

Growth and development of Italy's textile industry in the technical textiles field

Throughout the course of human history, technology has never made such rapid strides as it has over the past few decades. And there are signs that the pace of innovation - driven by scientific research - will gather even more speed going forward. The same impressive progress has been achieved by the textile industry. The properties of most popular fibers, cotton and wool, remained unaltered for thousands of years, then over the last century, factors such as industrialization, the development of synthetic fibers and the emerging new needs of society, eventually brought about spectacular changes in the traditional approach to producing fabrics. **Report by ACIMIT.**

Through the unrelenting pursuit of innovation, the textile industry has to a large extent modified our lifestyle. New fabrics have contributed to driving social change, starting from the way we dress and experience our everyday lives, with materials gaining in functionality and being treated more seriously than ever before. Fabrics are no longer simply either formal or casual, summer-weight or winter-weight; modern materials obviously offer comfort, but now they can also be used to provide protection at extreme temperatures, reinforce building materials, or function as a substrate for growing human tissue grafts.

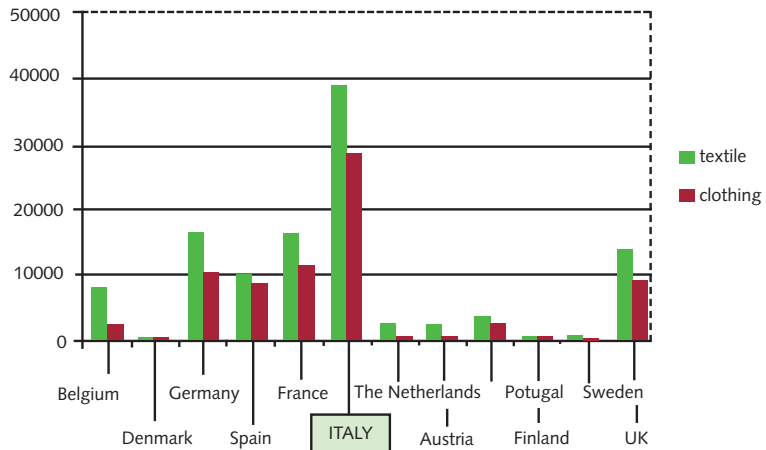
Tradition, creativity and innovation in the Italian textile industry

During the course of its thousand-year history, the Italian textile industry has witnessed remarkable changes, going from strength to strength and ultimately acquiring its current leadership.

In the early 1930s, approximately 60% of all Italian produced fibers were export oriented companies, and silks and artificial fibers were the leading income earners of the Italian trade balance.

Furthermore a new artificial fiber was added to the earliest one in use: it was Lanital, the world's first casein derived fiber, made by **Snia Viscosa** in 1936. However, the Italian textile industry found many other ways to express its creativity.

Production textile and clothing industry in Europe in 2000 (million €)



In 1946 **Armando Ballerini** in Turin discovered a German parachute in a pad-dock and invented the nylon raincoat, which Italians adopted en masse and were soon tucking under the saddle of their lambretta.

In 1952, the **Colmar company** invented the first aerodynamic wind-jacket for the Italian ski team: it was inspired by Zeno Colò and made from Nylon. This marked the end of cotton windjackets which billowed out like balloons down the slopes and had to be restrained with straps, buckles and adhesive tapes, and lost their water-proofing after every wash.

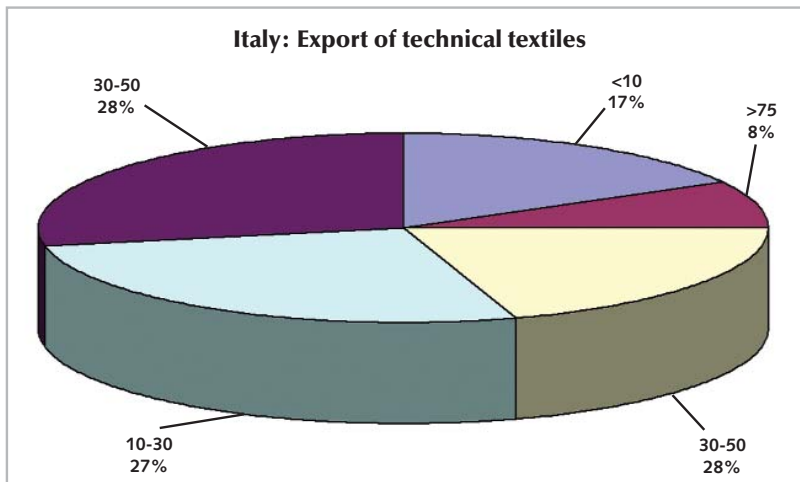
After spending years studying molecules and polymers, **Giulio Natta** was awarded the 1963 Nobel Prize for chemistry, his principal achievement being the synthesis of isotactic polypropylene - a substance that would become the basis for the polypropylene fiber produced industrially a few years later by the **Montecatini company**.

This brings us to a rather more recent chapter in the history of Italian textiles. In the 1970s, the success of the Italian skiing team at the winter Olympics at Sapporo sparked a new passion on the Italian fashion scene: sportswear and activewear, with names like Ellesse, Colmar, Belfe, Tacchini 'breaking the ice'. The 1980s saw the emergence of microfibers - strong and breathable materials that allowed Italian mountaineer and explorer Reinhold Messner to survive in Antarctica.

Evolution of Italian Technical Textiles sector

But Italian design adopted a rather different approach to textiles; fabrics were regarded not just as a surface, to be interpreted graphically, but as a material to all intents and purposes, with its own intrinsic structure and performance. Thus, with the synergies springing from an entire textile pipeline and an advanced textile engineering system already in place, and a strong awareness of the need to diversify its man-

Italy: Export of technical textiles



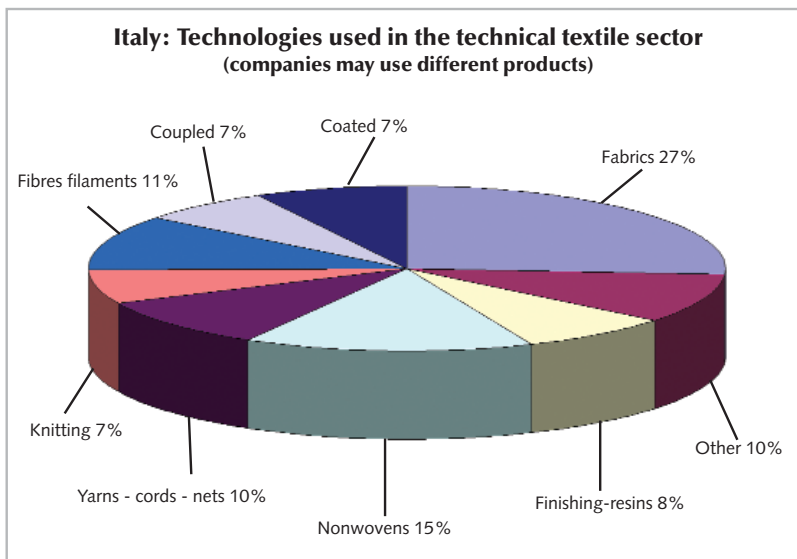
ufacturing processes, the Italian textile sector took a farsighted view and opted, strategically, to go the way of innovative and functional products.

Throughout the 1990s, the highlight of the decade was the microfiber. In the field of specialized applications, the technological assets that the market today regards as essential, and which drive consumers to purchase products, are those that provide the highest performance and comfort standards, and ensure a better quality of life. One of the foremost elements is protection: fabrics need to safeguard us; they should feel pleasant, keep us comfortable whatever the weather, and protect our health from the hazards of the environment.

The general trend is therefore towards high-tech, high performance fabrics designed not just to look attractive, but to offer a significant added value in terms of functionality. This is a niche market on the lookout for high-tech products that often come into existence to meet specific user requirements, and are made only due to ongoing cooperation between manufacturers and clients.

Recent progress in materials science, information technology and biology have given the textile industry a new role as a possible testing bench for sounding out new technologies based on the integration of these many disciplines.

Already there are fabrics capable of reducing risks (e.g. antibacterial, mite-proof, insect-proof, odorless, flame retardant, soil-resistant, anti-UV and anti-electromagnetic radiation, etc.). Other fabrics function actively (e.g. heat-regulating, with new visual features, or providing cosmetic- medical effects, and so forth).



The manufacturing sector

The Italian textile industry is a complex system. The various segments of the textile chain are very different from each other, therefore the structure of companies and markets they deal with are different.

The link between these models and markets that are so different, is to be part of a single production chain, along which the majority of the companies and almost all the suppliers and clients belong to the same textile sector, have the same culture and sensitivity. The organization itself of the textile production chain fosters and encourages the spread of knowledge and the technological innovations.

As regards Italian textile manufacturing, a recent survey revealed the secret behind the industry's rise to such a significant level in the international arena: Italy's small and

mid-sized producers have achieved their leadership in particular by offering excellence in niche markets, in which innovative applications are more richly rewarded than pure high-tech based research.

Over the past twenty years, the craze for Italian-made products that exploded in the 1980s has driven the textile industry to the present extraordinary level:

Nowadays many Italian companies are leaders in various end uses of technical textiles worldwide: from the Formula 1 racing suits to industrial filters for incinerators, from fabrics used for innovative swimming suits launched during the Olympic Games in Sydney, and now nearly used in all the competitions, to the protective clothing from heat and flame, to continue to advanced application of shape memory materials or product used in space research. The turnover of Italian production of functional and technical textiles is 3.2 billion equivalent to 700,000 tons.

The increasing importance of the Italian technical textiles is demonstrated by the growing Italian production of flame retardant yarns that has led Italy to be at the top of the European production, or by the nonwoven production accounting for 22% of total European production

More than hundred companies producing technical textiles are members of **TexClubTec**, the Italian association with the priority aim of developing high tech and innovative textiles. Among them there are also producers of raw materials, textile machinery, laboratories and research centers. The synergy obtained by close contacts along the chain makes it possible for the Italian industry to aim to have a key role in the world production of technical textiles, as already acquired in other fields such as fashion and home textiles. ♦

