

The project



The MAESTRI project aims to advance the sustainability of European manufacturing and process industries. This is done by providing a management system in the form of a flexible and scalable platform, and to guide and simplify the implementation of an innovative approach, the Total Efficiency Framework.

The overall aim of this framework is to encourage a culture of improvement within process industries by assisting the decision-making process, supporting the development of improvement strategies and helping define the priorities to improve the company's environmental and economic performance. Its development and validation will be achieved through application in four real industrial settings across a variety of activity sectors.

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.

Over a period of 4 years, the project will deliver exploitable results clustered into technological outputs (including eco-innovative products, processes and services tailored to industrial end-users) and structured solutions (involving technical, economical, legislative and policy solutions synergistically combined).



Project Partners



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“ **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. ”

SPRE Sustainable Process Industry through Resource and Energy Efficiency



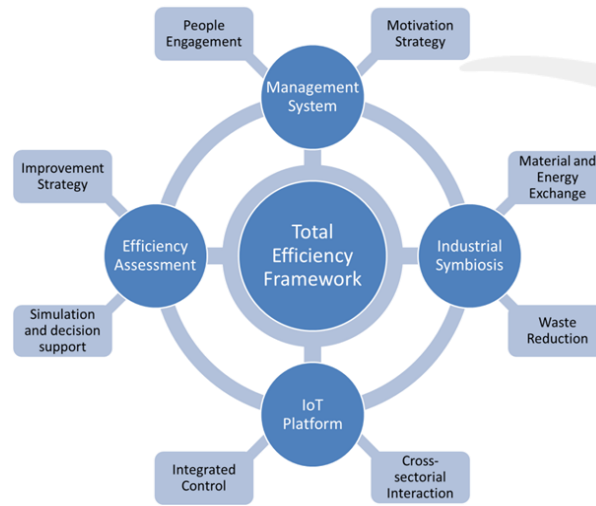
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The approach

Based on a holistic approach which combines different assessment methods and tools, the overall purpose of the Framework is to generate improvement on a continuous basis and increase eco-competitiveness by fostering sustainability in routine operations.

It's conceptual approach will be based on a life cycle perspective, centred on models for dynamic simulation and optimization, of both individual and complex systems, to better understand processes and the opportunities to add value. This life cycle approach is important to avoid problems shifting from one life cycle stage to another.

We also believe that in order to develop more resource and energy efficient processes, utilize waste streams and improve recycling in a sustainable manner, modelling and assessing all the interacting value chains is essential. However, despite the environmental, economic and social improvement potentials by sharing resources (e.g. energy, water, residues and recycled materials), it is essential to understand and assess resource and energy efficiency in order to optimize production systems.



Objectives and results

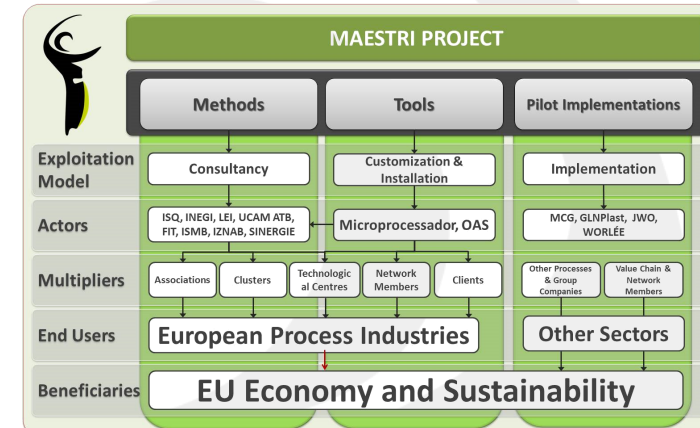
In connection with SPIRE and A.SPIRE, **the main objective of MAESTRI is to create both concepts and tools capable to achieve the prosecution and adoption of energy and resource efficiency in production systems of any company** (large, medium or small). For this reason, MAESTRI project aims to develop a Management System (MS) to promote and simplify the implementation of the Total Efficiency Framework on a continuous basis. This framework intends to enable the identification and assessment of the main inefficiencies in resource and energy consumption, and consequently support the decision making process for the implementation of added-value improvements.

In order to test and validate the developments of this project, **4 pilot implementations in real industrial settings will be conducted.**

Over a period of 4 years, the MAESTRI project will allow to reach a **wide range of relevant exploitable Results (R)**, which can be mainly clustered into **technological outputs**, that are eco-innovative products, processes and services tailored to industrial end-users, and **structured solutions** - involving technical, economical, legislative and policy solutions synergistically combined - exploitable by cross-sectorial multi-stakeholder based value chains.

Overall concept

The main concept of the MAESTRI project consists in the development of a flexible and holistic integrated Framework to foster manufacturing sustainability in process industry, the **"Total Efficiency Framework"**. The overall aim of the Total Efficiency Framework is to promote improvement culture within process industries by assisting decision-making process, supporting the development of improvement strategies and helping on the definition of priorities to improve the company's environmental and economic performance.



Overall methodology

In line with the approach, the project methodology consists on the development of 9 main activities supported by a strong involvement of industrial partners and stakeholders. These activities are organised into 9 Work Packages:

- 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)**

