
Experiences of Industrial Symbiosis in Italy

Proceedings of conferences promoted by ENEA at Ecomondo
in 2012, 2013 and 2014

Edited by Erika Mancuso and Antonella Luciano

SYMBIOSIS
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Italian National Agency for New Technologies,
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2015 ENEA
National Agency for New Technologies, Energy and
Sustainable Economic Development

Lungotevere Thaon di Revel, 76
00196 Rome

ISBN: 978-88-8286-3166

Proceedings from conferences:

- La simbiosi industriale quale strumento per la Green Economy, Rimini (IT) 8 November 2012
- Le esperienze e lo stato dell'arte della simbiosi industriale in Italia, Rimini (IT) 8 November 2013
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CIRCULAR ECONOMY AND INDUSTRIAL SYMBIOSIS: A SURVEY IN ECOMONDO 2014

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Introduction

During the 18th Ecomondo International Fair in Rimini, ENEA and University of Tuscia took the opportunity to submit to visitors a survey with two different types of questionnaires on industrial symbiosis. As the industrial symbiosis and the circular economy are topics of today's interest and importance and ENEA itself is implementing projects on these topics, the survey had a double purpose:

- assess, through a basic questionnaire, the level of awareness on industrial symbiosis and circular economy of people visiting Ecomondo (questionnaire proposed by ENEA stand);
- assess, through a more complex questionnaire proposed to participant to the conference "The industrial symbiosis between theory and practice"; aim of this more complex questionnaire was ask participants their opinion on main issues influencing the possibility to realize actual synergies between companies according to industrial symbiosis strategy.

1. Methodology

For the survey ENEA proposed two different types of questionnaires:

- the first, basic questionnaire, proposed by the ENEA stand to people visiting Ecomondo; this questionnaire had five yes/no questions and four multiple choice questions;
- the second, questionnaire for "experts", proposed to participant to the conference "The industrial symbiosis between theory and practice", which had three yes/no questions, three multiple choice questions, two matrix questions and one scaled question.

For some questions, in both cases, people filling-in the questionnaire could motivate in few lines their answers.

2. Results

Basic questionnaire (proposed at ENEA Stand)

From 5 to 7 November, two hours a day on average, at the ENEA stand a researcher proposed the basic questionnaire. It was filled-in by 164 people (mostly self-employed, technicians, entrepreneurs, local administrators, researchers and students who operated, directly or indirectly, in the field of energy and environment).

The main results are:

- 92.7% of respondents knows ENEA; just over two-thirds of them (67.8%) knows that ENEA works in the fields of new technologies, energy and sustainable economic development;
- half of the respondents (50.6%) affirms to know the meaning of the "circular economy" term and 78.3% says that the most correct definition is "an economy in which the processes of production and consumption are able to recycle, reuse, repair and refurbish the materials and existing products, in order to limit to a minimum the use of new natural resources";
- Almost half of the respondents (47.9%) says to know the meaning of the "industrial symbiosis" term and 62,8% says that the most correct definition is "exchange of resources between two or more different industries, intending "resources" not only as materials (by-products or waste), but also waste-energy, services and expertise" [1].

- 17.1% says to know that ENEA is implementing the first platform of Industrial Symbiosis in Italy and 40% knows this information through magazines and newspapers.

It is interesting to note, in the end, that about 86% is strongly interested in these topics. The main reasons for this interest are, mainly, related with business opportunities and/or awareness on social and environmental issues.

Questionnaire for “experts” (proposed at conference “The industrial symbiosis between theory and practice”)

On 6 November 2014 a second type of questionnaire, more complex, was proposed to participant to the conference “The industrial symbiosis between theory and practice” organized by ENEA and CTS Ecomondo. Aim of the conference was show some of the most relevant initiatives of industrial symbiosis case studies and experiences implemented by companies, research bodies and other stakeholders; 25 out of 28 participants to the conference filled-in the questionnaire. 96% of interviewed people know ENEA and its field of activity. 92% of interviewed people knows the meaning of “industrial symbiosis” and 92% say that the correct definition is “*exchange of resources between two or more different industries, intending “resources” not only as materials (by-products or waste), but also waste-energy, services and expertise*” [1].

According to the whole results of the survey made with this questionnaire, main factors helping the implementation of industrial symbiosis are:

- increasing profitability;
- improving supply chain of goods and services;
- strengthen the company's image.

At the same time, main reasons hindering the implementation of industrial symbiosis in Italy are:

- poor infrastructure;
- inefficient public service;
- low level of trust between companies.

Most part of interviewed people (95.8%) is strongly interested in a implementation of a network for industrial symbiosis, with the aim of foster the application of industrial symbiosis pathways at local level. In their opinion, the main goals of this network could be:

- foster long-term culture changes towards sustainability (73.9%)
- foster creating and sharing knowledge (56.5%)
- foster eco-innovation (56.5%).

3. Conclusions

Although survey was made on selected group of people already particularly interested in environmental issues, it has been observed, however, a distinctive curiosity and interest in industrial symbiosis and circular economy. The survey measured a particular interest in networking tools among various stakeholders (companies, research centers, associations, self-employed, institutions) in order to make the most for the implementation and diffusion of these new industrial policy approaches in Italy.

References

1. L. Cutaia, R. Morabito, Ruolo della Simbiosi industriale per la green economy, in Speciale n. 1 “Verso la green economy: strategie, approcci e opportunità tecnologiche”, *Energia Ambiente e Innovazione*, Vol. 58, pp. 44-49, 2012