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Italy: Ecotec yarns, Marchi & Fildi, case study

22 January 2013 | Observatory: EMCC

About

Case study name:

The greening of industries in the EU

Country:

Italy

Organisation Size:

0-99

Sectors:

Textiles and leather

Marchi & Fildi is a leading international textile company. It produces both traditional and modern yarns made from materials such as wool, cotton, flax and silk. A modern ecology-sensitive approach characterises Marchi & Fildi innovation, particularly in the production of ecological yarns. The subject of this case study is Marchi and Fildi's ecological line of products made under the Ecotec label. In line with company's vision 'to generate yarns for the future', Ecotec yarns are drivers of textile industry greening. Reduced environmental impact goes together with benefits for workers' health. The 60 Ecotec production-line workers benefit daily from sustainable practices.

Introduction

Biella in northern Italy is the centre of a leading textile production region that provides jobs for 3.4% of Italy's textile workforce. Competition with emerging countries poses serious challenges for the sector in terms of both number of companies and employees. The number of textile companies in the region dropped by 27% between 1999 and 2007, and the number of employees by just over 28% in the same period. Typical reactions to the crisis in the sector crisis have been mergers, vertical integration, internationalisation and investment in research and development. **Marchi & Fildi** was founded in 2007 by the merging of Filatura Marchi Giovanni and Fildi, two companies that strongly characterised Biella's economy. Marchi & Fildi has a productive power of 11m kilos of yarn per year, split among four product-categories: knitwear yarn, weaving yarn, technical yarn and ecological yarn. Ecological yarn includes the certified organic cotton Biocot and 'the yarn with moral fibre', Ecotec, which is the focus of this case study.

The Ecotec project was launched by Fildi in 2004 and confirmed after the 2007 merger. Ecotec yarns are the result of advanced recycling of left-over production material. They save natural resources and energy, lower the exposure of workers to hazardous chemicals and reduce CO₂ emissions from production.

Drivers and motivations

Marchi & Fildi stresses that the ecological practices encompassed by Ecotec were in use before the launch of the project and that the re-use of left-over material is pretty common in the textile sector. Thus, the availability and feasibility of specific technology was a fundamental driver.

Ecotec practices optimise the use of raw material and diminish the need of water and electricity. The consequent optimisation of costs was an economic motivation to adopt Ecotec.

Beside the low environmental impact, Ecotec has high potential in terms of generation of added value. Marchi & Fildi traditionally applies recycling practices, but the emphasis given by Ecotec aims to address the new market opportunities coming from the greening of textile production. Consumers' behaviour is switching towards more sustainable purchasing in both developed countries and emerging economies. In this context, Ecotec offers a marketing leverage that conjugates traditional practices with the growing interest in green products.

The recent economic crisis has depressed the market for high-end products in favour of cheaper and more robust textile products, such as the yarns obtained from recycling processes. Suiting the post-crisis demand structure, there has been increased demand for Ecotec products.

Green business practices

Ecotec has evolved from the traditional textile manufacturing history of both Filatura Marchi Giovanni and of Fildi. Today, Marchi & Fildi is a business-to-business (B2B) company operating in 45 countries. More recently, it acquired offices in Hong Kong and New York. The combination of available technology and experience in recycling was considered a valuable opportunity to enlarge the marketing strategy with the launch of a green label: Ecotec was originated and developed by the marketing department.

Ecotec is an ecological process of advanced recycling that starts with collecting left-over or excess production material such as cut-off pieces or imperfectly sewn garments produced at other Marchi & Fildi facilities. The second step consists of separating the collected material by colour. It is then cut into pieces, shredded and finally mixed with new fibre. The re-cycled material is ready to go into the spinning process and finally into the machines that produce the Ecotec yarn.

The Ecotec process re-generates left-over material that would be otherwise wasted. By considering the raw material cycle, positive environmental effects are:

- Diminished waste and reduced air pollution derived from waste incineration
- Reduced exploitation of natural resources connected to cotton cultivation
- Reduced use of pesticides used to cultivate new cotton.

Ecotec reduces the use of natural resources and the energy consumption. Normally, 1kg of cotton requires about 112lt of water and 8,65kWh of electricity. Ecotec allows saving up to 90% of water and electricity.

This saving is possible by skipping five conventional production steps. These are all connected to the dyeing, which is the phase that most uses chemicals.

The Ecotec production starts with already coloured material. The yarns pass through the phases of knitting, sewing and finishing before being ready. The final output is a highly resistant and clean yarn with up to 90% recycled content.

Ecotec is processed through a conventional production chain. It does not require special technology, only some specialised work-phases and particular attention to the complex blending of left-over material with new fibre. While raw natural material is not standard, human-made material is usually highly standardised. The Ecotec process firstly collects differently standardised human-made materials and then it adds raw and non-standardised material, increasing the blending complexity. This phase is called darning, and its complexity requires the experience and skills of specialised personnel in order to ensure high-quality recycled material.

Anticipation and management of the impact of green change on quantity and quality of jobs

Impact on quantity of jobs

The two companies Fildi and Filatura Marchi Giovanni together had around 180 employees. After their merger, the number of employees went down to around 100 and has remained constant at this level despite the recent financial crisis. Around 60 workers are employed in the production process and 40 in business management, including production controllers, engineers and managers.

In general, the recruiting of highly specialised personnel is problematic for textile companies that produce high-quality yarns and for particular types of manufacturing. Marchi & Fildi confirms this and explains that it is due to:

- the general lack of interest of the younger generation in acquiring hand-craft skills;
- the disaffection among the younger generation with traditional jobs such as knitting and sewing.

At Marchi & Fildi most of work is done by machines and requires low specialisation, and the company does not have difficulty finding staff for the production workforce. However, it can be difficult to recruit suitably qualified management personnel, especially when textile experience is necessary.

Marchi & Fildi does not consider Ecotec as a source of new jobs. No employee has been hired to work exclusively on it, but the whole production line contributes daily to it. Only one new position has been created by the production of Ecotec yarn, the external consultant hired for its international promotion.

Ecotec yarns constitute 10% of Marchi & Fildi production. The company does not consider Ecotec a future generator of new jobs, unless the demand for green products dramatically rises in the B2B market or public authorities strongly support it.

Impact on quality of jobs

Green skills

At operational level, the production-line is highly automated and there is no need for high specialisation and training of workers. New workers are trained from the start to recycle left-over material, as part of the traditional Marchi & Fildi production process. The training of new craftsmen is a form of work-shadowing and takes around 6 months. New craftsmen follow expert personnel who teach on-the-job how to work the material and produce the yarns. During the six-month training period, two expert workers play a key role in training newly skilled workers:

- the material specialist, a technician expert in evaluating the properties of raw materials who teaches the 'darning' of material coming from different production processes and the selection of the most appropriate colours for blending;
- the quality controller, a technician expert in evaluating the quality of each yarn and who teaches how to assess the quality of single Ecotec yarns, a highly complex operation due to the heterogenic nature of input materials.

Production control and engineering have higher training requirements. These staff have high school qualifications and university degrees.

They will also have undergone valuable specific training and practical experience within the textile industry during their studies, aiding the learning of complex production phases such as darning and the utilisation of heterogenic materials. A manager develops an individually tailored training path for new employees that helps them acquire firm-specific knowledge.

Other job quality dimensions

Because it slots into the traditional manufacturing process, Ecotec does not bring the workers who produce it any extraordinary advantage in terms of rights, conditions or salaries. However, the impact on workers' health is relevant. Unlike conventional processes, Ecotec completely skips the dyeing phase during which workers can be exposed to inhalation of and contact with the hazardous compounds and chemicals typically used to colour yarns. Ecotec also skips two transportation steps which leads to benefits for the environment in terms of transport-induced CO₂ emissions.

Cultural change

Ecotec has not led to any cultural change in its workforce because the recycling culture was already in use in the company. Originally, recycling was applied exclusively to optimise the use of material and energy, with relative cost savings. Recycled material was also already being used to produce yarns for the manufacture of casual clothing and upholstery.

There has, however, been a cultural change in the company vision, re-orienting its corporate strategy towards the growing green economy. In fact, Ecotec transformed traditional recycling processes into a registered international trademark to certify that:

- Ecotec yarns are produced exclusively by Marchi & Fildi;
- Ecotec yarns follow the specific Marchi & Fildi production process;
- Ecotec yarns have up to 90% less environmental impact than conventional ones.

From a marketing perspective, the switch from traditional textile manufacturing to a registered international trademark corresponds to the switch from an internal competitive advantage based on costs to an external one based on key competences, such as recycling. (Lambin, 2004).

Collaboration on the green change

Planning, launch and management of the Ecotec project were conducted without any collaboration with public authorities, unions or workers' organisations.

Other groups of organisations define Marchi & Fildi's collaboration on green change.

Certification agencies are used to certify reliability and compliance with objective and international sustainability standards. Marchi & Fildi collaborate with three certification agencies:

- [Centrocot](#) is the Italian research and development institute authorised to issue certification for products in the textile sector, and the only one authorised to release certifications for Confidence in Textiles.
- [Confidence in Textiles](#) is a certification mark of the independent, international Oeko-Tex textile testing institute. The European Oeko-Tex Standard 100 Guarantee guarantees the absence of health-harming chemicals in Ecotec yarns.
- Italian Textile Fashion ([ITF](#)) is a Chamber of Commerce organisation that certifies the recycling process and the traceability of the input material. It periodically inspects the factories to ensure compliance with certified processes.

The relationship with certification agencies is excellent. Their high professional standards combine with their deep knowledge and expertise in the textile industry. This makes the interaction between the company and these agencies particularly clear and smooth.

Local education institutes also benefit from collaboration with Marchi & Fildi:

- Biella's state technical and industrial high school, [Q.Sella](#), offers various textile specialisations such as fashion systems, dye works and textile production. This school provides young and promising students as well as most of Marchi & Fildi technicians.
- The University of Turin ([Politecnico di Torino](#)) offers a specialisation in textile engineering based in Biella. All the engineers working at Marchi & Fildi come from this institute.

The company stresses the role of the local association of Biella's industries ([UIB](#)) in providing information, services, courses and recruiting.

Marchi & Fildi also carries out the training of its personnel internally to give them access to the company's unique knowledge.

Difficulties

Consumers are increasingly concerned about the 'greenness' of products but, because Marchi & Fildi operates on B2B scale only, the company cannot directly sensitise final consumers to environmental issues.

In the B2B market, intermediaries are not very sensitive to green issues. Biella's textile district focuses on high quality products. Therefore, the role of green products like the Ecotec yarns is limited. However, the economic crisis seems to have altered this trend. While pre-crisis demand focused on expensive and fine products, they have lost market share to more robust and cheap materials such as recycled yarns.

Anticipation and management of green change

The marketing emphasis of Ecotec aims to add value to a traditional production process. Marchi & Fildi operates in 45 countries, but the greatest interest in Ecotec yarns comes from Northern Europe. While today sensibility to green issues still varies from country to country, the internationalisation of the Ecotec trademark anticipates its future global spread.

The difficulties in recruiting skilled personnel affect the whole of the textile industry. The proactive contact with local institutes of education aims to anticipate and avoid this issue. The possibility of recruiting young talent is particularly valuable in the context of the emerging green economy.

Conclusions and recommendations

Although Ecotec has not created new jobs, it positively impacts the environment and the health of production-line personnel: Ecotec eliminates the dyeing phase that exposes workers to inhalation of and contact with chemicals. The case study of Marchi & Fildi demonstrates that Ecotec:

- is characterised by a marketing aim that prevails on pure environmental concerns;
- is synthesis of traditional recycling practice and future sustainable production;
- balances environmental benefits, cost optimisation and workers' health.

Ecotec is a business initiative that has been tackled unilaterally by Marchi & Fildi. However, the management recognises that its potential could be increased if this initiative were implemented as a broader and systemic green economy project by, for instance, a number of associated companies producing diverse and complementary green products. In such a system, Marchi & Fildi could produce ecological yarns used as input by other companies, perhaps as upholstery material.

Such an initiative may be more feasible if the focus is enlarged beyond Biella's textile district which has traditionally focused on high quality yarns and garments, and where the recycling initiative clashes somewhat with that tradition.

Stricter compliance of public institutions with the principle of Green Public Procurement (GPP), an EU voluntary instrument that member states may reinforce with policies appropriate to their territories, would create more opportunities for green products such as Ecotec yarns. In Italy, the GPP has had little relevance for initiatives such as Ecotec. In general, more support and coordination from public authorities would enhance the greening of the textile industry and could consequently generate 'green' jobs.

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