality and openness. Unlike companies that sequester their design staffs, Zara's cadre of 200 designers sits right in the midst of the production process. Split among the three lines, these mostly twenty something designers—hired because of their enthusiasm and talent, no prima donnas allowed—work next to the market specialists and procurement and production planners. Large circular tables play host to impromptu meetings. Racks of the latest fashion magazines and catalogs fill the walls. A small prototype shop has been set up in the corner of each hall, which encourages everyone to comment on new garments as they evolve.

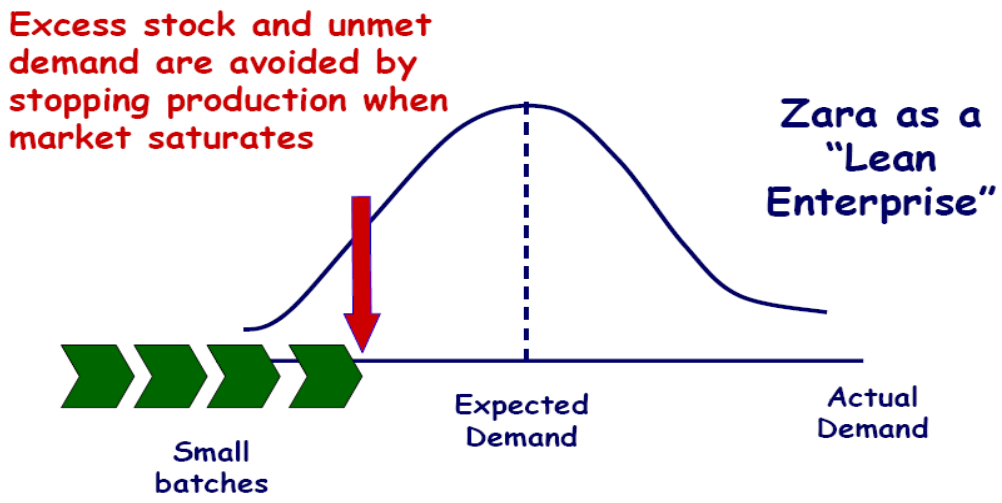
Flow of the information throughout the chain is as follows **Designers** can quickly and informally check initial sketches with colleagues.

- **Market specialists**, who are in constant touch with store managers (and many of whom have been store managers themselves), provide quick feedback about the look of the new designs (style, color, fabric, and so on) and suggest possible market price points.
- **Procurement and production planners** make preliminary, but crucial, estimates of manufacturing costs and available capacity.
- The **cross-functional teams** can examine prototypes in the hall, choose a design, and commit resources for its production and introduction in a few hours, if necessary.
- Once the team selects a prototype for production, the **designers** refine colors and textures on a computer-aided design system.
- If the item is to be made in one of Zara's factories, they transmit the specs directly to the relevant cutting machines and other systems in that factory.
- Bar codes track the cut pieces as they are converted into garments through the various steps involved in production (including sewing operations usually done by subcontractors), distribution, and delivery to the stores, where the communication cycle began.

⇨ Mitigates the so-called bullwhip effect—the tendency of supply chains (and all open-loop information systems) to amplify small disturbances. A small change in retail orders, for example, can result in wide fluctuations in factory orders after it's transmitted through wholesalers and distributors. In an industry that traditionally allows retailers to change a maximum of 20 percent of their orders once the season has started, Zara lets them adjust 40 percent to 50 percent. In this way, Zara avoids costly overproduction and the subsequent sales and discounting prevalent in the industry.

⇨ Reduces the risk of loss through overproduction

Figure 6: Small Batches reduces Risk



Source: Figure based on the information extracted from the lecture given by Heyden L. in 2006 titled Business Model Competition: M&S versus ZARA

⇨ The relentless introduction of new products in small quantities, ironically, reduces the usual costs associated with running out of any particular item. Indeed, Zara makes a virtue of stock-outs. Empty racks don't drive customers to other stores because shoppers always have

new things to choose from. Being out of stock in one item helps sell another, since people are often happy to snatch what they can. In fact, Zara has an informal policy of moving unsold items after two or three weeks. This can be an expensive practice for a typical store, but since Zara stores receive small shipments and carry little inventory, the risks are small; unsold items account for less than 10 percent of stock, compared with the industry average of 17 percent to 20 percent. Furthermore, new merchandise displayed in limited quantities and the short window of opportunity for purchasing items motivate people to visit Zara's shops more frequently than they might other stores. Consumers in central London, for example, visit the average store four times annually, but Zara's customers visit its shops an average of 17 times a year. The high traffic in the stores circumvents the need for advertising: Zara devotes just 0.3 percent of its sales on ads, far less than the 3 percent to 4 percent its rivals spend.

- Zara's vertically integrated supply chain system enabled the company to place the latest designs in any store across the world within a period of two to three weeks. The company produced garments as per the latest trends in a limited quantity. Zara introduced 12,000 designs every year, with new designs appearing in the stores globally, twice a week.

- Zara introduced about 12,000 designs every year; the shelf life of each design was about four weeks. In January 2006, Zara had 853 stores, located across the world. These stores received two deliveries from Zara's central distribution center every week. The deliveries were customized in accordance with the data sent by them every day.

- Zara pioneered the concept of customized retailing and was able to conceptualize the garment, develop, and deliver it to the stores within two to three weeks. The key to Zara's success was its vertically integrated structure where design, production, distribution, and

retailing were integrated. Maria J. Garcia, spokeswoman for Zara, said, "The vertical integration of our production system allows us to place a garment in any store around the world in a period between two to three weeks."

⇨ Zara's vertically integrated supply chain received the attention of industry players and analysts. According to Richard Hyman of Verdict, a retail consultancy in London, "Vertical integration has gone out of fashion in the consumer economy; Zara is a spectacular exception to the rule."

6.4 MARKS & SPENCER

In horizontal supply chain network, the best example is Marks & Spencer. M&S Group p.l.c. is one of the UK's largest retailers of women's and men's wear, lingerie and children's wear. The company's stores also sell food and home ware and provide financial services. Marks & Spencer serves some 10 million customers a week in over 375 UK stores. In addition, it has 155 stores managed under franchise and owns 43 stores in 28 territories mostly in Europe, the Middle East, Asia and the Far East (www.marks&spencer.com). In the US the company is present with its supermarket group, Kings Super Markets. UK Retail accounts for 88% of the group's total turnover. In order to improve its profitability, Marks & Spencer has restructured its business in the last three years and has geared its strategy towards growth in its most important segment - clothing.

The company will also seek to reposition its Home business and to increase the appeal of its food stores. With 90% of clothing sourced overseas, Marks & Spencer, like other companies, is highly exposed to supply chain management related risks. Parts of the supply chain in the UK have traditionally been integrated through either partnerships with retailers or through formal vertical integration. Leading textile manufacturers, such as Coates-Viyella and Courtaulds once owned their own clothing manufacturing plants, but such vertical integration has largely been abandoned (Oxborrow, 2000). More successful and enduring have been partnerships formed between retailers and their major domestic suppliers. The longest standing and most developed examples are those formed by Marks and Spencer. The M&S partnerships extend to textile, as well as clothing, suppliers and deeply permeate the business practices of these suppliers. The movement towards faster replenishment of stocks is leading to a variety of innovations in these retailer-supplier partnerships. However, there is a sense among suppliers that much of the development of closer relations is one-sided in that it largely benefits the retailer. Examples include insufficient allowances for the added

costs of services provided and the scaling back on purchasing commitments in the middle of the season.

Box 2: M&S

(www.marks&spencer.com)

Suppliers Relationships

M&S have approximately 2,000 direct suppliers of finished products. Around 1,500 supplying clothing, footwear, beauty and home products and about 500 foods.

- ⇨ Marks & Spencer sources products around the world in order to provide customers with the best quality at a competitive price. Most of their apparel is now sourced overseas.
- ⇨ To ensure good standards of employment practices they base our sourcing decisions on a supplier's ability to meet their Global Sourcing Principles.
- ⇨ They hold regular meetings with our major suppliers and have a programme of visits and conferences. Their expectations are detailed in contracts and supported by a library of technical specifications for each type of product.
- ⇨ The prices paid to suppliers are determined by a process of negotiations set within the current marketplace.

Quality Management Systems

They employ a large number of technologists to set and develop quality standards, and work with their suppliers to make sure that we meet them. To do this, issues such as quality, hygiene, environmental requirements, ethical trading and animal welfare are built into their Quality Management Systems. Their Quality Management Systems contain policies, standards and Codes of Practice as well as details on how the supplier's performance will be monitored. Depending on the issue some standards can be checked by testing the product itself and others require either Marks & Spencer or independent audits.

Despite the rising emphasis on retail-supplier partnerships, the frequency with which such arrangements are adopted remains uncertain. The majority of suppliers (58%) had no partnerships in 1994, while about 7% had partnerships with 3 or more retailers (Oxborrow, 2000). The majority of those suppliers that have retail partners are partnered with only one customer, and that customer is often Marks and Spencer. Retailers initiate the majority of partnerships, but those manufacturers with multiple partnerships are more likely to have initiated subsequent partnership agreements. Oxborrow, 2000 argue that while more supply partnerships are being formed, many of the largest retailers are deliberately reducing the number of key suppliers with whom they deal, as witnessed by the recent decision by Marks and Spencer to drop several of its established suppliers.

Britain's biggest clothing retailer and best known high-street name has seen its shares lose half their value in the last year. M&S's problems seemed obvious to an outsider visiting its shops. Zara not only offers trendier clothes at competitive prices but changes their stock at break-neck pace so the customer can always find something new. M&S's buyers seemed to take a snooze after the fall buying season ended. Stores all over the country carried the same stock, oblivious to differences in consumer preference or lifestyle. And the stock stayed on the racks forever. By the time the stuff went on sale, everyone was sick of it.

As mentioned in the case study published by INSEAD, titled "Marks & Spencer and Zara: Process Competition in the Textile Apparel Industry", M&S summarized its challenges in its annual report 1999 as follows:

"Our challenge is clear – to retail our position as the leading clothing retailer in the UK, where our share in adult clothing continues to grow, while supporting our expansion overseas. We constantly upgrade our product ranges through innovation and technical development. We now anticipate trends better and buy new fabrics and colors with greater confidence, so appealing to our broad

customer base through a balance of styles – fashion and classic, formal and casual – across all our ranges."

6.5 LI & FUNG, HONG KONG

Li & Fung, a Hong Kong based company that serves private label apparel firms in Europe and North America. They are not the retailers but the strategies they use for the integration of their network are good example for retailers to become competitive and highly responsive. It maintains a network of 7500 suppliers in 26 countries; (Bitran G, Gurumurthi S, Sam S; 2006) even though it does not own any of the factories that are part of its vast supply and trading network. The inner workings of Li & Fung are best understood through looking at a typical order flow.

Magretta (1998), cited by Lam J, Postle R (2005), argue that Li &Fung has been a pioneer in "dispersed manufacturing". It performs the higher-value-added tasks such as design and quality control in Hong Kong and out sources the lower-value-added tasks to the best possible locations around the world. The result is a truly global product. To produce a garment, for example, the company might purchase yarn from Korea that will be woven and dyed in Taiwan, then shipped to Thailand for final assembly, where it will be matched with zippers from a Japanese company. For every order, the goal is to customize the value chain to meet the customer's specific needs.

Upon receipt of the order within a division, Li & Fung dissects the manufacturing process for the order and attempts to optimally allocate the work at each step to its global supply partners. As a typical result, the manufacturing process is divided into two sub-processes: the front-end (sales and design) coupled with the back-end (logistics and banking), and the labor intensive middle portion. The front and back-end are typically performed in Hong Kong where the requisite advanced skills are often available; whereas the middle portion is further decomposed into various segments, and Li & Fung finds the best factory to serve each segment. The entire process is tied together in the end with IT and logistics. The following illustrates the order splitting and combining process: when Li & Fung receives an order to produce 10,000 garments, it may decide to source zippers from Japan,

purchase and weave yarn in Korea, dye in Taiwan, and produce the garment in Thailand. It will then reach into the supply chain by reserving un-dyed yarn from the supplier, reserving a fixed mill capacity for milling and dying, and reserving factory time for producing *x* numbers of garments in *y* weeks. Li & Fung then coordinates and manages the logistics and transportation involved in the supply chain, such that in about five weeks from when the order is received, 10,000 garments may arrive on the shelves of the customer. Thus, by using its buying power and trust developed with its supply base, Li & Fung is able to considerably shrink the delivery cycle of time sensitive products. This allows its customers to buy closer to time-to-market, resulting in substantial savings both by reducing expensive inventory markdowns at the end of selling seasons, and through reacting quickly to changes in demand.

The outcome of this chapter is the understanding of integrated systems adopted by world major retailers. All of the strategies are varied with the brand, retailer market, product type and organization type but the main objective of all of them is to create better understanding with the suppliers' and establishment of IT infrastructure so that all the partners can be closely linked to each other and can work for a single objective. Either the vertically integrated companies or the companies using supply chain optimization for their specific product type, both are in a way to achieve highly responsive network in the fashion apparel but it is slightly different for commodity products. It is observed that developing trust within the partners is quite difficult thing and most of the retailers are being affected regarding lead times, quality and price due to non-trust relationship.

To achieve this trustful environment allover the supply chain can only be achieved through implementing transparent fully integrated network which has already been discussed in the previous

chapter. The next chapter would deal with the possible future scenarios in the textile/apparel industry regarding integration.

CHAPTER 07

PROPOSAL OF IMPROVING INTEGRATION IN THE TEXTILE/CLOTHING INDUSTRY

7. PROPOSAL FOR IMPROVING INTEGRATION IN THE TEXTILE/CLOTHIONG INDUSTRY

While investigating the integration of supply chain especially in Textile industry, the future of textile could be shifted to one of the following scenario or combination of all.

7.1 SCENARIO # 1: VERTICAL INTEGRATION IS THE FUTURE

The strategic reasons for opting for a vertical integration strategy have changed over the years. During the 19th century, firms used vertical integration to achieve economies of scale. During the middle of the 20th century, vertical integration was used to assure a steady supply of vital inputs (Desai A, Mukherji A; 2001). In some cases, the theory of transaction cost economics was applied to backward integration or forward integration, as a means to total cost reduction. That is, it was cheaper for a firm to perform the role of suppliers and distributors than to spend time and money to interact with such parties.

Subsequently, in the late 20th century, competition intensified in most industries. Corporate restructuring resulted in vertical disintegration by reducing the levels of vertical integration in large corporations ((Desai A, Mukherji A; 2001).

7.1.1 Main Reasons of Vertical Integration

A number of reasons have been suggested to explain the emergence of vertical integration.

- ⇨ The avoidance of transaction costs is one possible reason for vertical integration. It is argued that costs inevitably arise as firms bargain and disagree in the normal course of conducting

business. Transaction costs include all expenses and foregone opportunities that arise because of disagreements as well as the expenses incurred to avoid potential disagreements (Riethmuller p, 2001).

- ⇨ As mentioned in supply chain management review (2001) strategic choice in strategy development process – For example if suppliers are very powerful, a solution to that threat is to buy a number of them up.

- ⇨ Decrease the bargaining power of suppliers and customers

7.1.2 Benefits of Vertical Integration

- ⇨ Economies of scale

- ⇨ Economies of scope

- ⇨ Cost reduction

- ⇨ Competitiveness

- ⇨ Reduce threat from powerful suppliers and/or customers

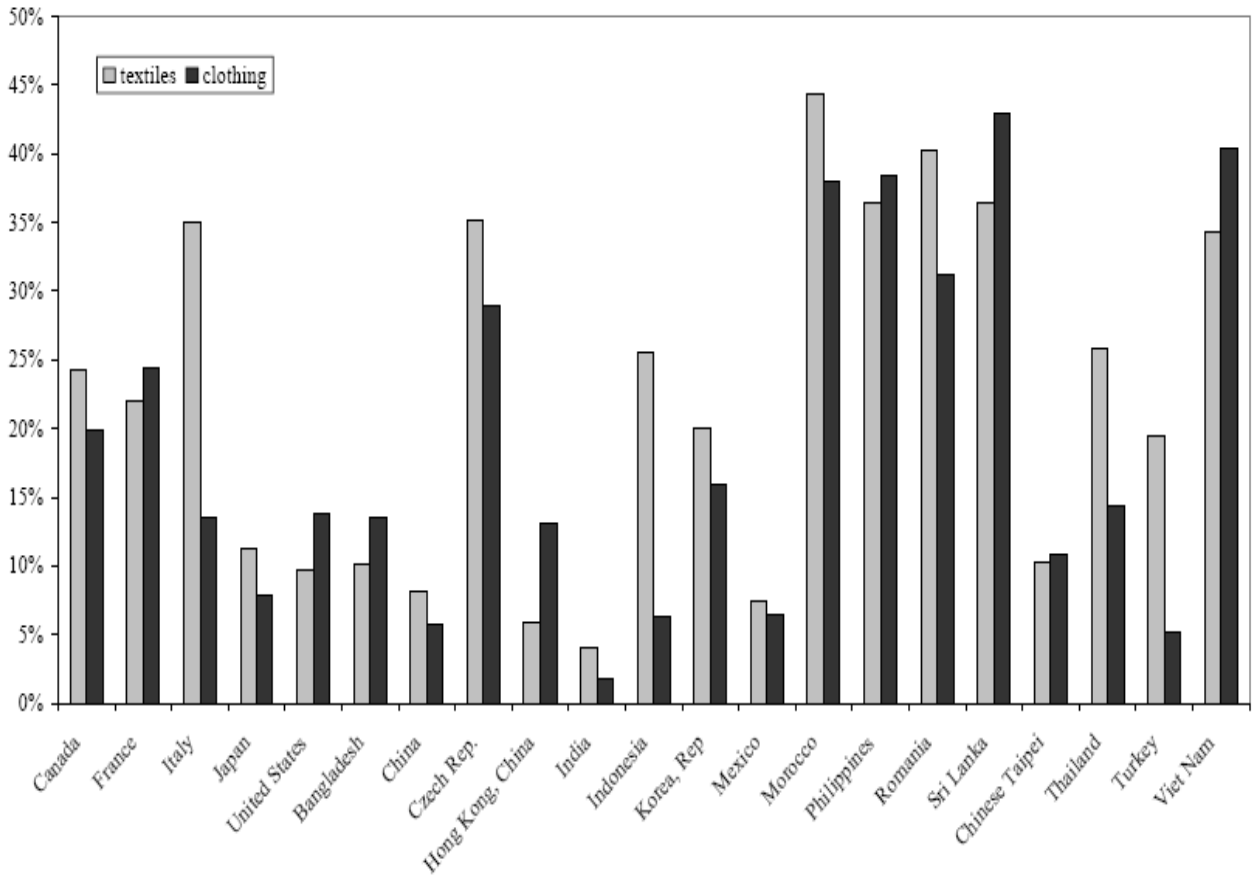
- ⇨ Higher degree of control over the entire value chain

The smaller and poorer countries mentioned above have a higher vertical specialization than the larger and richer ones, which means for being a part of production network entering the export market for small and/or poor countries could be beneficial (Nordås H, 2004). As mentioned by Nordås H. (2004), it is observed that

- ⇨ Small countries are indeed more likely to engage in vertical specialization than larger countries

- ⇨ The quality of infrastructure is an important determinant. The better the quality, the larger the share of total exports driven by vertical specialization
- ⇨ Countries with a low score on control of corruption are less likely to participate in vertical specialization in the clothing sector, underscoring the importance of the smooth and timely flow of goods, payments and information.

Graph 2: Vertical specialization share in exports, selected countries and territories, 2001



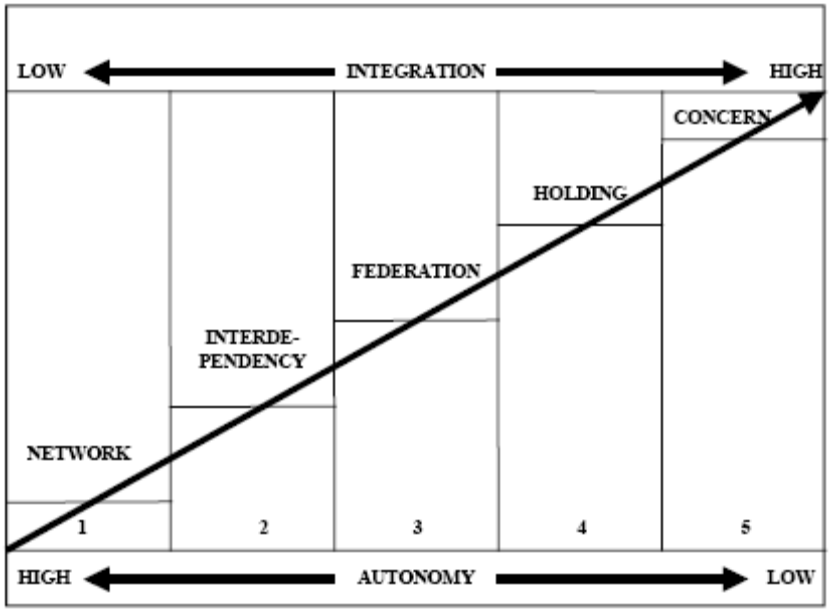
Source: GTAP cited by Nordås H, 2004

7.1.3 Issues involved in Vertical Integration

1. High investment
2. Loss of response flexibility to environmental changes
3. Achieving optimal degree of vertical integration

There is no such thing as a completely integrated or a completely non-integrated firm. Thus the issue is not a choice between these two polar alternatives. Rather, it is a matter of selecting the optimal degree of vertical integration. The degree of vertical integration can hardly be determined via quantitative means (Desai A, Mukherji A; 2001).

Figure 7: Levels and images of integration



Source: de Koning, 1994 cited by Isaksen J, Dreyer B (2000),

4. Simplicity makes Complexity

Whilst Vertical Integration may solve one headache, the firm may well be acquiring a bunch of others (Isaksen J, Dreyer B; 2000). Compare Core Competence. Load and capacity balancing between the old and the new activities may be hard to achieve.

de Koning (1994), cited by Isaksen J, Dreyer B (2000), argues that the traditional definition of VI has some weaknesses, and proposes to look upon VI as a continuous variable. He also emphasizes the negative correlation between degree of VI and autonomy

New entrants in the major markets have been able to compete with low-cost competitors on the basis of quick responses to retailers' requirements and short lead times. One example of this is American Apparel, which is a vertically integrated clothing firm with production facilities in Los Angeles, employing 3,000 people. It is the largest sewn products facility in the United States, and the average wage paid to sewers is $12.50 per hour. The company also has a distribution centre in Canada and offers two-day air-freight to Europe. It markets itself as a sweatshop-free, socially responsible company, which appears to be a successful competitive factor in addition to the product itself, which are mainly T-shirts for young people (Nordås H, 2005).

Another example of vertical integrated company is Bareeze. Its outlets can be found in most shopping districts around Pakistan, offering a range of original, finely embroidered products. Bareeze now has 36 stores, with 30 in Pakistan, one in India, four in the United Arab Emirates (Dubai, Abu Dhabi and Sharjah), and one in London. They are aiming to have about 100 stores around the globe (www.csi-pk.com/bareeze.php).

Their brand is very established in Pakistan and the fabrics are regarded as very expensive. The quality of the fabrics is also well-recognized, not only in Pakistan, but also in other countries, like India (Zubair A, 2006).

Bareeze is supported by three companies with a total workforce of about 2,000 people. The stores stock merchandise ranging from embroidered fabrics and home textiles to garments for all ages, from newborns to adults. Among the three companies, Sefam (Pvt.) Ltd is a retail firm which owns various brand names, while Sarena Industries & Embroidery Mills (Pvt.) Ltd and Ali Embroidery Mills (Pvt.) Ltd are manufacturers. Both Sarena Industries, which conducts dyeing and finishing along with embroidery, and Ali Embroidery Mills possess state-of-the-art computerized Swiss schiffli embroidery machines and designing systems. The two together have the largest production capacity for schiffli embroidery in Pakistan (www.bareezeonline.com).

So, it has been observed that small retailers can adopt the vertical integration concept quite confidently as compare to huge global retailers like Marks & Spencer. But, it could be considered as on of the options of the textile/apparel industry future that companies reverse back to vertical integration.

7.2 SCENARIO # 2: SUPPLY CHAIN OPTIMIZATION IS THE FUTURE

In the current scenario, companies are moving towards disintegration and the importance of supply chain planning an optimization is increasing day by day.

7.2.1 Main Reasons of Vertical Disintegration

- ⇨ Low Investment
- ⇨ Low Risk & Liabilities
- ⇨ Highly responsiveness to new technologies through contracting specialized suppliers
- ⇨ Low cost by contracting suppliers from different economies

7.2.2 Issues

- ⇨ Less control over supply chain
- ⇨ High cost as compare to vertically integrated network in some cases
- ⇨ More lead Time
- ⇨ Shared Profit
- ⇨ Building relationship with supplier
- ⇨ Managing power in the supply chain

Despite of all the benefits of vertical integration, the main danger is the huge investment although the benefits of vertical integration could also be achieved through supply chain optimization. As Prahalad and Hamel (1990) cited by Herrigel G, Wittke V (2004), argue that the companies cannot

respond efficiently due to intensifying global competition, rapid technological change, shortening product life cycles, and greatly variegated consumer demand for product customization. To save time and resources, companies concentrate their activities on core competence areas. In all other areas outside core competences, companies rely on suppliers to contribute essential components, systems and aspects of product development.

Vertical disintegration is facilitated by the widespread use of information and telecommunications technologies, which support lower transaction costs between market participants. As lower transaction costs can be achieved using information and communication technologies, rather than by vertically integrating, firms start to vertically disintegrate. As the market grows larger and/or transaction costs of coordinating services across networks become smaller, these intermediate scale economies become relatively more important and lead to vertical disintegration (Fontenay A, Hogendorn C; 2005).

So, to improve the supply chain integration without moving toward vertical integration, the challenges are

- ⇨ Create or improve IT infrastructure
- ⇨ Building strong relationship with suppliers

7.2.3 Create or improve IT infrastructure

One of the most important part of the supply chain is the development of centralized IT infrastructure and its effective implementation allover the chain so that the visibility across the chain can be increased and each of the partner can get the real time information regarding market

demands and sales. There are number of strategies being adopted by big retailers and it demands more integration and understanding of these concepts and efficient implementation allover the network.

Lean retailing practices have in many ways paved the way for ecommerce, by requiring and exploiting the use of various critical technologies, streamlining the supply chain, promoting information exchange in the supply chain, and requiring smaller quantities of products to be manufactured and shipped in response to actual consumer preferences (Bruce M, Daly L, Towers N; 2004).

Lummus and Vokurka (1999) cited by Au K, Ho D (2002) argue that the historical evolution of supply chain initiative can be traced back to the development of quick response (QR) programs in the textile and clothing industry.

QR is a

"Strategy where the manufacturer strives to provide products and services to its retail customers in exact quantities on a continuous basis with minimum lead times, resulting in minimum inventory levels throughout the pipeline".

Fiorito et al. (1998, p. 237) cited by Au K, Ho D (2002)

It also involves bar coding, scanning, and online electronic communication of trading information between retailers and suppliers via electronic data interchange (EDI).

Some of the technologies being in use are

- Computer-aided-manufacturing (CAM) is considered to be an essential in lay planning and cutting. The use of computer technology in design has aided the international development

of clothing and is in widespread use the advanced economies, particularly in those importing a high proportion of clothing from the Far East (Au K, Ho D; 2002).

- Supplier countries or would-be suppliers are using the Internet as a means of submitting technical information, pattern amendments and even new design ideas to their customers in Western Europe and North America. As markets have become more sophisticated, the selling periods related to seasons have shortened to around 13 weeks, necessitating a very rapid response to changes in consumer tastes and product development times are being reduced.

- Product identification using bar coding and point-of-sale scanning, used to provide immediate, accurate information on which products have sold

- Electronic data interchange (EDI), used by the retailer (Bruce M, Daly L, Towers N; 2004) to place replenishment orders quickly and accurately

- Computer-based technology permits the rapid transfer of data, including design sketches, around the world. Concepts discussed in Berlin, London, Paris and Rome, as well as in New York, Los Angeles and Hong Kong, can be sent to factories anywhere in the world in a few moments and patterns developed and sample making can be carried out in hours, or at most in a few days (Kohler K, Hammond J; 2000).

- Electronic data transfer between customers (retailers) and manufacturers allows them to cut and sew just what is needed rather than making for stock. Full body scanners are now available on the High Street, so the sellers of tailored garments can give the individuals measurements to the manufacturer ((Kohler K, Hammond J; 2000) with increasing accuracy and provide a three-day delivery cycle for the finished product.

7.2.4 Building strong relationship with suppliers

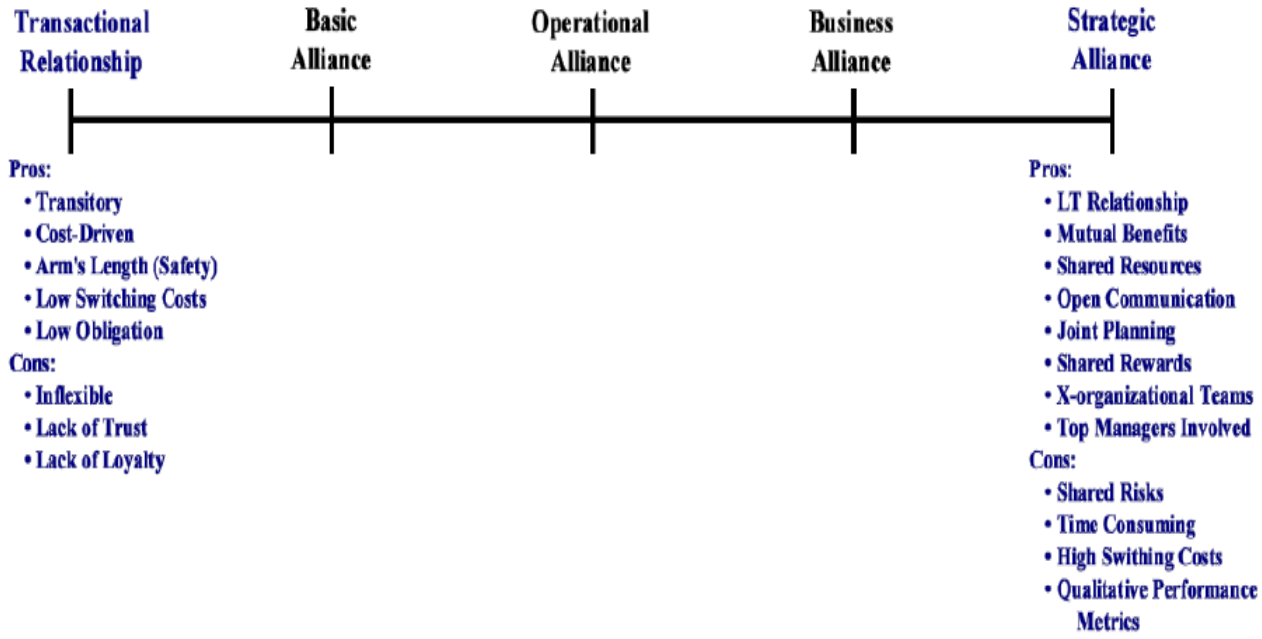
Ford, 1980; Buttle (1996), cited by Daly L, Towers N (2004), argue that relationship management is a well-trammeled area and encompasses the management of the chain and the building of partnerships between different parties within the chain. Throughout the literature, collaborative relationships and partnerships are described as preferential situations, and as beneficial to all parties involved.

Overall, china's share of the world's textile and clothing market is expected to jump from 17% in 2003 to more than 50% within 3 years. Other low-cost countries are expected to benefit as well, including India and Pakistan. Over the next five years, companies will consolidate their global sourcing operations and streamline inefficient and far-flung supply networks. By becoming more strategic, companies will gravitate fewer, larger and more integrated factories. Wal-Mart, for example, expect to reduce the number of countries in which it has apparel sourcing deals from 63 to just four or five (www.walmart.com), and has already crafted exits plans from dozen of countries. Similarly, European private-label retailers are beginning to consolidate their suppliers operations. This is a zero-sum game, with saving either acquiring to supplier factories, to branded retailer or build trust and communication and collaboration between them.

Retailer plays an important role in textile/apparel supply chain. It is dominated by powerful high-street retailers with multiple and often internationally located outlets. Further back down the chain, the manufacturing sector of the industry consists of large numbers of small companies with a limited amount of power (Gereffi, 2003). As cited by Daly L, Towers N (2004) at Bhamra et al. (1998), it may be argued that partnership agreements exist between these companies in the textiles and clothing industry, it is questionable whether these are actually partnerships with benefits for all

parties or whether these are a means by which the retail sector is able to exert power over the smaller suppliers in order to push down prices.

Figure 8: Forms of Relationships



Source: Fawcett S, Magnan G, McCarter M; 2005

7.2.4.1 Improvement

The main areas of improvement in building strong relations and collaboration with the suppliers are

- ⇨ Mutual Benefits: sharing costs and profits
- ⇨ Open Communications
- ⇨ Building Mutual Dependence and Trust

- ⇨ Share Risks
- ⇨ Agreed on Priorities
- ⇨ Not negotiating only on prices

Mutual Benefits: sharing costs and profits

It is necessary to improve the performance of whole supply chain; there should some attraction for the entire supply chain partner in maintaining the chain. Such a kind of attraction could make more profits or has a better control over cost. Such a cost and benefit sharing system can be observed (Bitran G, Gurumurthi S, Sam S; 2006) in Li & Fung's operations. The company shares cost by

- ⇨ Assistance in production planning and by advancing letters of credit to the suppliers
- ⇨ Financial support to factories for helping them in bidding for more quotas
- ⇨ Rewards for consistently outperforms. The company maintains a very comprehensive performance benchmarking system that allows it to track performance levels of each player. Although time-consuming and expensive, benchmarking has provided Li & Fung with a deep knowledge of the supply side, which in turn allows them to allocate work optimally.
- ⇨ A player who under-performs, on the other hand, receives in-depth feedback which can be dissected and internalized to achieve stronger performance and to be on par as its counterparts.

Such a kind of profit sharing has not been observed in M&S or any other big retailers. So, it could a step forward for better dealing with suppliers and make the chain more responsive and efficient.

Share risks

It has been observed that a large majority of companies hesitate to share risks and rewards in all instances, they are particularly reticent when it comes to sharing upstream with suppliers. Due to this makes building relationships based on equal sharing is quite tiring effort (Fawcett S, Magnan G, McCarter M; 2005). Real alliances cannot be one-sided relationships, so the risks and rewards should be shared on equal basis.

Mutual Dependence and Trust

Mutual and well-balanced dependence helps build enduring relationships, while asymmetry in mutual dependence increases the possibility of mistrust and conflict within the network. The cultivation of mutual dependence will also, with time, establish a high level of trust within players in the network (Bitran G, Gurumurthi S, Sam S; 2006).

Trust has numbers of antecedents including open and honest information sharing, commitment, clear expectations, and follow through and it is considered as on e of the challenges in developing a real trust based relationship. Real trust exists only when both sides agree that it does. Relationships that one party describes as trust-based are often viewed as less friendly and less mutually advantageous by the other side (Fawcett S, Magnan G, McCarter M; 2005).

As an example, observed by Bitran G, Gurumurthi S, Sam S (2006) Li& Fung maintains each of the 7500 suppliers. Li & Fung cultivates trust by paying several visits to the suppliers during the production process. These factory visits are coupled with continuous training for suppliers to develop the knowledge and skills required to convene the company requirements. All of these incentives and training helps to create a high level of mutual dependency and trust between Li & Fung and the suppliers.

7.2.4.2 Strategic & Operational Issues

- ⇨ Mass customization
- ⇨ Small batch Sizes
- ⇨ Short Lead Times

7.3 SCENARIO # 3: COMBINATION OF BOTH ON THE BASIS OF SEGMENTS

Will vertically integrated companies outperform the vertically disintegrated network? No evidence exists to answer that question one way or the other. The best answer may be that it depends on the situation. For example, if the critical factor in a market were low cost and if there were cost advantages to having integrated operations, then the vertically integrated company would have a distinct competitive advantage. If, on the other hand, fast cycle time and high product innovation were the key market drivers, a nonintegrated supply network might hold the competitive edge. In short, there's no universal answer to the question of which supply chain model is always best.

It has been observed that there is a need of separate strategy for standardized and differentiated (or fashion-oriented) goods. In the clothing industry, this is reflected in product segments. Menswear tends to be standardized and women's wear more fashion-oriented. The production patterns and trade networks for these two types of products are very different. Gereffi G (2003) argue that United States' companies such as Levi Strauss, Phillips-Van Heusen, Fruit of the Loom or Sara Lee that make standardized products like men's dress shirts or pants, underwear, blue jeans and jogging suits generally use larger, vertically integrated factories, and much of their production is carried out in the United States or in production sharing arrangements with Mexico and Central American and Caribbean countries (Bae J, May-Plumlee T; 2005).. Fashion-oriented companies that emphasize women's wear, like Liz Claiborne, The Limited Inc. or most big retailers, buy from a large number of small contractors, with most of these factories located in Asia.

There are lots of examples of vertically integrated and vertically disintegrated companies and running successfully. In United States, commodity product retailers not fashion retailers using vertically

integration and they are successful in delivering service but at the same time, lots of fashion based vertically integrated companies who are successful as well. So the selection of vertically integrated and disintegrated network is not only based on the factor of mass production and low cost suppliers but it involves

- **Company's core competencies (Fashion, Commodity or both)**

It involves the integration of supply chain on the basis of company's market presence. As for the fashion items the strategy of being highly responsive could be successful in all means as it is considered as the competitive edge but there is no need of such responsiveness in commodity items. It is observed that the vertical integration is not that much beneficial from retailer's point of view as it involves risk and it has a quite limited vision but at the same time the vertical integration for commodity chain up till apparel manufacturing really means of highly profitable business.

- **What quality means to company**

It has been observed that quality is considered to be very wide term, which can be defined in the number of ways. When we look at Debenhams supply chain, the quality of fabric, stitching, colors, looks all of them are given first priority but in case of Primark the low cost of product is on the top due to which they lack in stitching and fabric quality, but as long as they attract a good percentage of people on the basis of low cost, they are considered as much successful as other big retailer. But they can never attract customers whose preference is Quality.

- **Product range**

The more the product range, the more difficult is to manage the supply chain. For such a huge product range like M&S, the vertical integration would be quite expensive and complex option but

with the collaboration to variety of suppler from allover the world, one can effectively respond to market requirement within reasonable cost and lead times.

- **What alternatives available to the company to minimize Cost, Lead times, Batch Sizes**

These alternatives are could be the availability of low cost manufacturers in developing countries and hiring and contractual arrangements to own the manufacturing and keep control on it. Like Wal-Mart could hire some companies in India, China, Pakistan or any other developing country to get the benefits of vertically integrated network and also keep flexible with the help of number of alternatives for raw material like vertically disintegrated company.

The aim of this chapter is to offer the reader an overview of the future of textile/apparel industry. The vertically integrated companies are assumed as an ideal case that can not be achieved easily in today's global market. It has been observed that vertical integration could be possible for a segment not for the whole supply chain. For any big retailers like Wal-Mart, JCPenny, Gap, Debenhams, and M&S who are dealing with very huge supply chain with large number of products, it is quite intricate to put everything in their own manufacturing company because it involves huge investment and need a continuous up-gradation of the site with the up-gradation in technology. Vertically integrated strategy could be very successful in small companies with similar and limited number of products. While the textile and apparel manufacturing chain is successfully running through vertically integrated strategy. As in developing countries, established companies are involved from yarn manufacturing to the final garments. Due to low labor cost, low government taxes and availability of raw material it is highly profitable strategy to integrate whole processing and manufacturing under one roof. So, it is proposed that retailer can hire and make contract with their apparel suppliers in

developing countries to get the benefits of vertically integrated company right from yarn manufacturing to availability of an item in the retail shop.

CONCLUSION

CONCLUSION

Supply chain involves all the activities in delivering product from raw material to the final customer. The supply chain activities span from internal organization to external trading partners of suppliers, carriers, third-party companies and information system providers. The management of the supply chain, therefore, is a complex process and involves

- ⇨ Trust
- ⇨ Partnership
- ⇨ Information sharing

between the upstream and downstream supply chain partners (Lam J, Postle R; 2005).

The key in global sourcing today is to minimize the overall cycle, and the most important way to do that is to have live, accurate, immediate information. It has been observed that the retailers play an important role in managing supply chains so; retailers have to take steps for the implementation of IT infrastructure. The adoption of information technologies and telecommunications brings advantages such as the reduction of document transfer times between companies, and an increase in reliability, precision and certainty in data transfer, and the elimination of document insertion time in company information systems (Forza C, Vinelli A, 1997). Large retailers like Wal-Mart, M&S, and JC Penny etc. have maximum power in supply chain and they can exert pressure to their supplier for the adaptation of integrated network. As from the authors experience, the textile and clothing companies are almost integrated in developing countries in the manner that they start from basic fabric or sometimes from fiber and go through the entire textile processes and then manufacture apparel as well. So, there is an infrastructure of integrated textile/clothing network up till apparel

manufacturing within developing countries now there is a need of integration of manufacturing companies with the retailers. This integration can be achieved through collaboration with the suppliers. It is understood that there will be a drop in number of manufacturing companies in developed countries day by day and global sourcing will continuously be adopted by the large retailers, so the main issue regarding integration is making alliances with the supplier and create trust allover the chain. Thus a growing concentration at the retail end of the value chain is generating networks of collaborators as well as competitors in the upstream segments of the chain (Nordås H, 2002).

It has been observed by the author that there is a lack of collaboration between manufacturer in developing countries and the big retailers. Those companies due to their business risks do not want to say 'NO' to any customer and without the assessment of their capabilities and capacities they are just focus on getting the order as much as they can without thinking whether they can fulfill the requirement or not. Retailers need to think about the suppliers capabilities before placing orders. They have to build a trust between them and the correct supplier so that the supplier should not have a risk of loosing customer. Like Wal-Mart and Ikea have their own standards and they audit their supplier against those standards. Such an approach helps supplier as well to improve their activities and also in return supplier gets surety of not loosing them. A standard like ISO9000 is also a good tool for assessing the suppliers. For effective information flow, collaboration and communication between segments of the supply chain are significant. Business conducted through internet via E-commerce, will be increasingly viable in the future ((Bae J, May-Plumlee T; 2005).

New strategies are being adopted by big retailers. With the real collaboration between manufacturer and retailers, the complete supply chain would get benefit in adaptation of those strategies. Mass customization and the quick response management strategies facilitate responding to customer's

request and preferences promptly. 3D body scanners, CAD/CAM systems, digital printing systems, and information technology using barcodes or RFID also support these strategies and bring advantages such as reduction in time and labor, increase reliability and precision, improvement in product variety and flexibility, and quality improvements (Bae J, May-Plumlee T; 2005).

The retailing revolution led by Wal-mart, and joined by other major retailers, has changed the dynamics of contracting in the apparel and textiles sectors. Wal-mart's approach to product purchase has been different from that of department stores; rather than specify the details of the garment's components (Bitran G, Gurumurthi S, Sam S; 2006), its buyers have simply said: "Here's the garment. Duplicate it for us."

Another important issue in this sector is that the quotas on textiles and clothing originally imposed under the Multifibre Arrangement (MFA) come to an end. The MFA, which was introduced in 1974, imposed restrictions on exports of 160 categories of textiles and clothing from developing countries to the US, EU, Canada and Turkey. The WTO's Agreement on Textiles and Clothing, which took effect in 1995, provided for the abolition of these restrictions over a 10-year period. It is widely believed that the bulk of garment production will now shift to Asia, particularly to China, where production costs are very low, and that the cost of clothing to consumers will consequently fall. There is no doubt that both China and India will gain market shares in the European Union, the United States and Canada to a significant extent (Nordås H, 2002). The effects of the abolition of quota restriction would be over the countries that are located far from the major markets and which have had either tariff and quota-free access to the United States and EU markets, or which have had non-binding quotas. Also local producers in EU, the United States and Canada are likely to lose market shares.

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