



# MAESTRI

RESOURCE AND ENERGY EFFICIENCY  
FOR PROCESS INDUSTRIES

## Newsletter #01

#01\_April 2016

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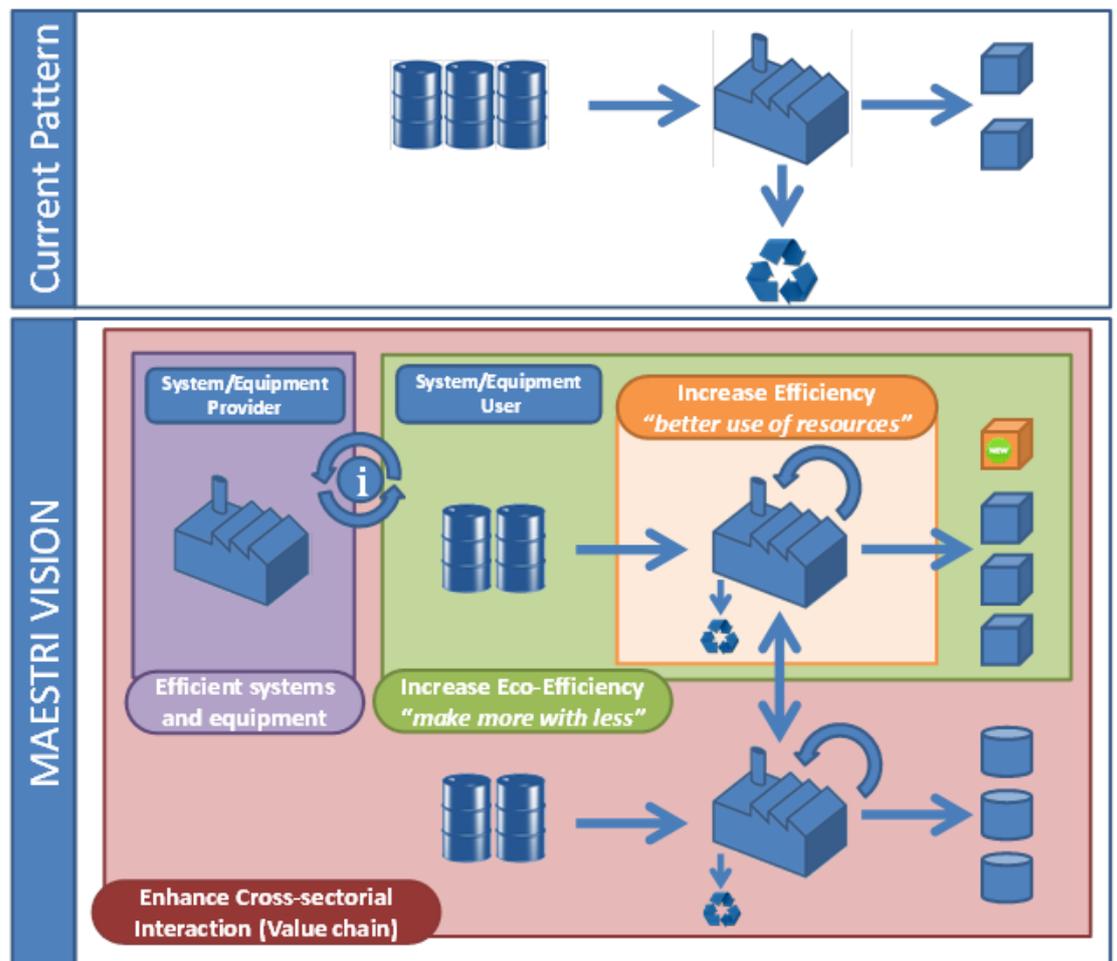


# Maestri and Total Efficiency Framework

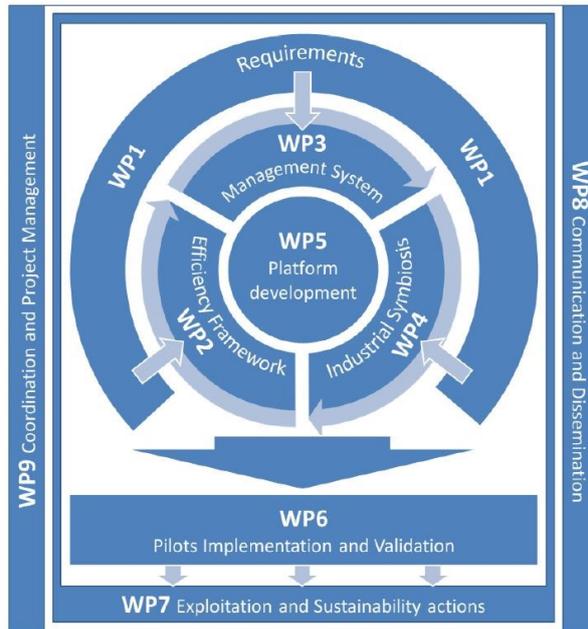
Manufacturing Industries should deliver competitively priced goods and services that satisfy human needs and bring quality of life, by finding progressively smarter and finer trade-offs between business and sustainability concerns. MAESTRI project aims to **advance the sustainability of European manufacturing and process industries by providing a management system** in the form of a flexible and scalable platform to promote and simplify the implementation of an innovative approach, the Total Efficiency Framework.

**The Total Efficiency Framework** will be based on four main pillars to overcome the current barriers and promote sustainable improvements:

- a) An effective management system targeted at process and continuous improvement;
- b) Efficiency assessment tools to define improvement and optimisation strategies and support decision-making processes;
- c) Integration with a toolkit for Industrial Symbiosis focusing on material and energy exchange;
- d) A software Platform, based on the Internet of Things (IoT), to simplify the concept implementation and ensure an integrated control of improvement process.



# Overall structure of work plan



MAESTRI have been structured in nine inter-related work-packages for the achievement of the objectives of the project.

**WP1 - Requirements (Leader: FIT)**

**WP2 - Efficiency Framework (Leader: INEGI)**

**WP3 - Management System (Leader: LEI)**

**WP4 - Industrial Symbiosis (Leader: UCAM)**

**WP5 - IoT Platform development (Leader: ISMB)**

**WP6 - Pilots Implementation and Validation (Leader: ISQ)**

**WP7 - Exploitation and Sustainability actions (Leader: IZNAB)**

**WP8 - Communication and Dissemination (Leader: SINERGIE)**

**WP9 - Coordination and project management (Leader: ISQ)**

WP2, WP3, WP4 and WP5 represent the technological core of the project. This core of activity will continuously exchange information with the WP6 regarding pilots implementation and WP7 on Exploitation. For this reason, these WP6 and WP7 can be considered as the connection point between the different concepts and the Total Efficiency Framework. These technological activities will be supported by WP1 which will generate the initial requirements for the Framework. A comprehensive set of different scenarios for the Framework application, as well as an assessment of best current practices, main barriers and challenges, will be performed during this WP1. Finally, WP8 will communicate and disseminate MAESTRI project results to improve, in particular, the awareness of companies and stakeholders.





Specifically, Maestri aims to provide a concrete ICT instrument, based on Service oriented Architecture (SoA) platform and on open-standard internet protocols, which means to orchestrate available information through a common management framework derived from the IoT vision and to enrich the effectiveness of resource optimization instruments through their association with primary information from the physical world.

This development will be based on the customization and specialization of the existing open source **LinkSmart Middleware**, assessing a **Resource abstraction models** and proper **communication infrastructures**. This work will include the integration of **project specific platform features**, supporting the Context Analysis and the Decision Support System (DSS) as well as ERP systems cross-companies compatibility and eco-efficiency algorithms integration. This will be done tackling also other issues like network security, systems interoperability, configurability & usability. Finally, tools for Model Based Software Engineering (MBSE), to enable developers to create technology-agnostic models through high abstraction procedures, will be provided. Simultaneously, proper software interfaces (increasing awareness and understanding of resource optimization and sustainability needs) will be designed and validated by end user in real scenarios through actual piloting activities.

# Exploitation and dissemination strategy



All along the MAESTRI project a continuous monitoring and evaluation of dissemination and exploitation activities will be pursued in order to enhance impact of these activities. A fundamental enabler to achieve high-performance dissemination and exploitation is the structure of the MAESTRI consortium. The MAESTRI methods and tools will be designed to be easily applicable with existing engineering environments and repositories and other legacy systems in companies.

The exploitation strategy is the starting point for the expected overall impact. The prototypes of the platform developed in the project will be tested within industrial partners. MICRO and OAS will extend their existing products by integration of functionality developed as prototypes in the scope of the MAESTRI project, thereby refining the prototypes to develop commercial products. Four industrial companies will internally exploit the results. The vendors and RTD partners have agreed to support them for 12 months after the project end, under favourable conditions (during this time, the results are expected to undergo commercialisation).

If the results of the project appear to be as expected, JWO with OAS, MCG, GLN Plast and WORLÉE, will install the tools and the engineering environment in several of their subsidiaries as well as by various partners/suppliers. Based on the expected results, and complying with the a.m. exploitation channels, the partners have already elaborated initial exploitation plans, as well as individual business plans, on how to exploit the project results. In accordance with these joint exploitation activities, each partner has and refines own plan for exploitation of the project results. IZNAB, as the leader of WP7 and the exploitation leader, together with ISQ, as project coordinator, will take care about IPR protection, and will coordinate and harmonise the individual activities also evaluating different channels for exploitation.

# Industrial Symbiosis:

## progress towards understanding the main challenges and success factors



Work Package 4 “Industrial Symbiosis” was initiated in December 2015 and built on an analysis of the State-of-the-Art which stimulated the identification of an initial set of research gaps and challenges for the implementation of Industrial Symbiosis. This interim outputs have been shaped in the form of conference papers that have been used to draw feedback from the wider academic community and refine the ideas that will underpin the subsequent work within Work Package 4.

In order to complement the academic review, a practice review is proposed. A suite of practitioner interviews has been planned, encompassing both companies within MAESTRI and others who are not presently involved. These interviews will help provide insight into practitioner’s current understanding and engagement with Industrial Symbiosis and elicit challenges to be addressed in future MAESTRI activities.

We are conducting this study in the form of short interviews during March and April 2016. The scope of the interviews is broad in terms of countries involved and characteristics of the companies (size, sector and stage in symbiotic exchanges implementation) in order to provide a wider perspective on challenges that may arise in MAESTRI industrial cases at later stages, and help enhance the wider applicability of the tools and concepts.

If you would like to find out more about Industrial Symbiosis activities within MAESTRI project and how your institution could participate please contact Dr Maria Holgado ([mh769@cam.ac.uk](mailto:mh769@cam.ac.uk)).



# Newsletter #1

## 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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