2011 Proceedings of PICMET '11: Technology Management In The Energy-Smart World (PICMET)

An Analysis into the Impact of Globalization on the Clothing Industry in Conjunction with the Clothing Industry in South Africa

Kem Ramdass¹, David Kruger²

¹Faculty of Arts, Design and Architecture, University of Johannesburg, Johannesburg, 2092, South Africa ²Faculty of Management Sciences, Tshwane University of Technology, Pretoria, 0001, South Africa

Abstract--The clothing industry in South Africa is seen as a conventional industry with characteristics such as: labour intensive with low levels of qualification; low salaries; low potential for investment in research and development and innovation; flexible labour legislation and powerful labour unions. However, it continues to be an important sector in terms of the South African labour market with regards to job creation. The strong impact of globalisation and delocalization in the organization of work is pressurizing the industry in terms of its competitiveness. Global competitiveness in terms of quality, price and supply chain management are reducing the viability of the industry. Few organisations are able to keep their positions in the marketplace without changes in the organisation of work and workers. Organisations that respond to the challenges have positioned themselves for economic stability. Organisations have found different methodologies in dealing with the reality of the situation. Two distinctive paths can be identified: outsourcing production with dismissal of workers and relocation of facilities; and skilling the workforce through continual improvement. The aim of the paper is to highlight the predicament faced by the clothing industry and what could be done to change the levels of productivity in the industry. This paper presents results through qualitative research analysis from the case study conducted in Kwa-Zulu Natal on several clothing organisations in comparison to international experiences.

I. BACKGROUND

The clothing industry in SA has benefited from the protection against high tariffs imposed on imports in the era of the National Party's import substitution policies. The clothing sector is well established in KwaZulu Natal and the Western Cape. The largest clothing and textile cluster can be found in the Durban Metropolitan Area (DMA) in KwaZulu-Natal. The Kwa-Zulu Natal National Bargaining Council for the Clothing Manufacturing Industry list as at May 2007, cites a total of 347 registered clothing companies employing 26785 persons [34]. However, the industry exhibited signs of stagnation by the 1970s and was in decline from the late 1980s. The following historical factors played a role in the decline of the clothing industry: the insulation of the industry through apartheid sanctions and protective tariffs that led to strategies such as marketing, operational change and skills development not being pursued.

II. METHODOLOGY

The research methodology adopted in this investigation included a literature review of available documents on the industry as well as interviews and discussions with organisational staff and leadership in a case study context. The case study methodology highlighting the experiences of the clothing industry is similar to that recommended by Cooper and Schindler [11].

Research results are presented in an integrated format where data from literature and other available documents are discussed, together with own research data gathered from interviews and questionnaires used in the case study.

III. LITERATURE REVIEW

Hill [23] mentioned the significance of implementing a competitive strategy that would enhance manufacturing capabilities in order to compete in the global economy. A competitive strategy would cultivate strengths that could be used as a weapon against competing organisations.

The dimensions of competition vary in its context and have been argued extensively. Organisations implement priorities according to their needs. Edwards [14] categorised competitive advantage in terms of price; flexibility; quality and dependability. Abernathy et al [1]) identified five different dimensions namely price; quality; dependability; product flexibility; and volume flexibility.

Krajewski and Ritzman [27] proposed a combined list of competitive priorities, including plant and equipment, production planning and control, labour and staffing, product design and engineering, and organisation and management.

Hill [23] argued that organisations should use criteria that win the orders. He focussed on price, delivery, quality, product design and variety. Hill also mentioned performance as qualifying criteria in an organisations quest for service delivery.

Glock and Kunz [19] mentioned "a more detailed list by differentiating four different aspects namely, cost; quality; time; and flexibility. Their list then included low-cost operations, high-performance design, consistent quality, fast delivery time, on-time delivery, development speed, customisation, and volume flexibility."

Stevenson [39] mentioned that an organisation can compete on three major issues namely:

- cost leadership competing on the basis of price;
- differentiation a unique product that is valued by customers; and
- focus a niche market for its products developed on cost and differentiation strategy.

In view of the above, the clothing industry in SA needs to focus their energy of cost leadership and differentiation, coupled with quality and on time delivery in order to satisfy their customers. This leads to a discussion on the experiences and concerns through a case study.

IV. SUMMARY OF CONCERNS

A. Survey Evidence through Case Study Application

The survey focused on a qualitative approach of gathering information through questions based on the current experiences of the industry. Information was gathered through telephonic discussions, personal discussions with groups and individuals and direct observation. Please note that the factors discussed are limited due to the paper limitations.

1. Labour Trends

Trends of informalisation have pushed thousands of women into precarious existences. In situations where no work is found, evidence points to an unhealthy lifestyle, withdrawal of children from the education system and the increase of alcoholism and drug abuse. These developments mean more people join the ranks of the already copious poor communities in South Africa.

Labour is an important asset in an organisation and need to be treated as such. Larger firms mention that labour costs are between 20 percent and 50 percent of total cost, while smaller, predominantly CMT operations estimate labour costs at between 60 percent and 80 percent of total costs. It is therefore not surprising that smaller firms have a higher tendency to retrench employees. All the labour (machinists) is sourced from the nearby areas. Skilled labour is recruited through advertisements and sometimes relocated close to the factory. Many travel for 100-200 kilometres to get to work which impacts the productivity levels of employees [3].

2. Retrenchments

The general trend is that organisations prefer to work short-time rather than retrench workers. 89% of the sampled organisations retrenched and recruited in 2005. There is a very strong sense of duty on the part of small employers, conscious of the fact that many of their employees (89% women) are sole breadwinners in their homes [34]. Few of the bigger firms (3%) retrenched, but they were also the ones who could afford to relocate to outlying areas if necessary. A few small organisations (5%) indicated that if conditions in the sector did not improve, they are considering going underground and operating illegally, but still remaining in the central urban area.

3. Employment Levels

Employment levels in the industry fluctuated in the past 16 years since the implementation of free trade agreements between nations. The majority of the sample (73%) complained about the decline in employment levels during the 1999-2005 periods. The information elucidates that the clothing industry was experiencing the loss of employment over the last 5 years prior to 2005.

4. Ownership

In the sample investigation 36% of the organisations are affiliated to a "larger" South African organisation, 2% are part of an international organisation, 42% are privately owned (i.e., independent) companies, 18% are managed inhouse as family organisations, and 2% are an experiment conducted by international organisations as a joint venture. The majority of the sample (86%) mentions that there is no transformation in their change in ownership over the past twenty years, but this does not mean that ownership would not change in the future. Due to the pressure on the industry, the larger organisations decentralised their operations into smaller independent business units, but are strategically controlled by the parent company. The entire clothing supply chain is faced with a challenge of survival of the fittest that influences ownership. Organisations change their ownership by either becoming CMT manufacturers, are absorbed within the larger organisations, or operate under illegal conditions [14].

5. Cut, Make And Trim (CMT) Manufacturers

Of the 146 organisations visited, 58% concentrate on cut/make/trim (CMT) production, and 42% focus on the design and development of fashion trends in the industry. Some of the cut/make/trim organisations manufacture their own "brand" of products. Many organisations had a drive to increase their operations but are faced with financial obstacles as competition drained their reserves.

In those cases where clothing workers have found jobs in the informal sector in CMTs, such work is insecure and intermittent. In 2005, at least 24 000 workers were working in completely unregulated environments where CMT owners were not abiding by Bargaining Council regulations. CMTs' invisibility and 'up-and-go' status render their owners unaccountable to workers and regulators. While the argument can be made that any job is better than no job, the following aspects make CMTs in their current state a non-sustainable option from a socioeconomic vantage point:

- non-payment by fly-by-night CMTs;
- deadlines set in such a way that they cannot be met, leading to a forced reduction in labour;
- minimum payment despite round-the-clock working hours;
- abuses such as arbitrary setting of wages;
- no coverage of the costs of personal or family illness—no medical aid, no sick leave;
- unhealthy and unsafe working conditions;
- unpaid work by family members 'helping out';
- child labour [6].

While the pressures exerted by CMTs have decreased labour costs to manufacturers, the cost to workers and to society has increased. CMTs could play an important role in clothing manufacturing and hence in job creation through production for niche markets. domestically and internationally. This idea centres on design and marketing of niche fashion items for the international market, produced by flexibly organised factories that can accommodate frequent style variation and small orders. Such markets require flexible production units, such as CMTs, which can cope with quick turn-around times and short runs. Some machinists still have the necessary skills to produce for this market. However, in order to achieve this, investment is necessary to train new machinists; provide business training to owners; and provide access to capital and credit. CMTs suffer from a lack of business planning and access to capital, which result in poor decision-making while capital is so scarce that even repairs of broken down sewing machines cannot be afforded [4].

In return for assistance, those CMT owners which are currently resisting the Bargaining Council (BC) agreements should slot into the regulatory environment and abide by such agreements. CMT associations argue that CMTs do not earn enough capital to cover all overheads (thread; needles; machines; transport; premises; telephone) and pay decent wages. In some cases—because of insufficient data one cannot say how many—the CMTs' underground status is abused to ensure that even in cases where sufficient profits are generated such capital does not find its way into further productive investment [5].

Larger manufacturers argue that CMTs do not want to abide by BC agreements in order to gain an unfair advantage over the large manufacturers. The larger manufacturers have more overheads to cover and also source their own fabric, the most expensive input in clothing manufacturing. Related to this is the issue of labour costs, alluded to above. It must be noted that many CMTs are in fact registered and are profitable while abiding by BC labour agreements. The claims made by CMT associations should therefore be investigated more stringently to ascertain whether the difficulties arise from labour costs, which are exceedingly low in some cases, or from poor business planning, or from exploitative relations [7].

In order for CMTs to become successful producers for niche markets, it needs to be kept in mind that such higherend markets entail production of more intricate fashion clothing in constantly changing styles, and retailing at higher prices. Therefore, higher skilled workers are required, whose capabilities are regularly upgraded, and who would have to be remunerated in accordance with their higher skill levels. The number of CMTs and their operational needs should be objectively ascertained to debunk possibly exaggerated claims.

6. Changing Dynamics of the Industry

The most important step would be to reinstitute certainty in the industry. The uncertainty exacerbated the threat of losing long-standing relationships and market space, which would take a long time to re-establish. Respondents pointed out that the signals from government about the future of the industry have been confusing and have strengthened perceptions that government regards the industry as a 'sunset industry', or that the industry is being sacrificed for the political objective of belonging to the WTO. This has contributed to the problem of low levels of new capital flows into the sector and the failure of the industry to attract 'new blood' in the form of young professionals and engineers, leading to the depletion of management and industrial expertise. This is compounded by the historical reality of clothing manufacturing being dominated by conservative, risk-averse family businesses, as well as the related problems of a 'lack of creativity, entrepreneurship, vision and leadership', and the inability to adapt to changing global dynamics [12].

Another factor at the local level is the cost of doing business in South Africa compared with its competitors. These differentials include lower inflation and lower overhead costs, such as electricity, transport in trading partners. Municipal rates in South Africa have also been escalating, translating into another unnecessarily costly input for the embattled industry [13].

7. Output Performance

The international labour organisation (2006) reported that "SA output dropped by 32.4 per cent over the 1999 to 2005 period, the outputs of Asia and the USA increased by 97.7 per cent and 76.3 per cent respectively. Figures show that SA's share of world output fell from 53 per cent in 1980 to 29 per cent in 1995" [31]. 43% of the organisations reported that during the period 1999 and 2005 the clothing output performance was steady, and the remaining organisations (57%) complained that output levels deteriorated. Output performance determines the profitability of an organisation and while 43% of the organisation (especially the larger manufacturers) maintained their position, the smaller manufacturers (especially the CMT manufacturers) are the ones that failed to implement process improvement strategies to improve their competitive status.

8. Supplier Links

A handful of clothing organisations (about 10%) managed to establish supplier links with the textile industry. One established example is Ninian and Lester which manufactures its own fabric for supply to manufacturers. A percentage, (approximately 80%) of the large and medium formal economy clothing organisations distributed production to the CMT industries. The larger CMT manufacturers (10%) were in a fortunate position and provided orders to the smaller CMT manufacturers. There is a case where an established manufacturer provided orders to CMT informal establishments, in order to overcome the price pressure.

SA textile mills are required to focus on smaller volumes with a quick turnaround time to gain their share on the domestic market. SA textile organisations hope that their location would provide an advantage with competition. Unfortunately, this is not the case as clothing manufacturers are evaluating the international market for fabric inputs. Many manufacturers have succumbed to the pressures of the retail industry as they have a limited voice in the pipeline. Most clothing firms (80%) established relationships with the local retailers [30].

9. Wage Rates

Wage rates are determined through negotiations in the National Bargaining Council (BC) for the industry in SA. All employers in the clothing sector are required to be registered with the bargaining council, which was established through a consolidation of the regional bargaining councils in 2002. Even if a manufacturer is not party to agreements on wage rates and conditions of employment concluded in the bargaining council, such agreements are extended through a ministerial order to non-parties. The only employers who are exempted from paying the agreed-upon wage rate are those with five or less employees [5].

The clothing industry's wage structure in SA differed according to geographic location. Cape Town workers receive the "metro rate", which is between 40 and 50 percent higher than the official rate of the "non-metro" areas where the majority of clothing workers in Kwa-Zulu Natal work. "Metro wages" also include benefits such as medical aid and provident fund which is not part of "non-metro" wages. In 2005, trained, experienced clothing workers earned R611 per week in Cape Town, compared with R463 in Kwa-Zulu Natal. 91% of the sampled organisations paid wages according to the bargaining council rate. All organisations (100%) used temporary labour as required.

The formal rate in SA is about five times greater than the entry level rate in China. The average rand dollar exchange rate used for 2005 was R6.38. The minimum hourly rate paid at factories in rural Kwa-Zulu Natal and elsewhere is lower than urban rates, as per the bargaining council approved rates. Lower wages in rural areas correspond with the lower skills levels of workers producing lower-value garments aimed at the mass market. Thus, organisations that established themselves in rural areas over the past 20 to 30 years are reaping the benefit of low labour costs with acceptable quality [18].

10. Working Conditions

There is a general consensus that the working conditions of workers are poor. According to the sample 38% of organisations mentioned that the working conditions are good, which correlates with the larger organisations, 42% mentioned that working conditions are satisfactory, which is in the medium-sized organisations, while 20% mentioned that working conditions are poor, which is in the small and micro CMT organisations.

Working conditions correlate with the ownership as the larger organisations have better conditions than their smaller counterparts. This also impacts output performance and profitability. The health and safety Act (OHSAS 14000) promulgates that organisations meet the requirements of creating an environment that acknowledges employee well-being. 10% of organisations contravened this and were issued with fines by the Department of Labour inspectorate [28].

Generally, clothing facilities are constructed within a steel structure with a lack of windows. Therefore it is a "dark environment" with artificial light and air-conditioning consisting of industrial fans and air ducts. The smaller CMT organisations use industrial fans that circulate air but fail to bring in oxygenated air that would enhance worker wellbeing and performance. These organisations also have "dark corners" that inhibits worker performance.

11. Machinery

Organisations financed their machinery through hirepurchase arrangement or through a cash payment. Organisations, especially the smaller ones, are unwilling to commit to bank loans. Machines range from three to twenty years old. It was interesting to find out that the smaller organisations were inclined to have newer machinery than the larger organisations.

There is a possible explanation for the newer machinery. CMT manufacturers' are required to diversify in their product range so as to satisfy customer demands. Therefore these organisations purchased new machines to stay in business. For example, an organisation that normally produced shirts was required to produce jeans, and purchased new machinery [29].

All manufacturers are confident that the latest technological machinery would improve labour productivity by automating service level jobs thus improving multifactor productivity. All organisations desired capital investment but mentioned that they could not afford it. They are confident that sophisticated machinery would increase productivity and improve their competitiveness. Machinery impacts the performance of the organisation as newer machinery is inclined to experience fewer breakdowns and improve production output. However, this cannot be seen in the performance indices of organisations as the smaller (CMT) manufacturers failed to implement performance management systems in the organisations [30].

12. Profit Margin

25% of the respondents mentioned that their profit margin improved in the past few years prior to 2005 and this was found in the larger organisations. 14% of the respondents mentioned that their profits remained unchanged. 61% mentioned that their profits declined and this is a cause of concern. This aligns to the fact that 61% mentioned that their output performance deteriorated in the same time period. All organisations forbid the examination of financial data as they felt that information may be leaked to other organisations. Financial information could affect the organisation's position during wage negotiations. Profit margin correlates with the size of the organisation as a larger manufacturer with an established structure and the respective service departments would be inclined to out-perform the smaller (CMT) manufacturer. The CMT manufacturers operate with an informal structure and lack the fundamental process improvement strategies which are especially focussed at manufacturers that do not effectively and efficiently manage their operations [29].

13. Information Technology

The clothing and textile industry sample assessed generally operated with a low level of sophistication as far as information technology is concerned. A few organisations (7%) of the sample implemented real-time technologies on their production floor. This provides data on labour efficiencies and corrective action is conducted timeously. The effective use of information management enhances communication and exchange of data, enhancing the control of production. There is a lack of communication within the supply chain that could speed up the processing of orders. Real time information management technologies that provide data on the progress of production was lacking in the major part of the sample. The implementation of technology based information sharing in the organisation could improve output performance and the profitability of the organisation [25].

14. Performance Management

Management of all organisations claimed that they had the skills that would improve their production levels. An amazing fact is that 100% of the organisations sampled did not measure their productivity levels, as they focus on labour efficiency. "We do not need training and development," was mentioned by (5%) of the sampled organisations' management. The fundamental aspects of work-study, production management and quality management are not implemented by CMT manufacturers. Thus, it can be presumed that output performance could be improved by approximately 30% by CMT manufacturers [24].

V. STRATEGIES APPLIED IN AUSTRALIA

A. Introduction

In the mid-1980 the Australian government decided to gradually reduce import barriers on the clothing and textiles industry. The downside of this action was that clothing producers became uncompetitive. The time period is similar to the South African experience. McCallum [32] mentioned that quotas were abolished by 2000, and import duties were down to 15 per cent for woven fabrics and footwear and 25 per cent for garments. Consequently, the number of people employed in textiles production dropped from 20,300 in 1985 to 6,300 in 2001, and the combined fall for clothing and

footwear was 71,900 down to 51,700. Australia's clothing imports rose to 78 per cent by the year 1999 in comparison to 25 per cent a decade prior to 1999 [9].

Local retailers used this opportunity to procure clothing and textile products offshore and dominated the local markets while traditional suppliers began to face competition from "house" labels. Clothing and textile manufacturers faced a dilemma in their operation and began shutting down, while the larger organisations outsourced their production volumes from countries like China and India [9].

The local textile manufacturers were also affected by this situation as clothing producers imported the major part of their raw materials from nearby countries. The designers in the Australian clothing industry formulated the latest fashion trends and specify the type of fabrics to be used, thus leaving the manufacturers to purchase their raw materials from the textile plants. This phenomenon led to the rapid development of cut/make/trim (CMT) manufacturers embarking on clothing production [32].

Garran [17] mentioned that the Australian Government's Import Credit Scheme allowed businesses to ship fabrics to Fiji and claim export credits, which were used to offset tariff payments on future imports. Finished goods returned duty free, under the South Pacific free trade agreement.

A managing director of a clothing producer mentioned that it was arduous to continue under the current circumstances due to the reduction in the market size and there was no clear competitive advantage that was established by manufacturers [17]. He also mentioned that products with a low value should be outsourced, but organisations should retain specialised production with short runs based on the philosophy of quick response. Manufacturers should focus on value-adding projects such as brand management, customer focus, design and supply chain management [9]. The experience discussed above is similar to the South African experience.

B. Strategic Response In Australia

Clothing organisations differentiated between their focused products that were manufactured in Australia and products that were imported. The decision was that the top of the range fashion items would be manufactured at home while products that competed favourably on quality and price could be imported [10].

The most advantageous manner of retaining market share in the Australian market was to develop and promote a brand name based on its reputation of value for money to the customer. The label of "Made in Australia" created an impression of quality excellence for the consumers in comparison to the label of "Made in China." China's focus was in price competition through their mass production facilities, although this may have changed in recent years [19].

Another advantage could be achieved by focusing on high variety fashion items that were in demand for a particular market segment in the areas of clothing, footwear and sportswear. The ability of flexible response to a customer provided a competitive advantage to the manufacturer. This required the recurrent delivery of orders to customers, for products that were relatively expensive. The frequent communication within the supply chain enabled the industry to understand new developments and fashion trends through the sharing of information [10].

C. Developments In Usa

The USA's clothing retail outlets transferred the power to negotiate from the small garment producers to the retailers [1]. Retailers demanded goods at a low price and thus outsourced garments from the eastern countries. American manufacturers decided to relocate their plants to neighbouring countries such as Mexico and Venezuela where labour was abundant at a low cost. Certain high fashion manufacturers who carved niche markets became profitable due to their customer focus, high quality of production and short lead times that demanded premium prices.

US clothing and textile manufacturers experience similar changes in their operations in comparison to South Africa and Australia. Rapid changes in the business environment with regard to technology, mechanization and automation, information technologies are fundamental changes that offer both challenges and opportunities for clothing and textile manufacturers. Organisations are gearing themselves by restructuring their production facilities with the adoption of manufacturing strategies that are profit driven, innovative and with creative thinking, product flexibility and reliability, quality orientation and a delivery service with a focus on meeting customer demands [9].

D. Developments In The Uk

Clothing and textile manufacture have been long established and an important economic driver in the United Kingdom. The industry is steadily declining over the past years, with employment rates diminishing from one million 25 years ago to approximately 316000 in 2005. This was a loss of approximately 65% of the clothing and textile jobs [26].

During 2005, in the UK local clothing production output declined drastically and this impacted on retail sales volumes. This phenomenon can be attributed to the following issues, namely:

- the import of cheaper products from low wage economies;
- communication barriers between manufacturers and retailers;
- breakdown of honesty and trust among stakeholders;
- failure to invest in design, information and communication technologies, thus preventing the dissemination of value information [21].

The UK industry decided to act on these variables by establishing strategies that could improve the profitability of organisations. The focus areas revolved around the following issues:

- The implementation of information and communication technologies (ICT) that would enhance the flow of information in real-time, thus improving decision making.
- The implementation of computer aided design and computer aided manufacture (CAD/CAM) technologies. This would improve cycle time in the manufacturing process.
- Knowledge sharing created strong inter-company relationships through quick responses to customer demands.
- Management information system (MIS) that would help organisations to share vital information and focus on business improvement [2].

E. Developments In Switzerland

Switzerland focused its attention on the development of clothing and textile manufacturing equipment and won 31% market share in 1997. Due to the investment in research and development in production engineering techniques, the machinery used in clothing and textile manufacture evolved into state of the art facilities. Swiss organisations' invested in innovations which transformed their strategies into world class leaders in machine manufacture. This led to an improvement in productivity levels that warranted high wage rates for Swiss employees [38].

Switzerland is also affected by the impact of globalisation which had an impact on the customer and their preferences. The Swiss economy changed in response to globalisation, which impacted on consumer preferences. The Swiss government's challenge was to implement change which would not influence people's behaviour, creating negativity and an atmosphere of resistance to change. The Swiss believed that its government needed to assist people in their society in dealing with the rationalisation and retrenchment process. The Swiss department of trade and industry developed policies and procedures in dealing with the effect of globalisation. The strategies included the following;

- The application of science and engineering for technical advancement;
- The improvement of their business performance;
- The use of grants that would secure capital investment and protect approximately 75,000 jobs by 2008 [38].

The programme was implemented and supported by the Swiss government and this assisted the industry in maintaining its competitive position.

F. Developments In Italy

The Italian clothing industry relied heavily on local subcontractors, and focussed on quality of production and overhead expenditure. Effective supply chain management principles were implemented for stakeholders in the value chain of clothing and textile production which were dispersed in various corners of the globe [23].

2011 Proceedings of PICMET '11: Technology Management In The Energy-Smart World (PICMET)

A sub-assembly type operations strategy of quick response was used. As an example, a shirt could be assembled with short, mid and full-length sleeves, with or without a collar. The assembled bodies were common and stored as inventory. The application of quick response methodology was used to complete the garment according to customer preferences. The scheduling of production was done on short notice with the completion of work in progress inventory. Thus, orders were delivered within a period of 13 to 27 days.

Abernathy, et al [1] mentioned that textile manufacturers were producing the fabric and also completing the garment. The textile producers sold finished products such as sheets, carpets, and socks directly to the American retailers. Products that were fashion orientated sought a higher value on the retail market.

G. Developments In Norway

The Norwegian clothing and textile industry suffered a similar fate as the industry declined at a rapid rate [15]. Organisations that developed strategies such as technological advancement and niche markets were able to maintain their status in the market. The niche markets focussed on items such as ropes, fishing nets, textiles used in combat, sleeping bags and so forth [15].

The clothing and textile industry includes organisations that cover a wide range of raw materials, production processes and products. There was a steady decline in employment and companies from 1970 until 1990. The level of activity stabilised in the 1990's and the industry has grown more robust. The oldest company in the clothing sector A/S Timms Reperbane was established in 1772. The clothing and textile industry is located all over the country.

The market for textile products and ready-made clothing (imports) is characterised by rapid changes in fashion trends and demand. The most important domestic markets are corporate customers, public departments and customers who like Norwegian design and quality.

Helly Hansen, which has its headquarters at Moss, is an internationally renowned manufacturer of work clothes, leisure wear and sports clothing. Important functions such as designing and marketing still take place in Norway, but the clothes themselves are mainly manufactured in the Far East [15].

H. Developments In The European Union

Textile manufacture is a highly adaptable and readily transferable form of activity. There is a movement of clothing and textiles from Europe eastwards to Hong Kong, Japan, Korea and other regions of the Pacific Rim. The intense international competition from newly industrialised producers like China drove many European producers out of business. Despite the efforts of West European manufacturers to retain market share, increased infiltration was evident, which involved a marked decline in levels of output and employment in the countries of the EU community overall [38].

In the EU the total number of people employed in textiles and clothing was estimated at 2.7 million, of which 1.5 million were employed in textiles alone. Official statistics clearly show that the European textiles sector is steadily losing ground, as measured by share of world trade, despite the defensive intent of the various provisions of four successive Multi-Fibre Arrangements in textiles and clothing [38]. However, the textile industry continues to be significant to the European economy, especially to some countries, and further decline is impacting painfully on many EU economies. For this reason there is growing concern in Western Europe over its ability to compete with national and international manufacturers [26].

The European textile and clothing manufacturers are relocating to low cost areas where there is skilled labour. They are moving the source of competitiveness away from low cost, towards other more sophisticated factors, such as design, fashion, new fabrics and so forth. They invest heavily in research, development and in technology in order to produce new techniques of production which enable them to reduce the impact of labour cost [38].

During the 1970s and early-1980s the demand for clothing and textiles was static. The main markets allowed production to be planned over a number of months. Long-run orders of standardised products promoted price-competition. This led to a transfer of price sensitive production away from European suppliers. In the 1980s the change of fashion was on the increase. The result was a proliferation in the range of styles, patterns and colours of textile goods [40].

European textile and clothing producers were advantaged by their domination of world fashion trends. Their high rate of fashion change and a highly segmented demand was certainly more easily satisfied by local producers than by those that had moved to remote locations [40].

The competitive advantage of EU producers included, among others:

- Quick response to changing demand;
- Low distribution costs;
- Low inventory costs.

A segmented market places an emphasis on creativity, originality and quality. Consumers associated goods bearing a brand name with style and quality. This separated "unknown" producers whose primary competitive advantage was based on low wage costs and/or long production runs.

The EU clothing and textile industry became demand-led and fashion oriented where retailers placed an increased emphasis on proximity. Suppliers who met the demand of the industry were selected as partners in business [40].

1. Demand For Clothing In Eu

The rate of growth of demand plays an important role in determining the rate of investment. Growth of an organisation permits the adoption of new technologies at a faster pace. With a low demand of products, organisations tend to be more resistant to embrace new technologies. This makes existing facilities redundant [39].

However, it should be remembered that the EU market still remains one of the greatest world markets and that this feature should act in favour, ultimately of local producers. Production in the textile industry expanded at an average annual rate of 2.1% over the 1990s [39].

2. The Supply Chain In The Eu

The presence of competitive supplier related industries is a determinant of national advantage. The value chain determines the competitive status of an organisation by evaluating the value-added component which contributes to buyer value" [39].

The close working relationship between suppliers and manufacturers enables an advantage over competitors. Suppliers help organisations gain quick access to information, to new technologies and perceived new methods and opportunities. Suppliers are also a means for transmitting information and innovations from organisation to organisation. On the other hand, organisations have the opportunity to influence suppliers' technical efforts as well as serve as test sites for development work. Research and development and joint problem solving lead to faster and more efficient solutions [36].

The European clothing and textile industry offer good opportunities for the development of these forms of linkages in textiles. On the one side there is a concentration of competitive textile machinery producers, and some chemical giants, such as ICI, which are able to provide new technologies, new materials and fibres to local producers. On the other side are the clothing and textile producers who use the latest technology to their advantage. The EU textile sector is composed of small and medium sized organisations that employ 18% of the total workforce and generated 15% of total turnover in 2005 [40].

Many of the companies are absorbed in a culture of short production runs for a variety of customers. Benetton, an Italian clothing manufacturer harnessed the synergies with the structure through an efficient central design, marketing and distribution facility. All Benetton shops, factories and subcontractors are linked by an on-line computer system. Computerisation has three major advantages: speedy transmission of orders; facilitates management of inventory; permits "real-time" communication [38].

The value chain located in close proximity promotes the innovation process and achieves a degree of mutual coordination which resembles that of large integrated organisations. By contrast, when organisations are locally concentrated, but act independently of one another, they suffer the disadvantages of limited size with a lack of sharing research and development ideology [38].

As international competition increases, with the emergence of new "players" such as China and eastern Europe, organisations need to establish a strong base from which to compete, one which recognises that successful competition could no longer hinge on cost advantage and would increasingly centre upon market proximity, quality, design and flexibility. Smaller, under-resourced organisations are unable to improve efficiency, quality, flexibility and market awareness unless they apply strategies to improve their competitive position [7].

The large number of related organisations in the various textile districts has enabled the development of a sophisticated division of specialisation. The wide range of services and products that is offered enables local organisations to develop linkages and share resources. This is important since it allows the development of an integrated supply chain, from sourcing of fabrics through to final sale. Such localised buyer-supplier-sourcing chains make easier the quick response to fast fashion cycles and production of small batches of products manufactured and distributed with short lead times, thus giving organisations a considerable competitive advantage over foreign suppliers [8].

Presently, the EU clothing and textile industry is uncompetitive in terms of factor cost (in particular labour cost), but is better positioned in terms of other factors, notably composition of demand and local supporting industries [32]. This allows local producers to be competitive in the top-end quality, high-fashion segments of the market.

I. Lessons Learnt

Challenging lessons were learnt by stakeholders in government, industry and labour in South Africa. The industry needs to plan for its survival through the application of its intrinsic strength. Dialogue between stakeholders within the clothing/textile pipeline would improve the plight of SA manufacturers. Governmental policies need to be implemented to enhance the economic viability of organisations.

The above discussions highlight that South Africa clothing industry is not alone in its fight for survival. All the organisations in the various countries have taken the initiative to determine their intrinsic strengths and work towards a viable industry.

Competitive organisations like the Seardel group, House of Monatic and Levi Strauss were unfazed by the quotas and performed exceptionally. Hassim Randeree, president of the Clothing Trade Council of SA mentioned that the upgrading of skills and technology could improve the industry [25].

Moving into the future with a positive outlook, retailers should try and provide more support to local clothing and textile manufacturers. Stability of the economy and the creation of viable investment conditions would stimulate the industries growth opportunities. Although it is a difficult period for the SA clothing and textile industry, there are many positive issues that could turn the industry around. There is a prominent industrial development council (IDC), an export council, a sector education and training authority (SETA) and a textile federation team that supports the local industry [22].

VI. RECOMMENDATIONS

To survive the impact of the globalisation of markets and maintain their current status, the clothing and textile industry around the world need to respond by implementing strategies that improve their competitive status [35]. Lasting improvements in clothing and textile manufacture in developed economies are dependent on their abilities to adopt the principles of quality management, dependability, elasticity and technical leadership [16].

Organisations that achieved success focused on aspects such as organisational capability with a drive to address problematic issues that occurred, specifically driven by organisational leadership [7]. As Hill [23] pointed out, many manufacturing or production managers are focused on improving the efficiency of their processes, and concentrated on short-term, rather than longer-term, goals. Hence, manufacturing had little input into corporate strategy.

Organisations need to develop an advantage that is sustainable, leading them into the future, rather than the focal point being operational efficiency. The development of strategies on a continuous basis embedded the philosophy of continual improvement within the structure of the organisation [7].

Good interpersonal relationships among the workforce and the communication strategies applied create a favourable climate for decision making between workers and their supervisors. The national value system is therefore important when undertaking the formulation of a strategy in manufacturing [33].

Managers fail in recognising the innovative potential of the workforce. The implementation of quality and improvement strategies is vital for the manufacturing environment. Manufacturers are encouraged to create and implement training initiatives based on best practice improvement initiatives that would promote information sharing. These initiatives would consolidate strategies for long term benefits for the entire organisation [21].

Clothing and textile manufacturers need to adapt themselves in relation to the globalisation of markets by implementing various aspects of quality and continuous improvement. There is a major change to customer focus by listening and fulfilling the requirements of customers [4].

Manufacturers with a strong customer base need to explore the market further. There is a strong emphasis on service levels on manufactured products rather than the physical attributes of the product. Clothing and textile manufacturers are attempting to incorporate their manufacturing strategies into their overall business strategy, which would impact improvement initiatives throughout the organisation. Often, the changes and improvements were implemented in areas where it made the least impact [20].

VII. CONCLUSION

SA clothing and textile manufacturers are also affected by the issue of globalisation, and are lagging behind in the implementation of process improvement strategies that could improve productivity in the region of 30% [21]. This has been proven by the implementation of CI principles in numerous manufacturers, but the decision lies with the management of organisations [3].

REFERENCES

- [1] Abernathy, F et al., 1999. A stitch in time: Lean Retailing and the Transformation of Manufacturing Lessons from the Apparel and Textile Industries, Oxford University Press, New York, NY.
- [2] Adewole, A.2005. Developing a strategic framework for the efficient optimization of information in the supply chains of the UK clothing manufacture industry. Supply chain management: An international Journal.10:5. Emerald Group Publishing Ltd.
- [3] Barnes, J et al.2004. An analysis of the MIDP's contribution to the success of the South African automotive industry – Policy lessons for the clothing, textile and paper and paper products industry. NPI Research Report. 26/06/2004
- [4] Basdeo,S.(2005-8). Clothing industry consultant. Kwa-Zulu Natal.
- [5] Bennet, M.2003. Organising in the informal economy: A case study of the clothing industry in SA. Small enterprise development (SEED) working paper no. 37.Geneva. ILO.
- [6] Berman, K. 2005. Clothing-import crisis generates bizarre heat. Business day. Johnnic communications. I-net Bridge.
- [7] Bessant, J.et al.2000, Developing manufacturing agility SME's, International Journal of Technology Management, 22, 1-3, 28-54.
- [8] Bolisani, E and Scarso, E.1996. International manufacturing strategies: experiences from the clothing industry. International Journal of Operations & Production Management. 16:8 pp71-84. MCB University Press
- [9] Buxey, G. 2005. Globalisation and manufacturing strategy in the TCF industry. International Journal of Operations management 25:2. MCB university press.
- [10] Buxey, G. and Kosmider, R. 1997. Strategies for survival following tariff reform. Industrial Management and Data Systems. V 97 No. 6. MCB University Press.
- [11] Cooper, DR and Schindler, P. 2006. Business Research Methods. McGraw-Hill. New York
- [12] DTI. 2005. Driving competitiveness in South Africa: The integrated industrial strategy for sustainable employment and growth. Pretoria.
- [13] Echikson, W. 2006. SA textile industry gets frayed by Chinese Imports. SA Media. University of the Free State. Citizen. 8 September.Ref 14356.
- [14] Edwards, L., 2001. Globalisation and the skill bias of occupational employment in South Africa. South African Journal of Economics, 69, 1: 40-71.
- [15] Espeli, H. 1997. Protectionism, lobbying and innovation: perspectives on the development of the Norwegian textile industry, Scandinavian Economic History Review, 45, 3, 257-75.
- [16] Ferdows, K., de Meyer, A. 1990. Lasting improvements in manufacturing performance: in search of a new theory. Journal of Operations Management. 9, 2, 168-84.
- [17] Garran, R. 2000. Textile jobs under threat. The Australian, 19 July.
- [18] Gibbon, P. 2002. South Africa and the Global Commodity Chain for Clothing Export and Performance Constraints'.mimeo
- [19] Glock, RE and Kunz, GI. 2005. Apparel manufacturing sewn product analysis. Prentice Hall. New Jersey.
- [20] Harrison, K. 1996. KZN IRP Clothing Study: Changing SA Markets and Supply Chain Developments, Report for the KwaZulu-Natal Industrial Restructuring Project, Centre for Social and Development Studies, University of Natal, Durban.

2011 Proceedings of PICMET '11: Technology Management In The Energy-Smart World (PICMET)

- [21] Harrison, K. 1997. Migrate, Innovate or Evaporate, Draft Report for the KwaZulu-Natal Industrial Restructuring Project, mimeo. Centre for Social and Development Studies, Durban: University of Natal.
- [22] Herman, D.2006. Clothing stores facing major challenges. SA Media University of the Free State. Cape Times.4 September.
- [23] Hill, T. 2000, Operations Management: Strategic Context and Managerial Analysis, Macmillan Press, Basingstoke.
- [24] Inggs, M. 2007. Clothing retailers seek an alternative to China. SA Media. University of the Free State. 17 January
- [25] Inggs,M. 2006. SA clothing firms unfazed by quotas. SA Media. University of the Free State. The star 10 October. Ref. 15476.
- [26] Keenan, M et al.,2004. A dying industry- or not? The future of the European textile and clothing industry. Foresight. 6:5. MCB University press.
- [27] Krajewski, L.J., Ritzman, L.P., 1996, Operations Management: Strategy and Analysis, 4th ed., Addison-Wesley, Reading, MA.
- [28] Krige, M.2007. New textile regulations welcomed. SA Media The University of the Free State. Business Day. 12 February. Ref. 1569.
- [29] Le Roux, M. 2007. South Africa-China Textile pact welcomed. Mail and Guardian.

- [30] Makgalemele, T.2006 The clothing industry is slow to react. SA media-The university of the Free State. Saturday Star. 16 Sept. Ref No. 14416.
- [31] Mamoepa, R. 2006. Minister Dlamini Zuma to hold discussions with Chinese counterpart. <u>http://www.dfa.gov.za.</u>
- [32] McCallum, J., 2001. "Textile revival", Business Review Weekly, 10 August, 58-61.
- [33] Nel, PS et al.2006.Human resources management 6th edition, Oxford University Press. Cape Town.
- [34] Palmi, R.2007.A survey of South African Clothing companies in Kwa-Zulu Natal. The Alexander Report. Durban.
- [35] Paton, C and Bisseker, C. 2005. A stitch in time. Financial Mail. I-Net Bridge
- [36] Pressley, D. 2007. eThekwini ponders business surcharge.I-net Bridge.
- [38] Stengg, W. 2001. The textile and clothing industry in the EU. A survey. Enterprise Paper No.2. Belgium.
- [39] Stevenson, WJ. 2006. Operations Management. 8th edition. Mcgraw Hill. New York.
- [40] Taplin, IM. and Winterton, J. 2004. The European clothing industry: meeting the competitive challenge. Journal of Fashion, Marketing and Management. 8:3. MCB University Press.