



## TEXTILES OF THE 21<sup>st</sup> CENTURY: NEW PRODUCTS AND PROCESSES WITH A WIDER POTENTIAL

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### OPENING STATEMENT

Textile related technologies are once again having a significant impact on the future of the textile industry. Technology is now a major strategic issue. In the 1980s the industry was led by fashion and retailing and the emphasis was on technologies in the demand-related parts of the supply chain eg EPOS, EDI, CAD, MRP II. Product/market strategies and market segmentation were crucial and resources which might otherwise have been spent on R&D on products and processes were directed at market analysis and shop design and fitting out.

Consumer spending is slowing down all over the world. Retailers are looking for real innovation from their suppliers. They want really new garments made from new fabrics and yarns. They want new services to offer their customers. Competition in the late 1990s will be based on the capabilities and core competences of textile and clothing companies and on the building of long-term supply relationships. There are many opportunities to be addressed. Textile and clothing machinery will continue to be improved but the most interesting technologies for the 1990s are in the areas of fibres, fabrics, measurement, control and multimedia.

The world of textile and clothing production seems to be polarising into:

- the NICs: low labour costs allied to the latest production technology; competitive low cost production of basic products
- the Japanese approach: new technologies applied to fibres, fabrics and textile and clothing machinery to create competitive advantage through superior capabilities in the production of novel products

Other developed countries are in some danger of being trapped between these two strategic approaches.

Technology can and will make an important impact in many of the areas in which developed countries must make quick progress if they are to prosper.

- product and service innovation: higher added value; meeting customers' real needs
- flexibility in manufacturing
- the environment
- low costs
- quick response
- in-store display.

## NEW MATERIALS

Many new fibres for garments (shin-gosen) are being developed in Japan following a MITI sponsored fibre research programme. They produce novel types of fabrics. Many new technical fibres have been produced in several countries in recent years. These are now being used in the design of technical textile products tailored to specific end-uses in the rapidly growing technical textile market.

## FLEXIBILITY, QUICK RESPONSE

New technology is needed in the areas of:

- small-scale production units at all levels in the supply chain from fibres to garments
- quick changeover production machinery
- on-line measurement and control systems
- semi-bespoke manufacturing systems in which garments to fit a person's exact measurements can be produced by altering standard basic patterns
- quality control.

## THE ENVIRONMENT

The key areas for new technology are:

- effluent treatment and disposal
- "clean processing" throughout the production chain
- life cycle evaluation of environmental impact and the linking of technologies up and down the supply chain
- the disposal of textile products at the end of their useful life (eg carpets)
- the development of "green" products.

(Ecolabelling will probably be used as a method of controlling imports).

## RETAIL POINT-OF-SALE

Multimedia and computer graphics technologies will be used extensively in shops and in home shopping to provide powerful display techniques. Expert systems will be used to aid the process of consumer choice.

## LOGISTICS

A new family of larger jumbo jets is being planned by Boeing and others. How will they affect the costs of quick, long distance delivery and the balance of competitive advantage between close and distant suppliers? Cheap videophones will soon be available. How will they impact on the different types of buyer/supplier relationships?

## SOURCES OF TECHNOLOGY

Most new technology comes from the suppliers to the industry (fibres, machinery, chemicals, dyes, computer hardware and software). It is generally freely available to all. How can a company create defensible competitive advantage in this situation? Biotechnology, lasers, optoelectronics and mechatronics are areas of technology whose use in the textile industry needs much further investigation.

## Summing up

The discussion has focused on the clothing supply chain and we concentrate on it here. The technical textiles supply chain could well be a subject for discussion at a future WEF meeting.

Adaptation, and the adoption of new technologies, are crucial for future competitive success in many parts of the clothing supply chain. Businesses need to establish differential capabilities based on technologies. These will largely come from the industry's suppliers and will need to be blended in creative ways.

For example, the success of Benetton in the 1980s was achieved by putting together a number of new technologies and know-hows.

- leaving the system for deciding on seasonal international fashion colours and defining their own distinctive colour palette
- developing high quality and consistent garment dyeing
- delocalising garment production
- inventing an innovative form of retail franchising and the funding arrangements for it
- installing state-of-the-art EPOS systems
- organising a highly automated central warehouse for the rapid make up and despatch of shop re-orders.

All of these are individually capable of being copied by other companies. The skill is in conceiving the total package and implementing them all together. It takes years for a competitor to catch up.

There is scope for redesigning the whole of the manufacturing operations of the textile and clothing supply chain around the technologies which have been developed in recent years and those just emerging. The objective is to achieve a better balance than exists at present between:

- cost
- environmental impact
- quality
- quick response
- flexibility.

Every company in the supply chain needs a strategy for its future use of technology. This will include:

- identifying the likely role of different technologies in achieving the company's strategic objectives
- identifying the sources for new technologies and the possibilities for technology transfer
- deciding on the R&D which needs to be done within the company or by outside agencies (eg research institutes, universities) on the company's behalf, perhaps in collaboration with others.