Asia Case Research Centre
THE UNIVERSITY OF HONG KONG

POON
Poon Kam Kai Series

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TAL APPAREL LIMITED: STEPPING UP THE VALUE CHAIN[1]

In 2004, TAL Apparel Limited, a Hong Kong-based apparel manufacturer, was faced with unprecedented strategic challenges. On the one hand, the new supply chain management system designed by the Company for the giant retailer J.C. Penney had brought about remarkable opportunities. The Company was trying to find out how to leverage the system to strengthen its position as a dominant apparel supplier to the Western markets. On the other hand, the upcoming regulatory changes relating to China's accession into the WTO and the elimination of all textile quotas under such agreement were posing serious threats to the Company's role as the commercial gateway to China and the sourcing hub for the Asian region. In addition, the dramatic price falls and the persistent over-capacity in the apparel industry in recent years were causing overwhelming pressures to manufacturers and suppliers on a global basis.

Dr. Harry Lee, the Managing Director of the Company, was contemplating on how to transform his business in light of all the unfavourable changes in the external environment. Specifically, how could he leverage the Company's information management system to strategically reposition the Company with a view to creating sustainable competitive advantage in the long run? How could he use information and communications technology to move up the economic value chain in the apparel industry? Should the Company move into the wholesale business to capture the growth potential afforded by the supply chain management system, or should it venture into the logistics business providing third party logistics services to its retail customers?

Apparel Sourcing in Asia

The global apparel industry was known to be a buyer-driven industry, led by the retailers, marketers and branded manufacturers. In the United States, the industry was dominated by a handful of giant retailers. By 1995, the five largest retailers, Walmart, Sears, Kmart, Dayton

[1] This case was awarded the First Prize in the Society for Information Management (SIM) Paper Awards Competition in July 2004. SIM is a not-for-profit organization providing a community of thought leaders and IT practitioners who share their experiences and rich intellectual capital in order to explore future IT directions.

Phoebe Ho prepared this Case under the supervision of Dr. Ali Farhoomand for class discussion. This Case is not intended to show effective or ineffective handling of decision or business processes.

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Hudson and JC Penney, accounted for 68 percent of all apparel sales in the US[2]. In Europe, the power concentration was not as pronounced, but a similar shift from manufacturers to retailers and marketers appeared to be underway (in Germany, the five largest clothing retailers accounted for 28 percent of the nation's total economy in 1992; in the United Kingdom, the two top clothing retailers controlled over 25 percent of the market in 1994). In East and South East Asia, the supply of low-cost and abundant labour had historically provided significant competitive advantage for the region's export growth. However, in light of the persistent over-capacity in the industry and cost pressures from other emerging economies, it became questionable whether such advantage could be sustained in the long run. This, together with the elimination of all textile quotas under the WTO Agreement on Textiles and Clothing (ATC) by January 1, 2005, would result in fundamental changes to the competitive landscape of the global apparel industry.

The production sector of the apparel industry had undergone several migrations in the past few decades: from North America and Western Europe to Japan in the 1950s, from Japan to Hong Kong, Taiwan, and South Korea (collectively known as the Asian Big Three) in the 1970s, and most recently from the Big Three to other developing economies in the 1980s[3]. In 1983, the Asian Big Three, together with China, were responsible for two-thirds of total apparel imports in the US. In 2001, this share had dropped to 27 percent, with competition originating from other Asian countries, Central America and the Caribbean, and most notably Mexico. These new entrants were benefiting predominantly from their low labour wage and preferential tariffs in their regional trade networks. The passing of the North American Free Trade Agreement (NAFTA) in 1994, for example, had brought about the rise of Mexico as the low-cost manufacturing base for the US. Apparel exports from Mexico to the US had since jumped almost three-fold from 5 percent in 1994 to 13 percent in 2001.

This dramatic production shift was alarming to the Asian countries which had dominated the global apparel production in the past few decades. Among the Asian Big Threes, Hong Kong remains the top contender in its leading role in apparel exports[4]. In Hong Kong, textile and clothing production used to be of such importance that the ex-colony was virtually a one-industry town[5]. It had, historically, enjoyed the prestigious role acting as the commercial gateway to China, as well as the sourcing hub for the Asian region: receiving apparel orders worldwide and allocating production to manufacturing bases in China and other Asian countries according to labour cost and quota availabilities. This advantage, however, was threatened with China's accession into the WTO and the elimination of all textile quotas by early next year. Faced with imminent competition from countries as close as China, and as far away as Mexico, Hong Kong manufacturers recognize the urgency to shift its expertise to higher value-added activities. Among the established manufacturers, one counter-strategy was to migrate to the branding and marketing side of the business, shifting from OEMs (Original Equipment Manufacturers) to OBMs (Original Brand Manufacturers)[6]. Others were capitalizing on their current full-package supply model, providing and coordinating all activities in the production, trade and financial networks to their foreign buyers. Using this

[2] Gereffi, G., & Memedovic, O. (2003) "The Global Apparel Value Chain: What Prospects for Upgrading by Developing Countries", *United Nations Industrial Development Organization*, Vienna.

[3] Gereffi, G., & Memedovic, O. (2003) "The Global Apparel Value Chain: What Prospects for Upgrading by Developing Countries", *United Nations Industrial Development Organization,* Vienna.Ibid.

[4] While apparel export was the top export item for all the Asian Big Three countries in 1980, it had dropped to the third place for Hong Kong, 10th for South Korea and 12th for Taiwan in 2000.

[5] Morkre, M. E. (1973) "Rent-seeking and Hong Kong's Textile Quota System", *The Developing Economies*, Vol. 19, pp 110-118.

[6]Episode, Giordano and Hang Ten are some of the well-known local brands that have been developed under the OBM model in the past few years.

model, suppliers were able to gain valuable market knowledge about their foreign buyers' purchase preferences and generate backward linkages with their raw material suppliers for a reliable sourcing network. TAL Apparel Limited was more inclined to adopt the latter model.

The TAL Story

The history of the Company dated back to 1947 when the Lee family set up the very first spinning mill in Hong Kong for producing yarn. In 1962, all the family's textile mills banded together to form the Textile Alliance Limited (TAL). In 1983, the garment division of the Company, the Textile Apparel Limited, was set up as a subsidiary of the parent Company. With an increasing scale of its international business, the TAL Global Alliance Limited (TGA) was formed in 2001 to look after the global sales and marketing business of the Company (see **Exhibit 1** for the Company's organizational structure).

Over the course of the past half century, the Company had grown to be one of the largest garment manufacturers in the world, with an annual turnover of US$590 million in 2002/03. With its corporate headquarter in Hong Kong, the Company owned and managed a network of 11 factories (see **Exhibit 2**), occupying a total production floor space exceeding 3 million square feet, and employing a total of 23,000 workers world-wide. The Company currently produced over 50 million garments a year, including tops, pants, outerwear and tailored suits, supplying to markets in North America, Europe and Asia. In the US, which accounted for 78 percent of the Company's sales revenue, its major customers included department stores (J.C. Penney), specialty clothing stores (Brooks Brothers, Liz Claiborne, Polo Ralph Lauren and Banana Republic), and catalogue retailers (Lands' End and L.L. Bean). In Asia, the Company supplied to the popular local brands such as the Hong Kong-based Giordano and Singapore-based Crocodile.

Within its apparel portfolio, tops (shirts, blouses, and knitwear) represented over 80 percent of its total production. The Company's presence in the fashion and apparel industry was evident as it made one in eight dress shirts sold in the US[7], being a major supplier of dress shirts to such retail goliaths as J.C. Penney and well known brands as Brooks Brothers. Industry observers had attributed the Company's success to its close relationship with its retailer customers.

> *"TAL is a no-name giant.... Its close relationship with U.S. retailers is part of a power shift taking place in global manufacturing. As retailers strive to cut costs and keep pace with consumer tastes, they are coming to depend more on suppliers that can respond swiftly to their changing needs. This opens opportunities for savvy manufacturers, and TAL has rushed in...."*.[8]

A Pioneer in Technology Development

The Company was a pioneer in technology development in the traditionally low-tech garment manufacturing industry. Starting in the 1980s, the Company recognized the need to invest in an IT infrastructure to support its operations. The efforts began with automating its financial transactions such as order entry and basic accounting functions. These were followed by on-going enhancements to provide fuller automation of the individual activities, even though

[7] The estimation is based on TAL's annual production and the number of dress shirts sold in the US in 2002.

[8] Kahn, G. (2003) "Made to Measure: Invisible Supplier Has Penney's Shirts All Buttoned Up", *The Wall Street Journal,* September 11.

communications among the various departments and factories were still handled offline. In the early 1990s, the Company started to adopt the Electronic Data Interchange (EDI) standard for trade document processing with its customers, as well as early prototypes of Supply Chain Management (SCM) to optimise business processes with its suppliers. Over the years, the Company recognized the need to integrate its various IT systems and was progressively working towards a customized in-house Enterprise Resource Planning (ERP) solution. The scope of the in-house development was to integrate all discrete systems, primarily using middleware as the communication and integration medium. These integration efforts, however, had proven to be largely unfruitful due to the diversity of, and incompatibility among, the existing platforms, modules and data structures.

In 1999, the Company started considering an outsourced ERP solution. As expressed by TAL management:

> *"Although individual aspects of the (in-house) system supported the organization well, it faced challenges integrating key business processes and critical information across its operations. A key driver for an outsourced solution was to develop an end-to-end fully integrated solution that had the focus and strong functionality required for the fashion and apparel industry, a solution that would support vital aspects of the business such as capacity planning, production scheduling and inventory management."* [9]

The chosen solution was an off-the-shelf product, Movex Fashion Solution, developed by Intentia International, a Sweden-based IT solutions provider. Movex was an industry-specific ERP system with multiple modules (see Exhibit 3) to streamline internal operations as well as manage external relationships with trade partners across the Company's supply and demand chains. In mid 2002, TAL further enriched its supply chain capabilities by adopting the TradeCard's suite of web-based financial solutions10. The solution facilitated such financial transactions as raw material purchases from suppliers and finished garment sales to customers. The TradeCard system was integrated into the central Movex ERP system to allow automation of the financial processes from purchasing order management to payment settlement. To date, the overall system integration had cost US$10 million (including system design, software licenses and support), involving 30 people working full-time in the IT core team, as well as a cohort of non-core members from different departments and factory locations.

From a governance perspective, an IT department at the Company's headquarter was set up for steering the IT development, operation and strategic planning of the Company. The IT department was headed by an IT department manager who was assisted by three IT managers. The in-house development team was stationed in Shanghai while part of the IT data center was outsourced to a service provider. An R&D team was located in Hong Kong to explore the adoption of new and innovative technologies. The IT department was responsible for providing standard, guidelines and technical advice to the individual factories on implementation issues while ongoing operation and maintenance was decentralized to individual factories.

In addition to investing in its information and communications infrastructure, the Company was also a heavy investor in research and development to drive technology innovation in garment manufacturing. The Company held a number of manufacturing patents, in the US

[9] CIO Asia (2001) "Intentia Wins Contract with TAL Apparel", *CIO Asia*, December.

[10] TradeCard is a New-York based financial supply chain service provider, providing online payment mechanisms for large-dollar cross-border transactions.

and the European Union, for its pucker-free technology[11]. Using the SofTAL technology, for example, the fabric underwent a chemical process to ensure that the shirt seams stayed sharp and the armhole areas stayed smooth even after multiple washes. All these technological initiatives suggested some foresight on the part of TAL's executive management**.** In the words of Dr. Harry Lee, TAL's Managing Director:

> "10 to 20 years ago, any IT investments would mean pouring money down the black hole. Whatever you did compute-wise, you were operating in a stand-alone island. IT benefits start to materialize when you get connected and integrated with all other parties.....I think nowadays we can justify our IT investments based on returns, and we should get reasonable returns from our ERP systems..... If we can cut labour cost by 30%, our investments will be justified. This, based on what we have heard others have done, is achievable."

Vendor-managed inventory

Vendor-managed inventory (VMI) was receiving increased attention as a means of supply chain collaboration in the retail industry. In contrast to the conventional customer-initiated order process, VMI was a continuous replenishment program whereby the vendor created the purchase orders based on the demand at the store or warehouse level. It could be viewed as a backward replenishment tool whereby the vendor did the demand creation and fulfilment based on real-time front-line sales information. Reduced inventory and shorter replenishment cycles were the primary benefits offered by a VMI program.

TAL recognized the significance of inventory management in the apparel industry when it purchased a US wholesaler, Damon Holdings Inc., in 1988. The venture had resulted in a US$50 million loss in 3 years, largely due to poor inventory control. This painful experience prompted the Company to work closely with its retailer customers in supply chain control and management. Subsequently, TAL spent three years to convince J.C. Penney, one of its major customers in the dress shirt business, to provide VMI from the point of sale. The business proposal, despite its promises in cost savings and efficiency gains, was met with resistance initially. As Dr. Harry Lee recalled:

> *"We had to convince them (J.C. Penney) that in order for us to reduce their inventory level, we had to be the sole supplier of that "lot number".... They were wary at first, and we had to convince them that we could deliver, having multiple factories, etc. The second hurdle is mental change: now that they no longer have control over their own orders….In order to achieve that (automatic stock replenishment), we had to hard-code sales information and transmit to J.C. Penney how much order has been shipped, and we had to have lawyers, accountants and IT people to ensure the legitimacy of the process."*

The proposal finally received clearance on a trial basis. On June 20, 1997, an auspicious date picked by a Chinese numerologist, the system went live with TAL supplying to a single J.C. Penney store in Kansas City, Missouri. To date, after a few rounds of refinement, the system received orders directly from each of J.C. Penney's 1,200 stores, and met the orders with ongoing production with a view of minimizing stock on-hand. For orders which could be filled with existing stocks, production orders would be generated automatically and would be processed with priority. This meant that when a customer purchased a shirt in J.C. Penney's store in Atlanta's Northlake Mall on a Saturday afternoon, a computer technician in Hong

[11] SofTAL, Performance Knits, WOR-nano technology, SofTAL Wool, dot.TAL, and Expandable Waistband are some of the Company's patented inventions in quality garment manufacturing (from TAL Company website: www.talgroup.com).

Kong could download a record of the sale on the next Monday morning, and by Wednesday afternoon, a factory worker in Taiwan could pack an identical replacement shirt into a bundle to be shipped back to the Atlanta store. Concurrently, TAL's computers recognized that the J.C. Penney store had run out of stock of the shirt in the same size and color, and without consulting J.C. Penney, immediately sent an order to make two new shirts in their Taiwan factory. Mr. Sando Chan, Section Manager responsible for the VMI project at TAL, summarized the benefits of the system as follows:

> *"Traditionally, retailer customers placed their orders based on their sales forecast; gave us the back-order and we fulfilled the order by the agreed contract date. The performance measure was on-time-delivery. We had come to understand that meeting the delivery time did not necessarily help our customers' business. We therefore asked them to give us the point of sales, that way we learnt about the sales pattern and could plan for the production…..Now we have common performance measures as our retailer customers: eg. service level, inventory level, in-stock percentage, etc. This is a ground-breaking offer – we are probably the first in Far East Asia to deliver such a system."*

Made-to-measure

Made-to-measure in apparel was not a new concept. It had, however, been looked upon as a new market niche and brand-builder for the high-end segments. With advanced technologies, the traditional made-to-measure tailoring had been turned into mass customization using "*the same production resources to manufacture a variety of similar, yet individually unique products"*[12]. Following the trend of mass customization in other consumer goods industries (such as computers, appliances, furniture, and automobiles), participants in the apparel industry now believed that mass customization would play an important role and become a driver of industry growth in the next five years[13]. In the initial development stage, most mass customization efforts had concentrated on the front-end: developing the body scanning technology, customer interface functionalities, and custom-tailored production machinery at the factory. The latest technological progress was shifting to the post-production arena: forming collaborative partnerships among retailers, manufacturers, and IT solution providers to streamline the entire order-fulfilment process.

TAL's involvement with made-to-measure apparel started with its collaboration with Lands' End, one of the pioneers in offering made-to-measure clothing to customers on a mass scale. Partnered with Archetype Solutions Inc. (ASI), Lands' End first launched its custom apparel offering in late 2001. By September 2002 the initiative was exceptionally successful, with custom-made jeans and chinos accounting for 40 percent of all category sales from the catalogue retailer's website[14]. TAL then entered the picture, acting as the contract manufacturer for Lands' End's custom apparel products. TAL installed the proprietary ASI system along with the specialized single-ply fabric cutters[15] in 3 factories in Asia. With each new order, pattern files from the retailer were sent electronically to TAL's system, which then

[12] TC2 (2002) "Studies Reveal the Consumer, Manufacturer and Retailer All Win with Mass Customization", [www document] http://www.tc2.com/About/AboutMass.htm.

[13] Journal of Commerce (2004) "Custom Market a Challenge for Apparel Logistics: Fedex survey*", Journal of Commerce Online Edition, New York,* February 27.

[14] Ives, B. & Piccoli, G., (2003) "Custom Made Apparel and Individualized Service at Lands' End", *Communications of the Association of Information Systems*, Vol. 11, pp. 79-93.

[15] The system works with the Gerber Technology DC3500 machine cutter, an automated machine designed specifically for cutting single-ply or few layers of materials.

sent the order to the individual factories. The orders were usually processed in batches based on the fabric requested, and for each batch, a roll of fabric was mounted on the laser-driven cutter. Each pattern was then cut in single-ply according to the transmitted pattern. The manufacturing process was complicated as it involved a new set of software, hardware, and people procedures (see **EXHIBIT 4**).

The implementation of the first MTM system had been a true test of the Company's ability to adopt change. Firstly, the system itself was capital-intensive. Just one single-ply fabric cutter cost US$100,000, and a total of 3 machines were installed in its factories in Asia. The implementation involved a large number of agencies inside and outside the organization: the IT, design, pattern, and production teams; marketing agencies; freight forwarders, as well as merchandizing staff in the retail stores. Since garment manufacturing was traditionally a low-tech industry, the implementation team had to work with staff and users with considerable differences in educational background and IT literacy. Coordination and communications among these groups were a major task. Regular conference calls had to be held across various regions with different time zones. At the factory, a single production line was set up, and workers were trained to be multi-skilled and one worker could fill the entire order. A strong IT system and IT team were also needed to support the information flow associated with the production process.

Adding to the manufacturing complexity were the unique requirements of the retailer customers. Currently, TAL had three retailer customers with made-to-measure offerings: Lands' End, Brooks Brothers, and J.C. Penney. Each retailer customer had its own unique requirements in terms of design details, order processing technologies, and shipment requirements. Lands' End, the catalogue retailer, acted like a single retail store as all the orders are generated at the corporate website. Finished products were shipped from the factory directly to the customer's home address. For Brooks Brothers, customers had their bodies scanned and measurements taken in the individual retail stores. Orders were sent electronically from the stores and finished products are shipped back to the originating stores. Brooks Brothers' selling strategy was to have their customers pick up the custom-made shirts at the retails stores so that more items could be sold on the same trip. Made-to-measure orders were usually manufactured within a week from the time of the purchase order, followed by one week of air freight to reach the shipping destination. J.C. Penney was the newest made-to-measure account TAL had secured so far, with the first shipment going out in May 2004.

A Ground-breaking Success

TAL's VMI initiative was considered a ground-breaking success. For J.C. Penney, annual savings of US$2 million were reported, along with a 35 percent increase in inventory turnover, a 19 percent increase in sales, and a five percent increase in gross margin. Other unmeasured benefits stemmed from reduced stock-outs and virtually zero inventory storage in their regional warehouses. Rodney Birkins Jr, Vice President for sourcing of J.C. Penney Private Brands, Inc., described the added efficiency as "*phenomenal*"[16]. For L.L. Bean, the American-signature outdoor clothing specialist, cost savings of US$ 1 million were reported as a result of a 30 percent increase in inventory turnover, a 20 percent increase in sales, and a 15 percent reduction in price markdowns. In fact, the full-package supply model was becoming an industry norm for retailers selecting their sourcing partners. A sourcing

16 [16]Kahn, G. (2003) "Made to Measure: Invisible Supplier Has Penney's Shirts All Buttoned Up", *The Wall Street Journal,* September 11.

manager at Lands' End has explicitly stated that they are only interested in "vertical producers" that can supply their own raw materials, fabrics, and trims[17].

For TAL, the impacts were multi-fold. At the time of reporting, TAL was not able to report quantifiable benefits from the VMI and MTM systems. However, they were able to gain the exclusive supply contracts from its retailer customers in product lines that they provided VMI for. This had essentially blocked out all of the Company's competitors in these major retailer accounts and enabled the Company to avoid pure price-based competition in the intense apparel production sector. In addition, the use of IT had enabled TAL to gain access to the real-time sales information at the store level. This allowed TAL to study the retailers' sales patterns, inventory performance, and purchasing needs, providing it with in-depth information as it engaged other customers in the retail business. The MTM system provided a further source of differentiation as it was used to drive other business opportunities from retailers. While the MTM business itself was not a profit generator, it served to provide significant differentiation to lock in such specialized retailer customers as Brooks Brothers and Lands' End.

Another "by-product" created by TAL's information management initiative was its venture into the design and marketing business of the apparel industry. With access to real-time customer sales information, the manufacturer was able to provide other value-adding services such as demand forecasting, product design, material sourcing, and test marketing. Recently, J.C. Penney upgraded its partnership with TAL such that TAL began to design new shirts and handle the market testing. Under this new partnership, TAL's design teams in New York and Dallas would come up with a new style that would then be manufactured from one of its factories within one month, and offered for sale at 50 J.C. Penney stores. These shirts would typically come in a wide variety of colors and sizes so that test marketing could be carried out in the real environment. TAL would then analyze the sales data for one month and decide which styles, colors, and sizes would be mass-produced. With decisions made at the factory, TAL had placed itself in an advantageous position, being able to respond instantly to changes in the fickle fashion industry. This new business venture was, in fact, enabling the manufacturer to develop expertise in the design and marketing aspects of the industry, paving the way for a further upgrade into the OBM model.

Accounting for the success of the Company's business innovation, Dr. Harry Lee concluded:

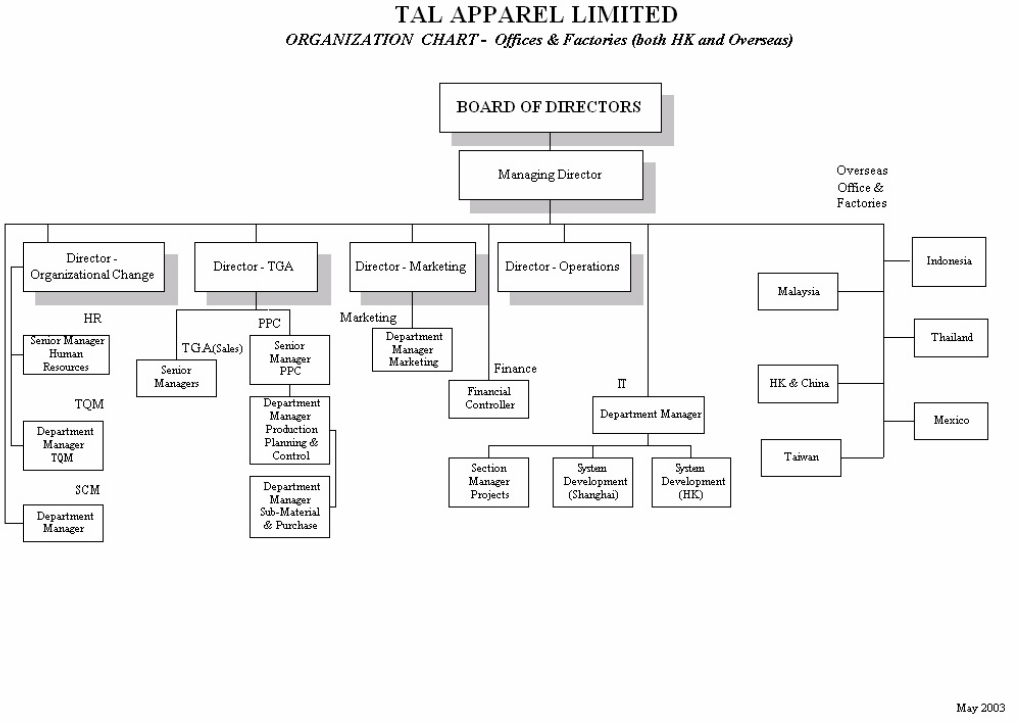
> *"One advantage we have in our industry is that our products don't change as much, or as fast (as in electronic products). We have much longer product cycles. We apply strategic thinking planning for our supply chain, providing outsourced solution to our customers. We achieve it by recognizing market niches and understanding our customers very intimately. I have an advantage that I personally have worked in all parts of the value chain (from yarn spinning, to fabric making, to running the factory, to sales and marketing). I can see the whole picture and identify holes in the system to fill. I try to convey the big picture to people I work with, and enable them to identify opportunities.....Timing is also absolutely critical – when to introduce a new service, understanding what level of service people are ready to accept."*

[17] DesMarteau, K. (2003). "The Sourcing Balancing Act: Quick Turn, Quality, Price", *Apparel Magazine*, November 1.

Challenges Going Forward

With all the exciting opportunities spawning from this initial success, Dr. Harry Lee was pondering what his next move should be. It had become inevitable that the Company needed to move away from the commodity manufacturing business to migrate up the product hierarchy. While the cost pressures from the retail customers were more severe than ever before, there were the conflicting pressures to provide quick response time, shorter production cycle, on-time performance and reduced inventory level. The Company's sophisticated information management system had resulted in significant differentiation by providing a full-package supply solution to its retailer customers. However, would this system be readily replicated by its competitors in the apparel industry? How could this innovation be turned into a sustainable competitive advantage in the long run? Should the Company move into the wholesale business to capture the growth potential afforded by the supply chain management system, or should it venture into the logistics business providing third party logistics services to its retail customers? Riding on its close relationship with J.C. Penney, the Company was negotiating to become the third-party logistics provider for the retailer's underwear line. As a next step, the Company was also considering forming a joint venture to manage the supply chain of the retailer's other product lines. How should the Company plan for its growth strategy in the short to medium term?

EXHIBIT 1

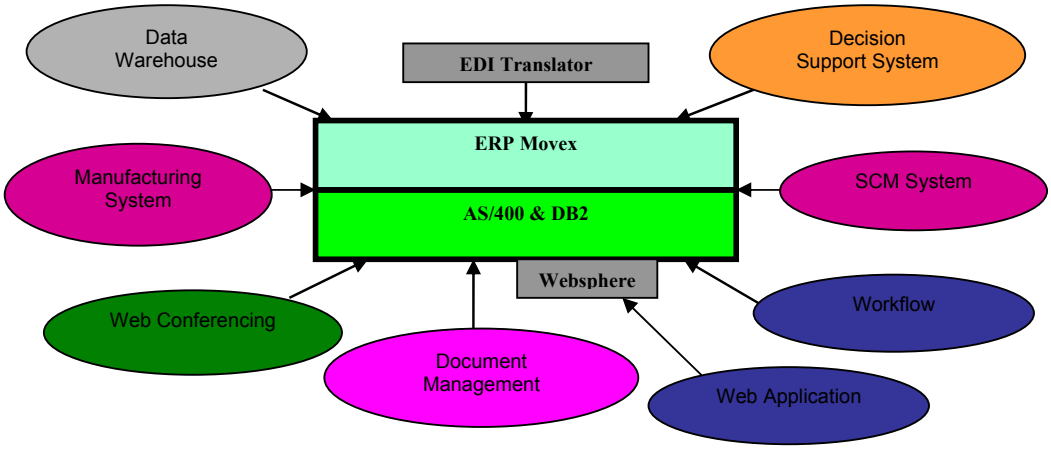


Source: TAL Apparel Limited, May 2004.

EXHIBIT 2
LOCATION OF TAL'S MANUFACTURING FACILITIES

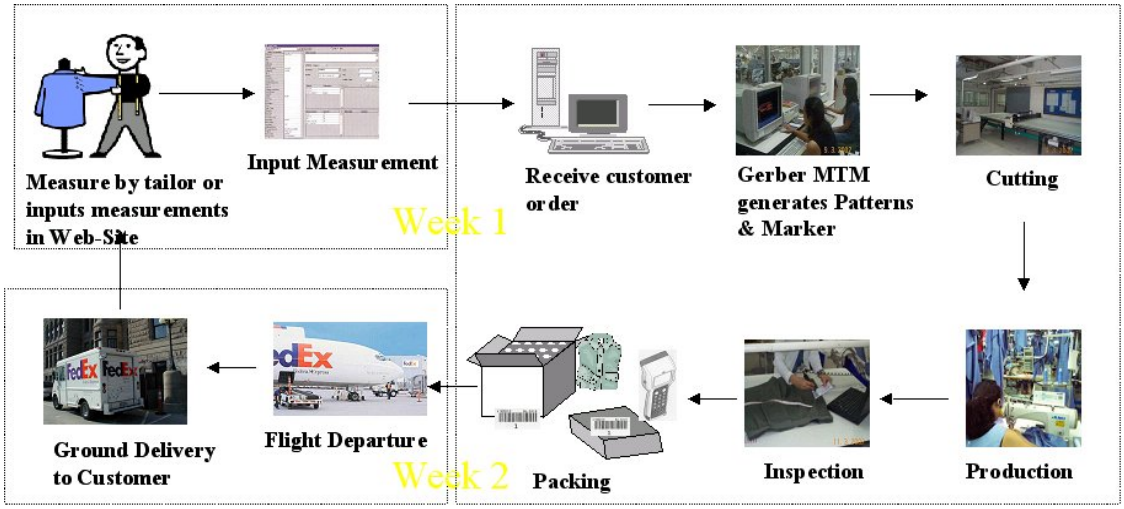
Source: TAL Apparel Limited, February 2004.

EXHIBIT 3
TAL'S TECHNOLOGY PLATFORM



Source: TAL Apparel Limited, February 2004.

EXHIBIT 4
MADE TO MEASURE (MTM) SYSTEM FLOW AND TIMELINE



Source: TAL Apparel Limited, February 2004.