

Logistics Management

Summative Assessment

Submission date: **Monday 24th June 2013**

(30%)

Case study assignment: **Innovation @MAS Holdings: Becoming a Preferred Sourcing Partner for Global Fashion Brands**

Read through the case study and answer the questions below.

The assignment should be presented in report format and the length is expected to be around 2500 words (+/- 10%).

You must undertake thorough research and use references throughout the report. The full Harvard referencing style should be used.

The report should be submitted onto Unilearn by the above time deadline. A hard copy is not required.

The required format for a report is:

- Front cover
- Executive Summary
- Contents page
- Introduction
- Relevant section headings
- Conclusion
- References
- Appendices

Questions:

1. Identify which are the weak spots for MAS in its relationship with buyers. How can MAS improve its collaboration with buyers?
2. Discuss how the product design and innovation team at MAS, working closely with retailers, can impact on improving the outcome of the logistics activities within the supply chain.
3. Mass customisation is one of the biggest challenges faced by MAS. Explain what is meant by mass customisation and the approaches used by manufacturers in the fashion industry to move towards this.

The Standard Assessment criteria will apply to this coursework



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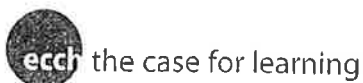
Innovation @ MAS Holdings: Becoming a Preferred Sourcing Partner for Global Fashion Brands

This case was written by Amarnath Milra, under the direction of Debapratim Purkayastha, ICMR Center for Management Research. It was compiled from published sources, and is intended to be used as a basis for class discussion rather than to illustrate either effective or ineffective handling of a management situation.

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Innovation @ MAS Holdings: Becoming a Preferred Sourcing Partner for Global Fashion Brands

"Our ability to own and extend the complete value chain provides us with a key competitive edge. We offer a complete apparel solution, from design to deliver. We added design capabilities to our product development expertise and also created an integrated supply chain, partnering with globally renowned entities."¹

- Dian Gomes, Managing Director, MAS Intimates and Main Board member,
MAS Holdings, 2009

INTRODUCTION

In February 2009, Stretchline, a leading subsidiary of apparel manufacturer MAS Holdings (Pvt.) Ltd. (MAS Holdings) in terms of product and process innovations, was awarded the prestigious FEMMY Innovation Award 08². This was the first time ever in the award's history of more than 50 years that a company outside the US had won this award.

MAS Holdings, the Sri Lankan apparel manufacturer, was one of South Asia's largest suppliers of intimate apparel and sportswear. Despite the island's violent history of ethnic conflict and the removal of trade protections under the Multi Fiber Arrangement (MFA)³ in 2005, MAS Holdings had managed to make a name for itself as a pioneer in innovation in the fashion industry. MAS Holdings, whose products included ladies' formal and casual wear, lingerie, nightwear, knitwear, and underwear, was a full service supplier providing design, fabric, garment and pattern technology, manufacturing, merchandising, and delivery to its customers. Operating in five countries with an over 45,000-strong workforce, MAS was considered one of the most trusted suppliers to global brands such as Victoria's Secret⁴, Speedo⁵, Marks & Spencer⁶, and Nike⁷.

¹ Michelle Phong, "MAS Holdings Leads Sri Lankan Textile Industry with Lean Manufacturing," www.adsaleata.com, August 12, 2009.

² The FEMMY Awards honor those individuals and companies that have significantly contributed to the intimate apparel industry and its growth in the US.

³ The Multi-Fiber Agreement came into existence in 1974 in order to govern the global trade in textiles and apparels. Under the MFA, developed countries restricted imports from developing countries based on negotiated quotas. This was done to keep a check on the rising competition from developing economies.

⁴ Victoria's Secret, established by Roy Raymond in 1977 in US, is one of the world's largest retailers of women's wear, lingerie and beauty products.

⁵ Speedo, originally started in 1914 by Alexander MacRae under the name MacRae Hosiery Manufacturers in Australia, is the world's leading swimwear brand and manufactures products for both recreational and competitive swimming.

⁶ Marks & Spencer (M&S) is one of the UK's leading retailers. M&S mainly deals in products such as clothing, food and home ware.

⁷ US-based Nike, founded in January 1964 as Blue Ribbon Sports by Bill Bowerman and Philip Knight, is the world's leading supplier of athletic shoes and apparel and a major manufacturer of sports equipment.

Industry experts attributed the success of the company to its focus on innovation, which swiftly percolated to the rest of its subsidiaries (Refer to Exhibit I for the subsidiaries of MAS Holdings). In its drive to excel in innovative processes, MAS had developed its own lean manufacturing procedure called the MAS Operating System (MOS). Within 20 years of its inception in 1986, MAS had attained an impressive growth rate, producing over 250 million pieces of apparel in a year.⁸ By 2010, MAS's integrated business ranged from lean manufacturing and silicone embedding⁹ to organic fair trade products¹⁰.

ABOUT MAS HOLDINGS

MAS Holdings was founded in 1986 by the Amalean brothers¹¹ in the small island nation of Sri Lanka, with the aim of manufacturing and supplying lingerie¹² to Victoria's Secret. In 2010, its product range included merchandise such as bras, panties, briefs, sleepwear, and sportswear along with elastic, fabrics, lace, hooks, patented products¹³, and a host of other accessories. With a modest beginning with an investment of US\$ 10,000 in 1986, MAS Holdings went on to become one of the largest volume suppliers of apparels to Victoria's Secret and Marks & Spencer. Since 2000, MAS had maintained a steady compound annual growth rate of over 20% and in 2009-10, it became a US\$ 800 million company with a portfolio of 28 manufacturing facilities and design studios across five countries.¹⁴

According to the company, MAS Holdings had always believed in utilizing technology as a source of competitive advantage. Operational aspects such as the use of CAD/CAM technologies¹⁵ were incorporated at a very early stage in the organization's life-cycle. MAS Holdings had a dedicated Research & Innovation Center focused primarily on creating innovative products for the customer, a factor which was essential for the sustenance of any business. At the front end of its business, MAS Holdings had continuously endeavored to achieve better integration with its partners which enabled it to improve gathering and forecasting of data and also helped in the speedy flow of technical data both ways. And at the back end, MAS had embarked on the initiative for newer and leaner operational models, resulting in lower costs.

THE MAS HOLDINGS STORY

According to experts, one of the biggest challenges encountered by retailers, manufacturers, and their suppliers was to speed up the garment design and development process when most of the people involved in the work were located in different geographical areas, in different time zones, and speaking different languages.¹⁶

⁸ www.masholdings.com/

⁹ Silicone embedding refers to the use of silicone and silicone technology in the manufacturing of garments and lingerie products.

¹⁰ Organic fair trade products are high quality, environmentally sustainable, and socially conscious products.

¹¹ MAS is an acronym for Mahesh, Ajay, and Sharad, the three Amalean brothers, founding members of the company.

¹² A quota-free product during the 1980s under MFA with no other manufacturers, in competition, in the country.

¹³ Such as Fortitube, Locksafe, Bondelast, Ecolastic, and Stay4Sure.

¹⁴ "DeSL Software Chosen by Apparel Giant, MAS Holdings," www.bluewatersoftware.com, February 2010.

¹⁵ The terms CAD (computer-aided design) and CAM (computer-aided manufacturing) is often used in the context of the software tools that cover a number of engineering functions.

¹⁶ Niki Tait, "Sourcing: Reducing Time for Fitting Samples," http://www.just-style.com/analysis/reducing-time-for-fitting-samples_id107890.aspx, June 2010.

For instance, for the design and development of a product such as brassieres, the challenge was most pronounced. Such garments came in different sizes for grade purposes, requiring different human fit models to cater to every bust and cup size. To try and have live models available as and when required was an arduous task. In order to speed up fit sampling without the use of virtual prototyping, MAS Holdings adopted the FastFit360¹⁷, a web-based tool that allowed retailers and suppliers to examine samples on real models and communicate style and fit changes audio-visually over the Internet. FastFit360 could be directly integrated with a company's Product Lifecycle Management (PLM) system¹⁸, regardless of which PLM system the company used. For MAS, the use of such a tool enabled workers around the world to collaborate visually, to cut down on the number of physical samples, and also to reduce the time and costs of shipping them across the globe.¹⁹ For MAS Holdings, the innovation had saved staff time and travel costs significantly. In addition to this, the critical path for garment approval had reduced drastically, according to the company.

In February 2010, MAS Holdings selected DeSL's²⁰ PLM solution to manage its product development process. "We spent a considerable amount of time evaluating many PLM systems before we selected DeSL. DeSL's breadth of function and technology base was the key deciding factor. We have identified many business key objectives and will deliver these during the project,"²¹ said Shirendra Lawrence, Managing Director of MAS Active, where the first phase of the project was launched.

THE STRETCHLINE STORY

During the 1990s, MAS Holdings decided to manufacture the raw materials it required on its own and thus it went in for supply chain integration in order to support its rapidly growing business of lingerie and hosiery. In 1996, the then Chairman of MAS Holdings, Mahesh Amalean, entered into a three-way joint venture with world renowned Charnwood Elastics²², UK, and MAST Industries²³, USA, to form Stretchline Holdings (Stretchline).

Initially started at Biyagama (Sri Lanka) in a 60,000 square foot factory, Stretchline soon emerged as Sri Lanka's leading elastic manufacturer. By 2001, Stretchline had become a global brand and by October 2006, it had over half a million square feet of facilities worldwide.²⁴ Headquartered in Hong Kong, Stretchline was one of the world's largest manufacturers of elastics.

¹⁷ FastFit360 allows actual images of the samples, in either photographic or 360° video format, to be viewed online by retailers and their suppliers from anywhere in the world. It can directly integrate into a company's PLM system, regardless of which PLM system the company has.

¹⁸ A PLM (Product Lifecycle Management) system integrates people, data, processes, and business systems and provides product information regarding the entire lifecycle of a product.

¹⁹ Other companies using the technology include UK-based Crystal Martin International Ltd. and MAST industries in the US.

²⁰ DeSL is a UK-based provider of web-based software for the apparel, footwear and textile sectors.

²¹ "DeSL Software Chosen by Apparel Giant, MAS Holdings," www.bluewatersoftware.com, February 2010.

²² At the time, Charnwood Elastics was considered to be the world's leading supplier of elastics for underwear products.

²³ MAST Industries Inc. a subsidiary of Limited Brands Inc. is one of the world's leading contract manufacturers and distributors of men's and women's apparel.

²⁴ "Stretchline: 10 Years of Expansion," www.masholdings.com, October 2006.

Stretchline had earned a reputation globally for its innovative design and product development capabilities. It supplied woven, knitted, jacquard, and printed elastics to some of the leading global brands and retailers such as Victoria's Secret, Speedo, Marks & Spencer, Adidas²⁵, and Nike.²⁶ The Stretchline Group of Companies had their manufacturing facilities in the UK, the US, Mexico, Indonesia, China, and Sri Lanka with a global workforce of over 4000 people and by May 2008, Stretchline had a production of about 1.5 million meters of elastic a day. "We make enough elastic each year to wrap around the world ten times over and that's without stretching it, this is just another feat at MAS Fabrics,"²⁷ Timothy Speldewinde²⁸, CEO, Stretchline.

Stretchline was considered a leader in the MAS Fabric cluster (Refer to Exhibit II for the MAS Fabric cluster). It had made a name for itself due to its quality, originality, and use of technology to emerge as a front-runner with a focus on innovation, according to the company. The company had built its innovation platform on its ability to embrace and respond to the ever changing needs of the fashion world. According to Natasha Boralessa Kumara, CEO, Stretchline Sri Lanka, "The Team at Stretchline Sri Lanka, have a huge appetite to learn and embrace any new technology with ease. This eagerness to adopt new technology together with a never-say-die attitude helps us to continuously add value to our customers through innovative product and delivery solutions."²⁹

In 2003, with cost considerations in mind, Stretchline UK relocated their Research and Innovation (R&I) Center from the UK to Biyagama. The Research and Innovation Center had 160 qualified employees working full time a week on 54 machines and was by far the largest team in product development in the region. This dedicated R&I Center provided a strong focus on product innovation and design, working closely with retailers, designers, and vendors at every step from concept through production.³⁰ All the equipment used at the Biyagama factory were standard machines that had been custom-modified by the R&I team. The R&I team had modified machines in such a way that the monthly production of 35 million meters of elastic was fabricated on just 160 machines. According to Stretchline, any other company would have needed at least 360 machines to achieve this production level.

Some of the innovative products that had come out of its stable and had been subsequently patented were the Fortitube³¹ bra-wire casing, Locksafe³², as well as innovative developments such as Bondelast³³, Ecolastic³⁴, and Stay4Sure³⁵.

²⁵ Adidas is a major Germany-based sports apparel manufacturer which also owns the Reebok sportswear company. Besides sports footwear, the company produces other products such as bags, shirts, watches, eyewear, and other sports and clothing related goods.

²⁶ Mihiri Wikramanayake, "MAS Fabric — Leading Innovation in the Apparel Supply Chain for Sri Lanka", www.masholdings.com, May 2008.

²⁷ Mihiri Wikramanayake, "MAS Fabric — Leading Innovation in the Apparel Supply Chain for Sri Lanka," www.masholdings.com, May 2008.

²⁸ Timothy Speldewinde was also the Managing Director of MAS Fabrics and a Board member of MAS Holdings.

²⁹ Mihiri Wikramanayake, "MAS Fabric — Leading Innovation in the Apparel Supply Chain for Sri Lanka," www.masholdings.com, May 2008.

³⁰ "MAS Fabric Division's Stretchline Recognized for Innovation at the Femmy Awards 2008," www.masholdings.com, April 2008.

³¹ Fortitube, with a 20-year worldwide patent, is a casing used for the underwire of a bra to prevent it from getting dislodged.

³² Locksafe, patented, prevents the unraveling of elastics and is used on all Marks & Spencer, Tesco, Bhs, and Victoria's Secret products.

³³ Bondelast is a special elastic made using bondable adhesive and was used by Speedo for its swimwear collection for the Beijing Olympics 2008.

³⁴ Ecolastics are the most durable and long lasting product specially designed for a combination of high mechanical and weathering properties.

THE MAS ACTIVE STORY

MAS Active³⁶, the sports and active wear division of MAS Holdings, manufactured non-intimate products under the categories casual wear, sleepwear, sportswear, and men's essential wear for top brands such as Nike, Gap, Adidas, and Victoria's Secret (Refer to Exhibit III for the MAS Active product range). By 2008, it had a manufacturing base of some 12 facilities, 10 in Sri Lanka and 2 in India, and employed over 14,000 people. The division made around 25 million garments a year at its Sri Lankan facilities alone. According to the company, MAS Active with its focus on product development, delivery, quality, and corporate social responsibility had established itself ahead of its competitors to become one of the largest suppliers for Victoria's Secret, Nike, and Adidas. MAS Active had been recognized by almost all the leading brands for many revolutionary programs that allowed it to test and push innovation and supply chain management practices to the future. In terms of innovation, MAS Active was the first to develop and deliver Victoria Secret's bonded garments, the VSX, a new product line which focused on the sports culture.

The company felt the need to replace its existing excessively manual methods. The complex nature of its products required a solution that could cope with multi-level planning and multi-stage and multi-component processing, including extensive printing and embellishment requirements. This prompted MAS Active to implement the Fastreact³⁷ production, planning, and control system³⁸ to help manage greater product complexity. This led to significantly shortened lead-times across its 12 production facilities.

As MAS Active had to deal with major global sportswear brands such as Nike, Adidas, and Reebok³⁹, who expected nothing short of the best in development, quality, and delivery, the processes it used needed to be highly technical while at the same time, requiring intense scrutiny to ensure fulfillment of standards. To accommodate such rigid compliance, it adopted a new technology known as Seamless⁴⁰ which was an integration of a series of activities from the conceptual strategy to the design and development processes, ending with the making of the final product. It was developed by a team of engineers and science graduates under the leadership of Raminal Samarasinghe, CEO Linea Intimo⁴¹. Linea Intimo specialized in seamless technology and incorporated three main innovative applications: bonding, ultrasonic, and silicon, to complete the value addition on the garment.

In addition to Linea Intimo and Linea Aqua⁴², the MAS Active portfolio comprised eight other local manufacturing facilities. Local operations that included sourcing of raw materials to exporting the finished garments followed two manufacturing models. The first model was made up of a centralized value added unit comprising logistic management, material management, testing and inspection, and embellishment management (i.e. from development to execution) for the entire

³⁵ Stay4Sure is a silicon technology used for strapless bras and hosiery.

³⁶ MAS Active was incorporated with a vision to be the leading manufacturer of sports and active wear whilst also trying to break the mindset of the people who perceived MAS as purely a lingerie manufacturer.

³⁷ Fastreact Systems are specialist providers of planning, sourcing, and critical path management solutions specifically developed for the apparel, textiles, and footwear sectors.

³⁸ "MAS Active Chooses Fastreact for Planning," www.just-style.com, August 2007.

³⁹ Reebok International Limited, a subsidiary of Adidas, is a producer of athletic footwear, apparel, and accessories.

⁴⁰ A seamless garment is produced on a single machine using a number of reels of yarn which can turn out the entire design involving logos, patterns, and body mapping at a time. This single technology allows the fabric and garment to be knitted in parallel.

⁴¹ Situated in Biyagama, Sri Lanka, Linea Intimo comes under the umbrella of MAS Active.

⁴² Linea Aqua is a joint venture between Speedo International (UK), Brandot International (USA), and MAS Holdings (Sri Lanka) with a vision of designing and manufacturing top class swimwear.

organization. The final garment panels were sent to four manufacturing units located on the outskirts where they were completed and exported to the customer. The second model dealt with receipt of raw materials to exporting of the completed garments. This model was used in case of a fast response was needed to fulfill the urgent requirements of their customers.

At MAS Active, the traditional methods were being continuously challenged to make response to consumer demand faster. The conventional multi-head embroidery machines were being gradually replaced in the manufacturing facilities with single head units which performed like an ordinary sewing machine. Dedicated teams from various facilities and industry experts continuously looked for innovations such as digital textile printing⁴³ as a part of the manufacturing module.

Since 2008, MAS Active had been incorporating lean manufacturing processes (MOS) with the objective of increasing productivity by eliminating waste and non value added processes. The MAS Operation System or MOS worked on the same principle as the Toyota Production System⁴⁴ and emphasized minimization of resources, lowering of costs, and delivery in the shortest possible lead time. In addition, all the units had invested in ERP solutions⁴⁵ and SAP⁴⁶, which fast tracked all information from the shop level upward. A large investment had also been made in technology that supported over 80% of its innovations in embellishments such as printing and embroidery.

CSR DRIVEN INNOVATION OF MAS

While many of the companies in this sector had earned notoriety for 'sweat shop' conditions at their manufacturing hubs, industry observers said MAS Holdings had an enviable record in this area. The concept of corporate social responsibility at MAS was all about doing the "right thing". The CSR initiative of MAS included community education, infrastructure building, and sustainable livelihoods that helped the local people to realize their potential and to bond as one big family. The work culture at MAS Holdings included lean operating systems and processes and giving the employees authority at all levels. The company found out that a 1% increase in efficiency or decrease in absenteeism added US\$200,000 to the bottom line.

The two most popular CSR programs at MAS Holdings were: (1) MAS Women Go Beyond, which included components such as knowledge acquisition, awareness, leadership skills, attitudinal changes, work-life, and personal-life harmony. Since its inception in 2003, the program had been very successful as well as fruitful⁴⁷. It won the AAFA⁴⁸ Excellence in Social Responsibility award in 2005. The outcome of such social uplift programs was that in 2010, women formed the core 80% of the total workforce of MAS and over 90% of the employees at the apparel manufacturing centers in Sri Lanka were females⁴⁹; and (2) MAS Eco Go Beyond which was aimed at empowering the generation next whereby young children were provided with essential skills and knowledge which would sensitize them to sustainable development.

⁴³ Digital textile printing is a combination of traditional textile techniques with digital fabric printing

⁴⁴ Toyota Production System (TPS) believes in the philosophy of complete elimination of all waste which includes all aspects of production. TPS is based on two concepts: (1) Jidoka which means automation with a human touch where a process is immediately stopped when a problem occurs to prevent subsequent production of defective products; and (2) Just-in-Time (JIT) in which each process produces only as much as is needed by the next process in a continuous flow.

⁴⁵ Enterprise resource planning (ERP) is an integrated computer-based system used to manage internal and external resources, including tangible assets, financial resources, materials, and human resources.

⁴⁶ SAP is a German software development and consulting corporation, which provides enterprise software applications and support to businesses and firms of all sizes globally.

⁴⁷ "Strategic Sustainability Initiatives of MAS Holdings 2008," www.unglobalcompact.org, 2008

⁴⁸ AAFA stands for American Apparel and Footwear Association. It is the national trade association of US representing apparel, footwear, and other sewn products companies, and their suppliers.

⁴⁹ www.masholdings.com

Industry observers felt that there were several positives that had come out of MAS's CSR initiatives. It was estimated that when 3% of the total revenue was spent on CSR activities, the efficiency of the employees increased by 5%, and that there was a net gain of US\$400,000 in profit.⁵⁰ A survey of 2,000 managers in MAS Holdings in May 2006 showed that around 70% of the managers felt that the CSR programs by MAS Holdings clearly differentiated the company from others in Sri Lanka, as well as those in China and India. Partnering with the customers as well as the local communities on vital CSR initiatives enabled MAS to localize itself and become a part of the community in which it was based. Partners too valued this aspect of MAS Holdings as was evident from Victoria's Secret's CEO and President, Sharon Turney's comment, "We are excited about how MAS has impacted their employees lives and how they continue to strengthen their partnership through leadership, innovation, and putting corporate social responsibility into action."⁵¹

DESIGNING A SUCCESS STORY

With its focus on innovation, MAS Holdings had been able to expand at a fast pace and had positioned itself as a leading player in the design and manufacture of fashion garments – Intimate wear, Active wear, and Fabrics. It had become the largest apparel company in the South Asian region. It had established itself as a preferred sourcing partner for world-class brands such as Victoria's Secret, Nike, Adidas, Reebok, Speedo, Marks & Spencer, etc. and had been named Vendor of the Year 2006⁵² by Victoria's Secret Stores and Nike. The award, presented in recognition of MAS's consistent commitment to Victoria's Secret Stores' success, included criteria such as partnership, collaboration, innovation and design, cost competitiveness, community involvement, and overall performance. Nike recognized MAS Active as one of its Global Best Vendors for the year 2007 and included the company as one of its ten strategic supply chain partners that supported its apparel business development. MAS Active received the Regional Award of Excellence for outstanding performance on all Nike deliverables and was also recognized for its support toward product development and commercialization through the successful management of On-Site Product Development Trips.

Adidas too recognized MAS Holdings as one of its Most Innovative Suppliers at the annual conference hosted by the Adidas Group in Hong Kong on November 2007.⁵³ MAS Intimates Pvt. Ltd. was awarded the SAP ACE 2007⁵⁴ (Awards for Customer Excellence) in the Best Textiles and Apparel Sector Implementation — Large Enterprises Category during an award ceremony organized by SAP in August 2007, at New Delhi in India.

Besides, MAS Holdings was commended for its focus and commitment to Corporate Social Responsibility, Manufacturing Excellence & Innovation at the Nike Regional Vendor Summit⁵⁵ which took place in Bangalore, India, on August 2007. The founders of MAS Holdings Mahesh, Ajay, and Sharad Amalean were ranked 14th among the Top 20 Asian Progressive Leaders by *World Business Magazine* for their leadership in running a professionally managed responsible private entity while adhering to the core values of honesty, integrity, and fair play which culminated in their corporate social responsibility initiative championing women's empowerment.⁵⁶

⁵⁰ Noshua Watson, "Embedding Human Rights through MAS Women Go Beyond Program," www.masholdings.com/news/archives.html, April 2008.

⁵¹ "MAS Fabric Division's Stretchline Recognized for Innovation at the Femmy Awards 2008," www.masholdings.com, April 2008.

⁵² "MAS Holdings Felicitated as Victoria's Secret's Vendor Partner of the Year 2006," www.masholdings.com, June 2007.

⁵³ "Adidas Recognizes MAS as Most Innovative Supplier," www.masholdings.com, December 2007.

⁵⁴ "MAS Intimates Wins Sap Award for Customer Excellence 2007," www.masholdings.com, August 2007.

⁵⁵ "MAS Shines at Nike Regional Vendor Summit 2007 -- India," www.masholdings.com, August 2007.

⁵⁶ "MAS Founders Rank 14th among Top 20 Asian Progressive Leaders (World Business Magazine)", <http://www.masholdings.com/news/archives.html#1k>, May 2007.

EMERGING AS A PREFERRED SOURCING PARTNER

In 2008, MAS Active partnered with Nike to set up an apparel innovation and training center in Sri Lanka. To support the Nike facility, MAS Active also launched an apparel manufacturing facility, the Línea AITC, with more than 200 workers, which was dedicated solely to Nike and allowed students to come and participate in its center to test out the ideas developed during their course.

MAS Fabric⁵⁷ complemented MAS Intimates⁵⁸ (Refer to Exhibit IV for the MAS Intimates product range) and MAS Active in providing an integrated Supply Chain Solution. MAS Fabric was made up of six highly specialized facilities that made vertical integration a physical reality. Collaborative innovation and speed to market were two of the main strategies pursued by MAS Fabric to further strengthen Sri Lanka as the preferred manufacturer of high quality intimate and active apparel (Refer to Exhibit V for some strategic partners of MAS Holdings). As a US\$ 800 million global company as of 2010, MAS was passionate in its vision to develop Sri Lanka as the hub for intimates and sportswear sourcing. MAS's investments for the future included the development of dedicated Textile and Apparel Industrial parks in Sri Lanka (MAS Fabric Park) and in India (MAS Apparel Park) and the setting up of facilities for warp knit fabric (DOGIEFA), textile printing (Textprint Lanka), an eco friendly lingerie manufacturing plant (MAS Intimates Thurulie), and a training and development center (MAS Institute of Management & Technology), all of which were located in the MAS Fabric Park, Sri Lanka.

THE FUTURE STORY

Experts felt that the fashion industry was much more dynamic than any other typical consumer goods. In order to be a preferred vendor in this competitive industry, a company was expected to have a finger on the pulse of the end consumer, observe the dynamic fashion trends, and offer designs which would cater to the ever changing needs of the market. All the conventional marketing rules were very much applicable to the apparel industry where all the processes needed to revolve around the consumer. Thus, just being a mere tailor shop would not be sustainable. Companies needed to be market oriented whilst providing a design to delivery solution, experts felt.

MAS Holdings worked on bringing new and radical innovations such as Bonding, Silicon, No Sew, Hot Melt, and a host of new technologies that would redefine fashion in days to come, experts said. In the future, MAS Holdings was also keen on moving into virtual design systems and 3D body-scan technology that would link it seamlessly to its own overseas design studios, its business partners, and the consumers.⁵⁹ However, industry experts felt that being in the fashion industry, MAS Holdings was being continuously challenged to innovate, comply with the best standards, and empower itself with the right skills and decision making powers to stand out in the industry and stay much ahead of its competitors. The fashion industry was unique in that unlike other industries, it offered customer-centric customized products. Hence to bring in the concept of mass customization into their processes still remained the biggest challenge for MAS.

⁵⁷ MAS Fabric facilitates innovation throughout the value chain of MAS. It supports MAS Intimates & MAS Active by providing an integrated product supply chain to their businesses allowing for vertical integration.

⁵⁸ MAS Intimates acts as an extended arm to its customer's business processes such as planning, product development, manufacturing, and logistics. The clients include companies like Victoria's Secret, VS Pink, VSX, Nike, Mark & Spencer and GAP Body.

⁵⁹ Interview, Mr Dian Gomes — Group Director, MAS Holdings, "What Links Between Fashion and Technology are New to the MAS Holdings Tool Set?" www.fibre2fashion.com, June 2007.

Exhibit I
Subsidiaries of MAS Holdings

| | |
|-----------------|--|
| MAS Intimates | Design and manufacture intimate wears |
| MAS Active | Manufacture sportswear and fashion leisurewear |
| MAS Fabric | Manufacture fabrics, lace and elastics |
| MAS Investments | Deals in private equity investments |

Source: www.masholdings.com/

Exhibit II
MAS Fabric Cluster

| | |
|----------------------|----------------------|
| NOYON LANKA | Lace |
| DOGIEFA | Wrap Knit Fabric |
| STRETCHLINE | Elastics & Fortitube |
| PRYM INTIMATES LANKA | Accessories |
| SILUETA | Moulded Bra Cups |
| TEXPRINT | Fabric Paintings |

Source: www.masholdings.com/

Exhibit III
MAS Active Product Range

| | |
|------------------|--|
| Sleepwear | Top - Poly/cotton Hoodie, Gmt Dye Hoodie |
| | Bottom - Drawstring short, Gmt Dye short |
| Swimwear | Top - Triangle Bikini Top in Nylon/Lycra fabric |
| | Bottom - String bottom & Sarong in Nylon/Lycra fabric |
| Activewear | Yoga Top with inner Bra, Yoga Pant with flat knit rib waist band |
| Men's Essentials | Crew Neck Undershirt/T-shirt |
| Leisurewear | Tie front wrap, Capri lounge pants |

Source: www.masholdings.com/

Exhibit IV
MAS Intimate Product Range

| | |
|---------------------------|---|
| Ribbon Bow Babydoll | Padded underwire plunge cups fasten in front |
| Revolutionary Support Bra | Nike's premier ultra-light weight support bra |
| Smooth Demi | Lightweight graduated pad with micro-smooth outer |
| Sew-Free Brief | Designed with a combination of lace and nylon lycra |
| Beaded Blip | Satin, pleated chiffon & sequin embroidery at neckline |
| Jeweled Balconnet | Padded lace balconnet encrusted with beads, sequins & rhinestones |

Source: www.masholdings.com/

Exhibit V
Strategic Partners of MAS

| | | |
|---|-----------------------|---------|
| 1 | Limited Brands | USA |
| 2 | Triumph International | Germany |
| 3 | Speedo International | UK |
| 4 | Stretchline Global | UK |
| 5 | Prym Intimates PLC | UK |
| 6 | Brandot International | USA |
| 7 | NOYON Dentelles | France |
| 8 | DOGI International | Spain |
| 9 | Textprint S. A | Spain |

Source: www.masholdings.com/

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