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Learning From Supply Chains: Benetton Group S.p.A and the Apparel Industry*

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The history of the apparel industry is an interesting one. In the past, companies competed primarily on style, price point, and marketing. These were the factors that mattered most and impacted customer buying habits. As fashion was seen to change with the seasons, products were prepared well in advance and new lines were marketed to draw customers. In current times, these facts may still be true, but companies are now incorporating new operational systems that are dramatically changing the face of the industry. Competing companies now realize that customer specific needs are essential and should be captured in sales. Costs associated with holding inventory are lowering profit margins and therefore better inventory management policies must be put in place. Lastly, outsourcing has become critical as companies are flocking to low cost manufacturing locations.

This article is meant to develop a better sense of the changes in the apparel industry over time. As many industries are feeling similar pressures, we see that the lessons learned here can be applied to other industries. A specific example is also given to illustrate how one company has refined their supply chain process to not only strengthen the company, but also improve their cost management. Again, this example is one that has been used in many different areas of manufacturing and therefore can provide further thoughts to improve many company's operations.

Introduction to the Apparel Industry

The apparel industry dates back thousands of years. It has evolved from a high number of small local level assembly and manufacturers serving local demand to an intricate global supply chain linking many countries. As the complexity has grown two aspects have defined the development of this industry, 1. Subcontracting networks for manufacturing and 2. Developments in preparing new seasonal fashion.

Historically, manufacturing was all done by one facility. A company would purchase specific fabric for their products, and dyeing, cutting, stitching, and packaging would all take place under one roof. By the 1970's this had almost fully broken down, where individual processes were found to be more effective when one facility handled them. As a result, each subcontractor in the network would focus on their phase of manufacturing, and collaborate with the group to move products through the entire process. The added efficiencies of this organization helped to improve the speed of delivery and save on costs through specialization. Contracting the work also increased production capabilities and allowed for

Some of the information provided in this article is adapted from the Harvard Business School Case: Benetton (A), 9-685-014, rev. February 6, 1989.

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greater flexibility to create new products or increase the complexity of a particular manufacturing phase if necessary.

In more recent times preparation for two seasonal sales cycles occurred, the spring collection and the fall/winter collection. As the apparel industry moved in this direction, companies began forecasting well in advance fashion trends, required inventory, and process requirements. For some companies these predictions would begin nine to twelve months in advance. This allowed a company enough time to choose the fashion image for the following year, prepare all the manufacturing with design layouts, work through prototype development, and build inventory to ensure the retail outlets were well stocked with new items.

The Benetton Group S.p.A.

The Benetton Group S.p.A., manufactures and markets fashion apparel in wool, cotton and woven fabrics. The company is involved in three distinct segments: apparel, textile, consisting of production and sales activities for raw materials (fabrics, yarns and labels), and semi-finished products. Benetton operates over 5,000 stores around the world and has been a consistent innovator in the industry.

Benetton has consistently refined its operations and supply chain processes. One example is a drying method that involved hanging finished goods instead of tumble drying. Another is a method for making wool fabric easier to form, cut and stitch. These process improvements were well ahead of their time in many cases, and helped the company as others struggled with old technology, systems and ways of thinking. The same can be said, when looking at the supply chain improvements Benetton has made throughout the past 30 or so years.

In the 1990's, Benetton reduced its new product development phase from 9 months to a 5 week cycle time for most products. At the time, this was unheard of in the apparel industry and few companies could compete against such speed. More recently in 2002, in-store replenishment was four weeks, and currently the company reports the cycle time is two weeks. One week replenishment takes place for high demand items, which is truly impressive. Most companies are struggling to deliver products in three months.

Benetton's commitment to supply chain improvements has been a quite lengthy, but rewarding process. We will now look closer at the companies supply chain model, and two specific areas, which provide insights into the factors behind the company's success, 1. Networked Manufacturing, and 2. Postponement in Dyeing.

The Benetton Group S.p.A. Supply Chain Model

Benetton has changed their supply change model in a number of ways. Originally the

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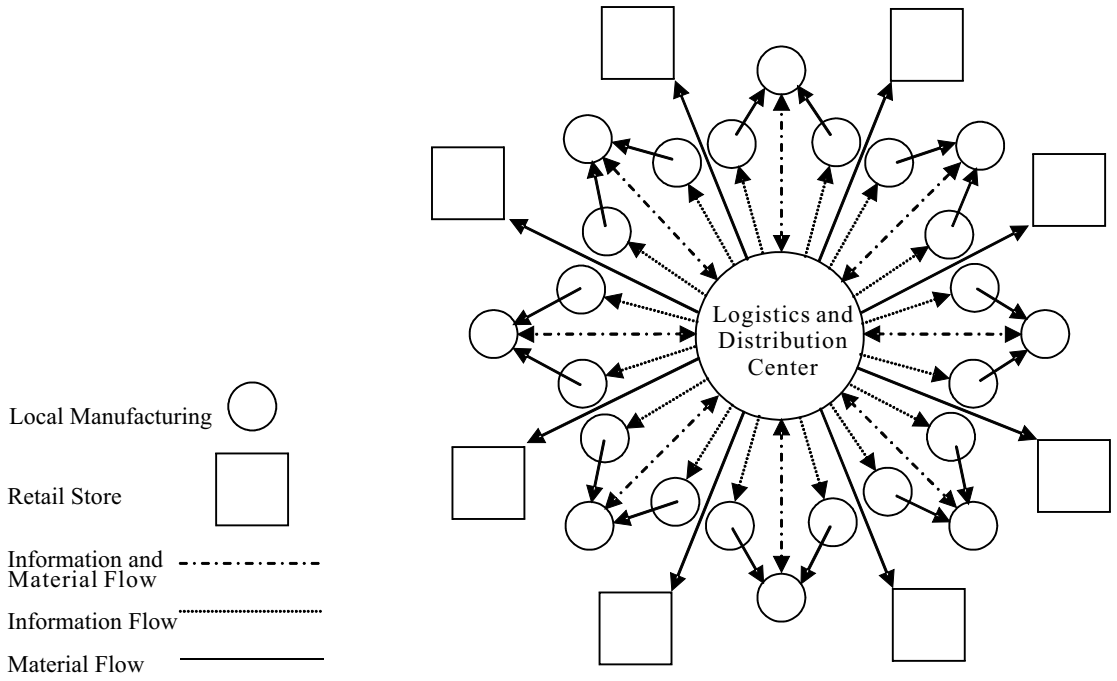
Company outsourced labor intensive production, for example tailoring, finishing, and ironing to local manufacturing networks. What they chose to keep internal were heavy investment strategies and operations such as weaving, cutting, dyeing, quality control at all phases, and finished goods packaging. Here is a diagram showing the historic supply chain model for Benetton.



In the mid-1990's as growth accelerated, Benetton designed a primary center to manage production, logistics and distribution. This facility is located near the company's headquarters in Italy and is referred to as the central pole. With the establishment of a consolidated central shipping center, the company is estimated to have saved 20% on transportation costs.

As this framework developed further, Benetton set up other similar regional poles around the world in its manufacturing centers. With this model, the head production pole in Italy now concentrates on the fashion design and electronically sends the product specifications to the regional poles. The regional poles then identify the production needs and source to a specific local manufacturing network. Once complete the finished products are sent back to the central pole for final shipment preparation and distribution to the retail outlets. In total, Benetton maintains 32 total productions centers, 22 in Italy, and 10 abroad. The following diagram represents this new supply chain orientation.

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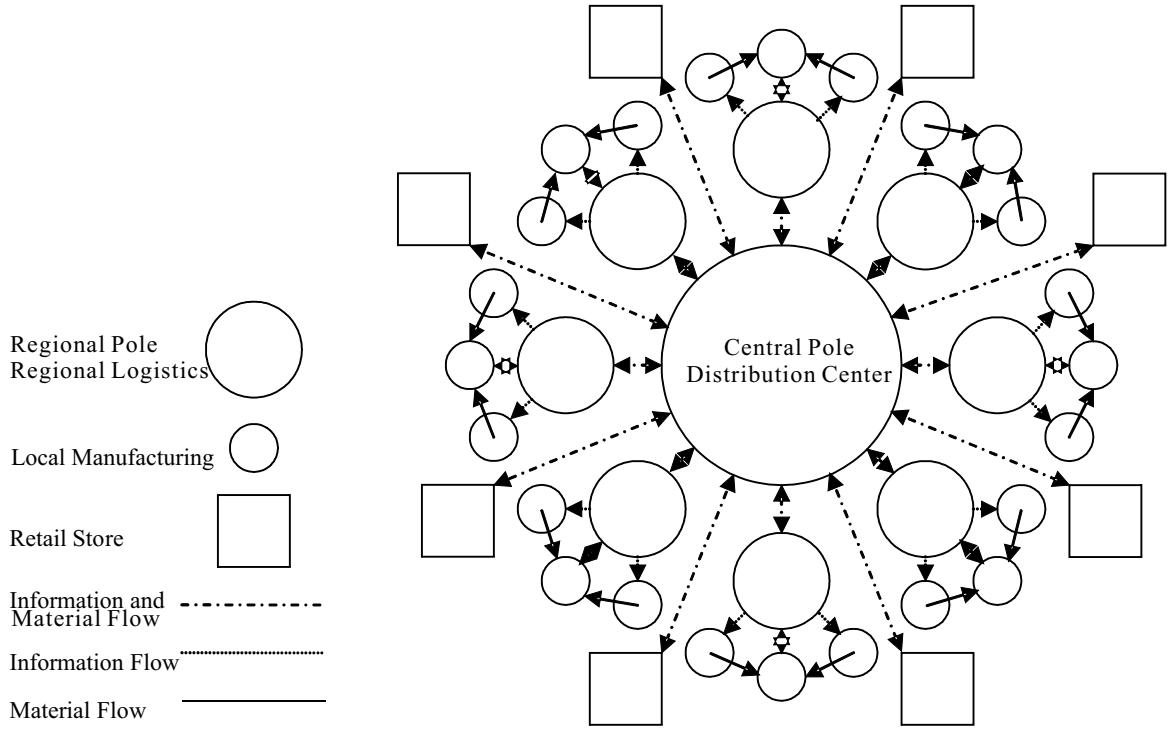

Through this model, Benetton has realized significant efficiencies through coordination, increased control, improved speed of production, and reduced inventories. In general, the company merely acts as an information transfer to the manufacturing networks through the regional poles. Once the product is complete, only then does it come back through the company's direct operations, where quality can be assessed, and direct distribution to the retail outlets takes place.

A timeline of supply chain developments highlights some of the major events that have taken place at Benetton from 1999-2007(Table1).

Now that we have a better understanding of the supply chain model Benetton uses, we can look more closely at the two aspects of the model that contribute to the companies success. The first is *Networked Manufacturing* where groups of manufacturers collaborate on specific orders that are targeted to their capabilities, batch size, flexibility in operations, and lead time to the central pole. The second is *Postponement in Dyeing*, which was a process improvement step Benetton created, which redefined common manufacturing processes in the industry.

Networked Manufacturing

The *Networked Manufacturing* system Benetton developed is an interesting

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Table1

	1999	2001	2003	2005	2007
Overview	Reteail store chnges to	Increased control over supply chain and logistics systems.	RFID used to track entire product supply chain.	Developed sales network	Increased Asian operations
Manufacturing and Distribution Operations	• Increased manufacturing capabilities in volume production	• Moved to a more vertically integrated system •Reduced product line under two brands •Controlled 85% of all raw material • Integrated technology that links local stores to the main pole in Italy	•Implemented RFID to track all products • Estimated to improve in-store sales by 5% due to better in-store availability	•Improved RFID logistics in supply chain. • Incorporated licensing of new brand for manufacturing.	•3 distribution centers in China to sort not accumulate •Increase in sales of 15-20% due to Asian sourcing
Retail Operations	• Move to larger store models Benetton owns and operates		• RFID tags left on products after sales to monitor returns	• Interest to increase Asian retail	

configuration. Benetton had strict policies that stated manufacturing of products would not begin without an actual order in hand from a retail store. Once the order was placed, Benetton would purchase the raw materials and ship directly to the *Networked Manufacturing* groups. As time went on, this system became highly centralized and allowed for better quality control of materials and logistics management in the *Networked Manufacturing* system. The system itself however is where the power lies.

As the company actively seeks manufacturers for specific product segments, for example higher batch size or stitching type, they look for and require highly integrated groups of manufacturers that combine their efforts and work together closely. What this means is each part of the manufacturing process, cutting each piece of the clothing, stitching, assembly, adding accessories, and packaging is all coordinated among the members of the manufacturing network so that each has a defined role and responsibility. In the 1990's, contracted networks conducted 40% of wool knitting, 60% of assembly, and 20% of finishing operations.[1]

The process of defining the capabilities for each group is critical and very specialized. If one group for example is strong in wool, undyed sweaters, then this network will handle the production of these products, while other highly specialized groups focus on say jeans. This allows clear guidelines to manufacturers, lowers setup costs without having to switch machinery, improves speed and ensures proper resource utilization.

Another important key to the *Networked Manufacturing* is the coordination among manufacturers whose responsibility is similar. For example, if there are two companies that

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Both supply collars for a particular shirt, but one runs into problems, Benetton doesn't have to ask the other supplier for an increased order size. This may negatively impact quality, and hinders the resources the supplier may have available. Instead the networking increases communication among all suppliers, so that the supplier who cannot produce the product will provide the order to another capable manufacturer. In the case of wool products, this saved Benetton an estimated 85% in costs when compared to its competition.[2]

Postponement in Dyeing

In the apparel industry, the process of dyeing or coloring a product commonly begins with a purchaser or manufacturers buying pre-dyed raw materials, cotton or other fabrics. With pre-dyed materials the only steps are manufacturing, assembly and finished product distribution. What Benetton realized however, was if this process were moved to the end of the manufacturing cycle, once the product was completed without color, the company would realize greater flexibility in their demand production and could lower their inventory significantly. This strategy is what is commonly referred to as *Full Postponement Strategy*, described in Janus D. Pagh and Martha C. "Supply Chain Postponement Strategies: How to Choose the Right Strategy".[3]

With the addition of postponement to the logistics system, Benetton gained many significant competitive advantages in the industry. Instead of preparing an entire seasons product line, and holding a large safety stock, the company could produce smaller batch sizes to initially stock stores and adjust to customer preferences as the season went on. In the old model low volume colors would be marked down in price to clear inventory. In the new model, the same inventory is prepared in lower sizes so once the low volume product is gone, there is more retail shelf space for higher demand products and Benetton can produce these colors as needed. The company generally would use the first 5-10% of seasonal sales to project this into the postponement strategy for continued manufacturing during the season.

Benetton also began to use 10% of its production line for what the company calls the "Flash Collection". These 50 or so products are designed as customer demand is identified early in the season, primarily by highly desired colors and styles. Benetton limits the production of this line, but with the flexibility of the postponement strategy, these products can be produced and designed in less than 5 weeks. Manufacturing and shipping takes only 1 week. The next time a customer enters the store, the product is there just as they imagined.

This process improvement has helped to increase customer satisfaction and improve the lead time for new product introductions. Postponement has also decreased the risk significantly that a new product will fail and the inventory costs of these failures will hurt profitability across all products. The investment in adding dyeing machines was well worth the costs saved in lowering the inventory holding cumulatively among all the retail outlets. Now retail outlets maintain a greater level of selling floor space, and are able to receive new

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Shipment, which go directly to the shelf for purchase.

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[1]Harvard Business School, *Benetton (A)*, 9-685-014, rev. February 6, 1989.
[2]Ibid.
[3]Pagh, Janus D., and Martha C. Cooper. "Supply Chain Postponement Strategies: How to Choose the Right Strategy." Journal of Business Logistics 19.2 (1998): 13-33.