

Deliverable A1.2

Case Study Reports
Manifattura Maiano Case Study

Life Effige
Environmental Footprint
For Improving and
Growing Eco-efficiency



1. **Introduction**

1.1. *Brief explanation of the reasons why an organization was selected as best case*

Manifattura Maiano is an Italian small-sized company, which has carried out studies of life cycle assessment (LCA) for some of their products in collaboration with Sant'Anna School of Advanced Studies in Pisa. For Manifattura Maiano, the LCA is a tool to increase competitiveness, optimise production costs and support its social responsibility initiatives. Although the company has obtained environmental certifications for a number of their products, no product declaration was certified based on LCA studies.

The company was selected in order to investigate barriers and obstacles to introduce life cycle thinking and LCA-based labels in small and medium sized enterprises (SME) with a vocation to innovation.

Manifattura Maiano is involved in the National Carbon Footprint Assessment Programme promoted by the Italian Ministry of Environment with a co-financed project “Analysis of the carbon footprint throughout the life of thermos-acoustic insulations in natural and recycled fibres”.

The environmental impacts of the products Recycletherm km0, Sintherm FR, Naturtherm WO and Naturtherm CA (Fig. 1) have been assessed according to the standard ISO 14040 -14044. The study has been carried out by Ergo s.r.l., spin-off of Sant'Anna School and the compliance of the study to the standard has been certified by Rina Services. The LCA study have been performed in the framework of the initiative of the Ministry of the Environment and Protection of Land and Sea for the evaluation of the environmental footprint.



Fig. 1 Products object of the ISO 14040 LCA studies

The LCA study was proposed by the R&D Manager, who was looking for a way to valorise natural and recycled products of the company. “In 2012, after the launch of insulating products totally made-up of natural and recycled fibres, I was looking for an external certification of their sustainability characteristics” says the R&D Manager. However, no market results have been obtained up to now and presently Green Public Procurement (GPP) criteria do not recognize this initiative as a good practice.

Manifattura Maiano has in their catalogue both natural products and not. But, as the R&D Manager says, Manifattura Maiano cannot use a business approach based on life cycle thinking because the majority of their clients do not understand the added value. Only 10% of them buy these products not only because of their technical characteristics but also for their natural and sustainable characteristics.

1.2 Methodology and Stakeholders involved

We collected preliminary information on Manifattura Maiano by means of a desk research. Before contacting the company, we collected information on their website. Then we contacted the company to explain the context of our activity (EFFIGE, best practices etc.) and to verify their availability to the interview and we fixed a date. We received some documents on the company profile and their market to prepare the interview. Two interviewers were in charge of conducting semi-structured interviews with key managerial figures relevant for our purposes.

ENEA and Sant'Anna School carried out the interviews at Manifattura Maiano factory using the protocols elaborated in EFFIGE. Table 1 shows a timeline for data collection.

Table 1 – Manifattura Maiano Information collection timeline

April 2018	Desk Research	Online	Manifattura Maiano website Orbis: Manifattura Maiano profile Various websites
May 2018	Contacts		Email exchange and calls
	Desk Research	Off-line	Documents provided by the company
25-06-2018	Field Research	Interviews	- R&D/ Environmental/Communications Manager, 80 min; - Top management, 20 min; - Marketing and Sales Manager, 29 min.

Data sources: Public documents

Manifattura Maiano SpA is a family company specialised in manufacturing textile fibres for the production of felts, wadding, insulating material and other nonwovens for several uses and applications. The company is known for being a reliable partner, able to design and develop innovative solutions that meet customers' demands. Strong assets of the business are know-how, reliability, flexibility and innovative manufacturing plants. The headquarters are located in Florence's province, in a textile district. The manufacturing facility covers a surface of more than 15,000 m² and includes advanced production lines that carry out all process steps in-house. The company is leader in Italy in the sector of furnishing padding solutions, mattresses in particular. The diversification and innovation policy pursued over the years has led to produce a wide range of products (felts, wadding and insulations with natural, synthetic and recycled fibres for padding, insulating or reinforcing fibres) for footwear, thermal insulation for construction, automotive and metallurgic industries, geo-textile and agro-textile industries.

Manifattura Maiano has always committed itself in developing nonwovens with a low environmental impact throughout products' entire life cycle: from the supply of raw material to the delivery of the product and its end of life. They offer a wide range of products consisting of

sustainable raw materials, namely natural or recycled fibres. Together with high technical performance, their thorough design minimises the production of waste and the consumption of energy and resources associated with their production. All production waste is recycled within the factory thanks to an advanced recycling system.

In an international context where laws are regulating the use of chemical substances to ensure they do not represent a hazard for health and the environment, Manifattura Maiano guarantees that products comply with the REACH regulation and offers a wide choice of Oeko-tex Class 1 certified products. They have a technical team, which is at customers' disposal for advices and to identify products complying with even the most restrictive eco-toxicological specifications.

The performance of the materials used is certified by accredited Italian and international Universities and laboratories. Insulating materials are ecologically and toxicologically certified Oeko-Text standard 100, the most widespread quality control system in the world for textile products, that guarantees the materials are free from:

- Carcinogenic and harmful to human health substances;
- Volatile particles harmful for the respiratory tract;
- Substances whose use is limited by law, such as formaldehyde, heavy metals and pentachlorophenol;
- Pesticides and toxic chemical products.

Since 2002 the Company's Quality System has been certified in compliance with the UNI EN ISO 9001.

The certification is a guarantee for the customers that supplies are compliant with the declared technical specifications. Customers' satisfaction is pursued by providing strategic support and cooperation during all stages of the business relationship: from an analysis of customers' demands of fibres selection and design to manufacturing and finished product controls before shipment.

1.3 Key findings and lesson learned

The R&D Manager has highlighted their disappointment because they could not obtain any positive result from the point of view of the market, though the commitment on LCA had been strong. For this reason, the company has not invested anymore on training their employees about these subjects and they have not developed further initiatives or adopted life cycle thinking-based strategies.

Few possibilities exist of supporting the use of methods such as LCA at enterprises until the market does not recognise them. Especially for SMEs, costs of eco-innovation are high and need to be balanced by increase of sales, otherwise they cannot be borne during the years.

The company asks for the development of Green Public Procurement criteria which allow the valorisation of environmentally friendly products and which make it possible to communicate the characteristics of the products in each life cycle phase. Probably their specific application could take advantage from the use of circularity indicators.

2. Introduction to the selected Company

In 1960 the Casini brothers created the Ovattificio Maiano factory, a small family business specialised in recovering and recycling textile waste for mattress. A few years later, they anticipated the development of the mattress market and installed the first plant in the world for the industrial production of thermo-bonded felt in regenerated textile fibres. This was something completely new that turned out to be fundamental in manufacturing spring mattresses. The excellent results allowed them to heavily invest in equipment and technology. The lines for the preparation of fibres, carding, thermal bonding, needle punching, spreading and resin coating were then put in place. This rapid growth became clear during the second half of the 1970s when the company became a Corporation and took the name of Manifattura Maiano S.p.a. Over the years, the innovative entrepreneurial spirit of the company led to diversify its manufacturing activities and the materials offered. The strategic decision to diversify their production has also led to the establishment of two new companies: Ovattificio Brunelleschi S.r.l. and Triade S.r.l.

Manifattura Maiano has always worked with their clients on projects to develop new products, also products with lower environmental impact, in partnership with universities and research institutes.

The integrated production process managed in-house, from the purchase of fibres to the testing of the products, allows for the distribution of big and small lots all over the world quickly and promptly. The consolidated presence on foreign markets guarantees management expertise and reliability in supporting the customer in all the stages of the process, from technical advice to streamlining logistics.

Table 2 summarises the Company profile and economic data.

Table 2: Manifattura Maiano profile (reference year 2017; source: Manifattura Maiano)

Turnover	15,587 kEuro
Contributions to turnover	Mattresses 50%
	Footwear 31%
	Insulating products 9%
	Furniture 7%
	Other 3%
Number of employees	80
Production capacity	14,000 tonne
Non-woven product	6,889 tonne
Export market size	15%

3. Environmental Focus of the selected organization

Manifattura Maiano is a traditional family company of the textile sector (woven and nonwoven technical textile) born around 60 years ago, whose initial core business was the recovery and recycling of the textile waste in the area near Prato to be used as secondary materials for footwear, construction, clothing. *"This was the start-up of the company - the R&D Manager says -. The company's founders, three brothers, started to recovery fibres that were available in large amounts, close to the factory and cheap. They decided to adopt clean technologies, without using chemical additives and with low water consumption, as a quality strategy. During the years, the shareholders remain always in contact with the production, in particular as regards the aspects of sustainability.*

All choices and strategies undertaken have been inspired by the necessity to improve the quality of the human life and of the environment”.

More recently, considering the increasing awareness of consumers towards sustainability, the R&D Manager proposed to look for a valorisation of the environmental characteristics of their products, beyond the technical specifications. The point was how to make customers aware of the company environmental friendly approach and, in this way, to add value to their products. They focused in particular on those products totally made up of recycled fibres, as the insulating products for buildings, for which they have committed the execution of LCA studies.

Certifications and awards

- National Carbon Footprint Assessment Programme
Manifattura Maiano is involved in the National Carbon Footprint Assessment Programme promoted by the Italian Ministry of Environment with co-financed project “Analysis of the carbon footprint throughout the life of thermos-acoustic insulations in natural and recycled fibres”.
- Oeko-tex Standard 100
Wide availability of products with the ecological toxicological certification (Oeko-tex standard 100, class1).
- Matrec
Materials selected and chosen by Matrec EcoMaterials Library for their environmental performances.
- Legambiente Award
Eco- friendly innovation award 2012 for the insulating Recycletherm Km0 .

4. From a Life Cycle Assessment to a Life Cycle Logic

All in all, the case study here reported is the demonstration of the difficulties that a small sized enterprise must face to take advantage of the adoption of a life cycle thinking approach in their business.

The Manifattura Maiano started their business having good environmental awareness and attitude to social responsibility in the 60ties, when poor attention was generally paid to environmental communication and the term ‘circular economy’ was used by few insiders. Later on, the interest of different stakeholders towards these themes has increased and the company decided to take advantage of their position. The person in charge of R&D, who is also the environmental manager, proposed to communicate the environmental profile of some of their products by committing the execution of LCA ISO 14040 compliant studies, counting on this to obtain the acknowledgment of the market.

In few words, the driver for the use of LCA was to increase their competitiveness on the market and add value to their products.

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Unfortunately, they could not find any positive feedback. However, they experienced that to carry out an LCA requires investments in terms of time and costs which are quite large for a small enterprise. If these investments are not rewarded by the market, there are no reasons to invest additional resources for LCA studies and certifications.

This does not mean that the company is not interested in improving their environmental impacts, but this could be achieved by monitoring simpler indicators, such as water and energy consumption, waste production etc. In other words, the strong commitment of the company towards the environment and human health remains a strategic asset, but they have raised some doubts about the use of tools such as LCA and product declarations in this market situation.

The life cycle logic was the basis of the business as they started by using waste of other enterprises to close the loop and give them value. Moreover, they also recycle internally their production waste. Now the point is: how can their 'green attitude' be used to increase the company's competitiveness? Which are the most suitable tools? Which external context should be developed to support this?

Initiatives such as the PEF/OEF programme and the Made Green in Italy Italian programme could offer new opportunities to these companies, especially if Green Public Procurement criteria start to award suitably these practices.