



CIRCULAR BUSINESS

FOCUS ON INDUSTRIAL SYMBIOSIS IN LOMBARDY

Rethink the production system

Centrocot
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An approach to industrial symbiosis in the local districts

Transition from linear to circular economy is today one of the biggest challenges that the whole Europe (European Commission and Parliament, member States, industry and citizen) is facing.

The article describes a European experience of industrial symbiosis, through the development of a platform for material exchange and the study of a business service model.

Understanding technologies and opportunities, legislative orientation, research experiences and the supply of services for a sustainable industrial economy is fundamental for the quality of the environment and our life; a new production model is strongly desired and promoted at all levels - theoretical and research, legislative and administrative, scientific and technical: the transition from the so-called linear economy to the circular economy.

The current model of production and consumption (I take raw materials, I produce and use products, I get away

products that can no longer be used) is no longer sustainable, so what are the alternatives? How to manage the lack of energy and resources? How to reduce waste and recover what is not renewable? But also, how to recover what is renewable?

Centrocot, starting from its experience as a center of applied research, testing and certification, services and training for companies in the textile and clothing sector, has developed its own approach, which is spreading at European level, gathering around itself further initiatives and experiences.

Industrial symbiosis is a particular approach aimed at favoring an efficient use of the resources used to generate any product, through the exchange of waste streams among different companies or sectors.

Thanks to the European Life M3P project ⁽¹⁾, the M3P platform was developed, which is achieving significant results in the promotion and dissemination of actions to the circular economy, based on a model of intervention on a territorial district through industrial symbiosis.

Industrial symbiosis is a particular approach aimed at favoring an efficient use of the resources used to generate any product or service, through the exchange, among the different actors, of those materials or waste streams (materials, but also energy), which can be considered waste in own production cycle, while for another industrial subject it could be recovered and included in its own.

Nothing new in the sunlight, human beings and consequently the productive activities have always used this way, where it is identified and considered effective; two examples: the production of lanolin in the wool industry (by-product from the phase of the washing of the greasy wool) for the cosmetic industry, or the cogeneration of mechanical and electrical energy with the use of residual heat for the heating of buildings or for industrial processes.

What's the news? The answer is in the systematic action that for some years, after the first studies and the first academic definitions, the applied research and the industrial world are working in close

Materials

Centrocot Spa has been founded in 1987 to provide support and services to the textile and clothing supply chain, and to its more than 30 years, knowledge and laboratory tests have been extended to a wide range of materials (Textile fibers, yarns, fabrics, Leather, Plastics, Metals, Glass, Stones, etc.), covering more and more sectors, applications and consumer goods (Clothes, Personal Protective Equipment, Sportswear and Technical Textiles, Home Furnishing and Furniture, Food Contact Materials, etc.).

synergy to develop tools and methods for industrial symbiosis, which lead to an effective model of circular economy, where nothing is wasted and everything is reused in continuity.

The M3P working group, based on the classification of the characteristics possessed by the materials and on their registration on the platform, has therefore covered two ways.

On the one hand, thanks to the «searching» function of the platform, it has investigated possible destinations of industrial waste, alternatives to landfill

⁽¹⁾Life M3P – Material Match Making Platform for promoting the use of industrial waste in local networks (LIFE15-ENV_IT_000697) - <http://www.lifem3p.eu/>.

Life M3P Project

The Life M3P project, as part of the European Commission's Life Program 2014-2020, intends to promote the exchange of waste in industrial districts, in a logic of industrial symbiosis, through the creation of an online platform based on the registration of characteristics of waste materials and raw materials (output of one process and input of another). Thanks to the co-financing of the European Union, the project has made possible to develop this instrument, which is actually working, accessible and usable by accessing the website: [Http://www.lifem3p.eu/](http://www.lifem3p.eu/).

Coming Results

9 pilot cases are under investigations, if industrial symbiosis feasibility will be demonstrated, thousands of tonnes of waste will not be incinerated or disposed, reducing the impact from the producing processes.

Impact	value	Unit
Reduction of waste	7,700	ton
Reduction of water consumption	12,700	m3
Reduction of the emissions of CO ₂	7,000	ton
Reduction of use of non-renewable sources	10,700	ton

and incineration, analyzing the correspondence between the characteristics of the waste and those necessary for other products of other sectors and proposing «matches» between discarded and requested materials. Moreover, in the logic of the hierarchy of treatments, a deep knowledge of the characteristics of the materials under study allows to identify possible new applications,

Pilot Cases

Among several identified matches, M3P working group is investigating some pilot cases:

- Big and hard feather (by-product of animal origin by waste and powders from feathers processing) treated to be spun.
- Granules of cellulose acetate (by-product from eyewear industry) to be used in laminates for furniture.
- selvedge and textile scraps of natural or man-made fibres mixed with elastomeric fibres treated to make faux wood panels.

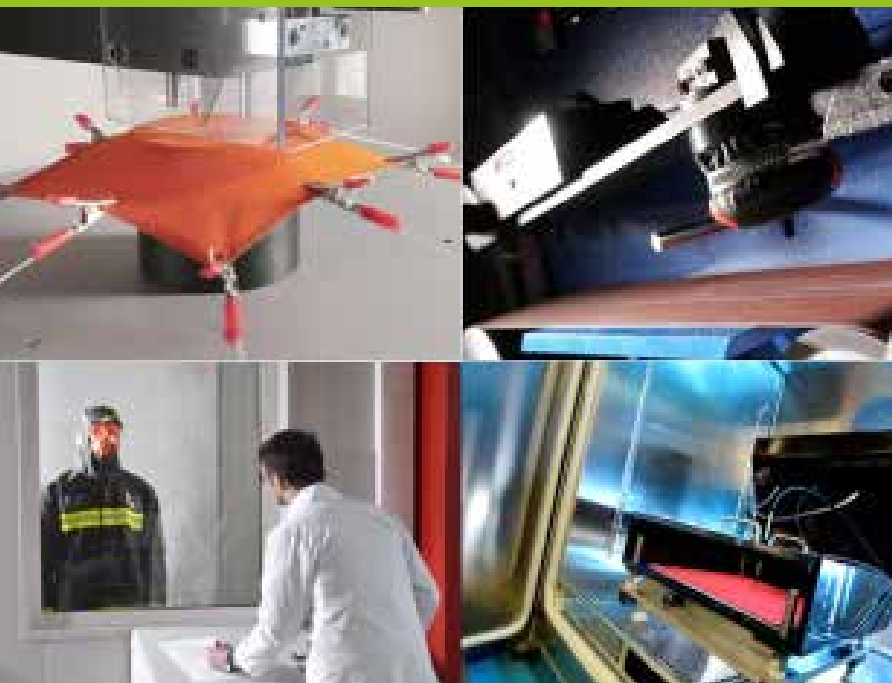
enhancing aspects intrinsically present in the material, but not used in the industry of origin: for example, for a textile material, a fabric or a dress, we certainly talk about comfort, a performance that is otherwise complex to define and evaluate, but more rarely we think of a textile material in terms of acoustic impedance, even if it is certainly a characteristic possessed.

On the other hand, always focusing on the materiality of waste and involving schools of industrial design, the working group has also investigated possible «other» and new applications with a «creative» approach, starting from the

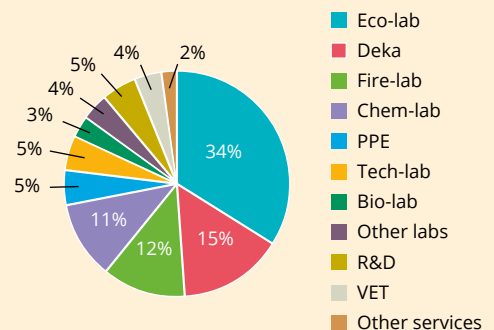
M3P Platform allows to investigate possible matches between discarded and requested materials and to identify new or more efficient industrial applications.

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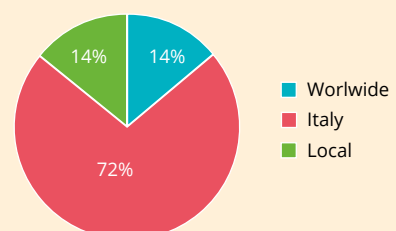
Employees : 90 - turnover : 7 m €



Kinds of services



Customers





Life M3P Goals

- Apply a **model for industrial Symbiosis**, online platform based
- **Realize matches between companies** offering waste stream and requesting materials
- Search for new applications of waste, based on **creative concepts**



Expected results from industrial symbiosis are to reduce disposed waste and consequently less environmental impact and less consumption of resources.

sensorial-aesthetic characteristics (color, brightness or opacity, for example) or shape (dust, splinters, sphericity).

As already said, it is emphasized that all these characteristics and properties of the materials (whether they are out of a process or necessary to create a defined product) are managed by the M3P platform; the potential matches and the necessary technological approaches to treatment are also supported with links to external databases, while other more advanced functions, with logic of artificial intelligence, are under development.

The results of the project, from the first two years of duration, are significant: so far more than 300 companies have participated in the initiative and are registered in the platform, more than 600 industrial waste and more than 300 raw material needs have been catalogued

and more than 20 actual request / offer matches (and consequent possible industrial symbiosis exchange actions) have been identified. Moreover, some pilot cases for the feasibility study of the symbiotic exchange are under way, with an expected result of a reduction of about 8,000 tons of industrial waste, with significant benefits in terms of lower CO2 emissions and water and non-renewable resources consumption.

The platform, although an on-line tool and therefore accessible from anywhere, is currently active in 4 European regions (Italy-Lombardy, Belgium-Flanders, Spain-Asturias, Greece-Western Macedonia), but further experimentation has begun in other 4 countries or regions (Germany-Saxony, Czech Republic, Hungary, Poland), thanks to the Interreg Europe ENTeR project ⁽¹⁾.

⁽¹⁾ ENTeR – Expert Network on Textile Recycling (CE 1136) - <https://www.interreg-central.eu/Content.Node/3.html>

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