



# MAESTRI

RESOURCE AND ENERGY EFFICIENCY  
FOR PROCESS INDUSTRIES

## Newsletter #02

#02\_April 2018

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# A New Communication Strategy

With the goal to communicate in a more and more updated and effective way on the developments of MAESTRI project, a structured communication strategy has been implemented.

Besides the already established channels (MAESTRI dedicated website, the LinkedIn group and the Twitter page with constant updates on the key points of the project), we have also launched two new channels aimed at ensuring a 360 degrees coverage in the world of social media:

- **YouTube channel “MAESTRI H2020”:** here some playlists can be found revolving around the main topics tackled by MESTRI project, i.e. Industry 4.0, Internet of Things, LEAN Management, etc. Also, we have uploaded an introductory video on the project presentation → [https://www.youtube.com/channel/UCo-1MaiXnt\\_Xod3I-l-wJ7w?view\\_as=subscriber](https://www.youtube.com/channel/UCo-1MaiXnt_Xod3I-l-wJ7w?view_as=subscriber)
- **Google+ page “MAESTRI H2020”:** in order to share with MAESTRI network some interesting news, articles and papers, we have created this page in the form of a blog divided into 4 sections, mirroring the 4 pillars of the project: IoT Platform, Management System, Efficiency Assessment, Industrial Symbiosis. → <https://plus.google.com/106654538159892292575>

This newsletter, the second from the launch of the project, represents a new beginning in the dissemination phase, which will become more constant and intense in the months to follow. The idea is to send an update **every two months** not only to all involved partners and stakeholders, but also to a network of contacts that will hopefully become even wider and more international.

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# First MAESTRI National Workshop

The first MAESTRI national workshop will be held in **Reggio Emilia on Wednesday 23 May 2018**. It will be devoted to the presentation of new tools for competitiveness in the context of Industry 4.0, with a specific focus on the results and experience from MAESTRI project.

The **main goals** of this Workshop, in fact, revolve around MAESTRI as an overall project and are at least three:

- 1) Updating all stakeholders with the news and results
- 2) Involving the general public in the discussion
- 3) Getting feedback from other organisations and involved partners

The core theme of this specific Workshop, i.e. Industry 4.0 and its multiple applications, is an especially current topic nowadays and it can be included into a wider path of enterprise innovation and development.

Are you interested in participating? Sign up here: <https://bit.ly/2vURY4A>

**New Tools for Competitiveness in Industry 4.0:  
Success Cases from European Experience**

**SAVE THE DATE: 23/05/2018**

Sinergie invites you to the presentation of results of MAESTRI (H2020), Eco-Mentor (Erasmus+) and SPECTRE (Fondimpresa) projects.

**Topics on the agenda:** Industry 4.0, IoT, LEAN Management, Industrial Symbiosis, Company Competitiveness, Mentoring in Enterprise, Project Management.

**Participation is free of charge.**

**CLICK HERE TO SIGN UP!**

**Location:** FIERE REGGIO EMILIA  
Via G. Filangieri, 15  
Reggio Emilia

**Date and Time:** Wednesday 23/05/2018  
9:00 - 16:30

**Contact:** SINERGIE  
(+39) 0522 083122  
ricerca@sinergie-italia.com



# The Toolkit and the User Guide for getting started with Industrial Symbiosis (IS)



## T4IS—THE TOOLKIT FOR INDUSTRIAL SYMBIOSIS

The Toolkit for Industrial Symbiosis (T4IS) is a set of tools and methods proposed to support companies developing IS applications.

The different tools constitute a self-guided process that industrial partners can use for identifying potentially exploitable wastes and value creation strategies.

The toolkit builds on 4 guiding questions, which represents key four steps into developing opportunities for industrial symbiosis:

- **How to see waste** concerns itself with how to be aware, recognise and discover wasted resources within the manufacturing process and facilities.
- **How to characterise waste** relates to how to describe the character and properties of those identified wasted resources.
- **How to value waste** concerns how to determine the estimated or assigned worth for the wasted materials.
- **How to exploit waste** relates to how to utilise and make the best use of the wasted materials.

The toolkit is available at this link: [https://maestri-spire.eu/wp-content/uploads/2018/01/MAESTRI-D4\\_3\\_v1\\_rev.pdf](https://maestri-spire.eu/wp-content/uploads/2018/01/MAESTRI-D4_3_v1_rev.pdf)

## THE USER GUIDE

The User Guide is a brief high-level summary for practitioners, providing them with a general overview on the **methods and tools that can be applied to develop IS strategies within their companies.**

It is especially helpful for managers in manufacturing and process industry that:

- (1) Are interested to learn about the IS concept in order to get a first insight on what it means, which benefits could bring to their company, and how to increase the likelihood of a successful application.
- (2) Are planning to start an IS project by implementing the T4IS strategy. In this case, the User Guide can serve as a reference document to engage internal stakeholders in the IS project and to communicate the T4IS overview and steps to those involved in the project development and implementation.

The full document is available here: <https://maestri-spire.eu/wp-content/uploads/2018/01/User-Guide-T4IS-final-version.pdf>

The Toolkit and the User Guide represent the deliverable documents of the MAESTRI project aimed at supporting companies in their path towards the implementation of Industrial Symbiosis solutions.



# Scope and Content of Training Strategy

## MAESTRI Training for Pilots

The main objective of MAESTRI training is to provide the industrial partners with the skills and competences required to effectively adopt the MAESTRI Total Efficiency Framework in order to increase and improve sustainability within their companies.

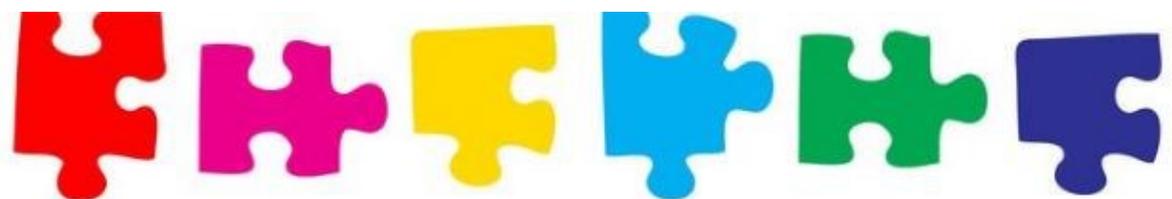
The methodology of the training project is characterised by a blended approach including interactive activities and specific focus targeted both on the participants as professionals and on the environment of the company they work for. In particular, the training methodology includes:

- **Individual learning** thanks to digital materials that can be accessed individually and with an “anytime, anywhere” approach, thus benefitting from much more flexibility in the learning process.
- **Interactive methods:** the goal here is to keep participants engaged and proactive through a number of activities such as: case studies analysis, role playing, demonstrations, Q&A sessions, small group discussions to share practical applications of the

## MAESTRI Training Modules

It is important that all involved stakeholders are provided with a **common and shared scheme** of training sessions and learning materials in order to ensure that all pilot companies are equipped with the background knowledge at the base of MAESTRI implementation.

For this reason, MAESTRI project partners took part in the realisation of the following training modules, which were delivered in March 2018. The target is represented by the **staff of involved companies**, which are left free to choose whether to follow the whole learning process from beginning to end, or rather selecting only some materials according to their training needs.



# MAESTRI Training Modules



- **Glossary:** an annex to pilot-specific materials providing definitions of the most used technical terms and abbreviations in the field of new technologies and manufacture.
- **Internet of Things:** an insight on the application of IoT technologies in industrial ecosystems and process optimization, and how they can be integrated within the context of the Total Efficiency Platform.
- **Eco-efficiency and Efficiency Integration:** this manual provides a definition of the efficiency framework concept, as well as assessment methods and applications, and how they can be applied to accomplish the main goals of the project.
- **The User Guide to Industrial Symbiosis** was developed by Dr Maria Holgado of the University of Cambridge and addresses an audience of professionals (production managers, environmental managers, waste managers, R&D managers). The guide aims at explaining the concept of industrial symbiosis, its key success factors and challenges, through an analysis of case studies. It also provides suggestions on how to develop an industrial symbiosis project within an enterprise and foster its success rate.
- **Introduction to the MAESTRI Management System:** this document is a reduction of the full guide “Management System Framework for Continuous Improvement in Process Industries”(Deliverable 3.2) available on the MAESTRI website.
- **Scheme for a workshop on EOV** (Eco Orbit View)
- **Scheme for a workshop on ELMB** (Eco Lean Management Board)
- **Scheme for a workshop on Problem Solving**
- **Scheme for a workshop on Reflection Process**
- **Monitoring Procedures:** this document describes survey methodologies to assess the outcome of the implementation of lean methods within a company, and measure the continuous improvement culture among involved stakeholders.

Further information, technical materials and reports related to the development of each of these technological strategies and their implementation within the project scope are available on the MAESTRI website: <https://maestri-spire.eu/downloads/technical-materials/>

# News from the MAESTRI blogosphere: Biological Manufacturing System, a possible development for Industry 4.0



By now everybody acknowledges that Industry 4.0 is destined to change the world where we live and work. Even the World Economic Forum recognized the impact of this process which, according to the inclusive definition provided, involves a number of different elements and technologies: from connection through mobile devices to 3-D printing, from robotics to nanotechnologies. While there are no doubts on the pervasive presence of the innovative technologies brought about by Industry 4.0 in the digital sector, the same cannot be said for biology, biotechnologies, “life sciences” and **Biological Manufacturing System (BMS)**.

Based on the behaviour and the essential features of **living organisms**, such as the self-growing capacity or their adaptability to changing conditions of life evolution, this relatively recent and highly innovative concept may represent an interesting development for Industry 4.0. For instance, BMS could introduce new paradigms of production that are completely different from the established ones of the “production line”, such as machine tools that are free to act and move in the factory environments without being physically fixed in a certain position.

What are the advantages of the application of a **biological paradigm** to manufacturing processes? According to recent studies, the main expected result is the optimization of production in terms of performance rates, costs reduction and quality improvement. By adopting and implementing BMS, firms will be able to promptly react to changes happening both in the internal and in the external environments, by realizing a product whose life cycle mirrors the biological processes of living organisms.

Source: <https://www.innovationpost.it/2018/03/23/futuro-produzione-biological-manufacturing/>

# 6th MAESTRI Consortium Meeting

On 11-12 April 2018, the 6th MAESTRI Consortium Meeting was held in UCAM—Cambridge (UK) and saw the participation of all the Project's Partners. The objectives of this meeting were at least two:

**1) Presenting an update on the pilots' progress on their respective projects**, by focusing in particular on what has been achieved so far on the four pillars (Industrial Symbiosis, Management System, Eco-Efficiency Tools, IoT Platform) and on the next steps to take. An update on MESTRI platform implementation was presented by the following pilots:

- JWO
- Worlée
- GLN Plast
- MCG

**2) Planning the subsequent internal activities and allocating responsibilities** among the different stakeholders on the following WPs:

- Requirements (WP1)
- Exploitation (WP7)
- Communication & Dissemination (WP8)

As it usually happens, the Consortium Meeting was an important opportunity for all MAESTRI Partners to gather, network and share news on the advancement of the project.





# Newsletter #2

## Project vision

“ Manufacturing Industries should deliver competitively priced goods and services that satisfy human needs and bring quality of life, by finding progressively smarter and finer trade-offs between business and sustainability concerns.

”

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## Project Partners

Coordinator



[www.maestri-spire.eu](http://www.maestri-spire.eu)



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