



Total Resource and Energy Efficiency
Management System for Process Industries

Deliverable **8.10**

Report on stakeholders observatory – 2nd year

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1. Introduction

Stakeholder participation plays an increasingly important role in achieving a successful project outcome, improving the relevance or utility of the research to users and beneficiaries, thus increasing the likelihood that project results are adopted and applied.

Stakeholders are all individuals, groups or organizations who are likely to hold an interest in the project outcomes, including those who have power to influence the uptake of the research findings.

Since stakeholders have different expectations and influence on the project results, it's vital to the project's successful completion to accurately identify its stakeholders, set the relevant levels of engagement and communicate accordingly.

This document presents the stakeholder engagement strategy for MAESTRI as well as the activities undertaken during the first year of the project within Work Package 8, task 8.4 – Dissemination and Communication – Dialogue with stakeholders.

2. Objectives and approach

Stakeholder engagement strategy must be designed in line with the MAESTRI project dissemination and communication main objectives, i.e., increase validity in project results and deliverables, promote dissemination of the project among third parties, spread replication and boost the exploitation results.

For this purpose, an international network of stakeholders is being developed which includes policy makers, industries, businesses, industrial clusters and associations, scientific community, NGO's, social media and general public.

All these stakeholders will have different levels of engagement as explained further in this document, according to their different interests/concerns in the research and influence on the MAESTRI project activities and results, including those who have power to influence the uptake of the research findings.

In order to achieve the refereed objectives, the main contributions expected from the stakeholders during and after MAESTRI project duration phases are:

- a) Methods and data review in order to increase the robustness of the outputs (mainly process industry);
- b) Process validation;
- c) Data provision;
- d) Assist in defining and developing tools
- e) Implementation of results – testing outputs of the research (e.g. tools, new methodologies, strategies)

- f) Define, develop and help deliver knowledge exchange activities and publications
- g) Networking and awareness raising with non-contributory stakeholders
- h) Review project success, including stakeholder engagement approach
- i) Publicity, promotion, via channels such as websites, academic materials, research reports, newsletters, books, guidelines, social media and the general media;
- j) Identify future information, tools and research needs
- k) Develop stakeholder-led monitoring and networking beyond MAESTRI project life.

Different methods for stakeholder engagement were selected according to the different levels of engagement and expected role of each stakeholder, and taking also into consideration the project objectives and timing of the project activities.

The adopted stakeholder engagement strategy is described in the following chapters.

3. Stakeholder engagement strategy for MAESTRI

3.1 STAKEHOLDER IDENTIFICATION AND CATEGORIZATION

MAESTRI stakeholders were grouped in the following categories, according to their interests and influence:

- Process industries;
- Other industries and or businesses across different activity sectors;
- Industrial and entrepreneurial parks;
- Industrial associations, agencies and clusters;
- Academia, research and scientific community (universities, R&D Centers, etc.);
- Policy makers (European Commission, Member states governmental agencies, national, regional and local authorities);
- Environmental Non- governmental associations (NGOs);
- General public.

Relevant stakeholder organizations (and their respective contact points) which will be asked to participate in the several engagement activities further described, have already been identified by each project partner. This information is being compiled and organized by SINERGIE for future dissemination and communication activities.

MAESTRI has already the support from relevant European and national organizations namely, DHC (EU), DECHEMA (DE), PRODUTECH (PT), ENERGYIN (PT), ENEA (IT), PROPLAST (IT), SACMI (IT)

Level of engagement	Informative (one way)			Participative (two-way)						
	Inform			Consult	Involve		Collaborate			
Method of engagement	Website	Newsletters	Social Media	Website portal	Workshops	Stakeholder forums	Networking	Demonstrations	Interviews	Tools testing
Stakeholders										
Process Industries	X	X	X	X	X	X		X	X	X
Academia, research and scientific community from the same discipline	X	X	X		X	X	X			
Policy makers	X	X	X		X	X	X			
Other industries	X	X	X	X	X					X
Industrial clusters and associations	X	X	X	X	X	X				X
NGOs	X	X	X							
General Public	X	X	X							

Table 1 – Levels and Methods for stakeholder engagement in MAESTRI project

A description of the activities already undertaken and or previewed according to the project work program in each of the above referred methods of communication, is shown bellow.

3.3 DESCRIPTION OF ACTIVITIES

3.3.1. Website

MAESTRI website has been launched on February 2016 and is being prepared to receive information on project events, activities and public documents, well as other relevant information related with the follow-up on the state-of-the-art of resource efficiency methodologies and tools, industrial symbiosis, management systems, and other relevant issues related with MAESTRI project scope of work.

Also a system of user registration shall also be implemented to allow every visitor to register in order to receive via e-mail regular information on project activities and post comments on the website. After this functionality becomes operational, all partners will send an e-mail to their global contacts list in order to present MAESTRI project and with a link to the website, in order to boost the number of visitors and registered users.

Whenever a document, article or news item is uploaded, an automatic e-mail is sent to all registered users.

3.3.2. Newsletters

Biannual newsletters will be issued and uploaded in the project website, reporting project activities and main outcomes. The first newsletter was already issued on April 2016, presenting MAESTRI and its partners, the project vision and objectives, the workplan and the exploitation and dissemination strategy.

The second newsletter is going to be issued at the end of the second year (August-September 2017) and then will be disseminated through Mailchimp and other channels.

3.3.3. Social Media

As LinkedIn is one of the most active professional networks today, a new Group on the project was created as an open forum for discussion about all aspects and as a place to share and collaborate. In addition, a Twitter profile was also created to share website contents.

Most project partners are using Research Gate, a social network for academic and corporate researchers and scientists. Research Gate contains a new feature to add projects and link research results to those projects. Two MAESTRI researchers have created a project profile (merging both was not possible once done) and added other MAESTRI researchers as contributors to them. In Research Gate, MAESTRI papers, articles, books and results are published by their authors. It is also possible to include updates on the project work or activities as small blog entries.

MAESTRI videos will be produced and uploaded in the the project website and official youtube channel. Three videos will be produced, one presenting the project (5 minutes) and two others, of approximately 15 min long, will be produced promoting the findings of WP3. These videos will be in English, subbed in all partners local languages. In addition, video interviews of MAESTRI pilot responsible will be produced and uploaded in the MAESTRI youtube channel. The plot for each video-interviews has been agreed and will follow this scheme:

Title: Maestri – Total Efficiency Framework

- Subtitle: Interview to....
- Initial description of the project
- Question 1: What did you hope to achieve with the project?
- Q2: What issues did you want the project to tackle?
- Q3: How did you become involved in this area?
- Q4: What have you achieved?
- Q5: If these technologies do reach the market, what could be the impact?
- Q6: How can industries be persuaded to adopt new technologies?
- Q7: What has been the most exciting aspect of the project for you?
- Q8: What are the benefits of being part of an EU project?
- Q9: Would you take part in another EU project?
- Conclusion of the article with project details, contacts and links to MAESTRI

It will be important to target social media communications according to the different stakeholders to be reached. Different channels are for different users, hence the following table will be used as a guide to target communications.

Channel	Target	Typologies of possible messages	Typology of account that can be used	Notes
MAESTRI LinkedIn Group	Professionals and practitioners, researchers and industries (members of the LinkedIn group)	Text, Images, Pdf, link to external resources	Personal account of project's partners	Low effectiveness. It needs constant moderation and engagement. Limited number of group members. Users external to the group cannot see any post
LinkedIn Pulse	Professionals and practitioners, researchers and industries	Blog articles with the chance to embed any kind of media	Personal account of project's partners	Posts and articles are visible to the whole LinkedIn users and to external visitors as well. High effectiveness for the popularisation of project results
MAESTRI website	General public	All kind of media	Administrators account	No possibility to interact and discuss
Research Gate	Academic, Government and Corporate researchers	Scientific papers and articles, technical reports, books	Personal account of project's partners	Effective tool to share project's scientific articles, papers, deliverable with other researchers
YouTube channel	General public	Video	Official MAESTRI account	very effective. YouTube video are perfectly indexed. This will help MAESTRI website SEO and its position in search engines.
SlideShare	General public	Pdf, ppt	Personal accounts of project partners	Slideshare can be used to help the diffusion of project deliverables and publications
TWITTER	General public	micro-blogging posts with external links	Official MAESTRI account	medium effectiveness, it depends on keywords and retweets

3.3.4. Web portal

A specific web portal (e.g. cloud services such as Google Drive) will be created for document distribution and industry out-reach activities, with the objective to engage process industries and other relevant stakeholders into process and data validation as well as data provision for project activities.

The access to this web portal shall be restricted to a group of relevant organizations, invited or accepted by the MAESTRI consortium members. Access is made upon login of registered users.

3.3.5. Workshops

During the project execution, each partner country will organize at least 2 workshops to present project activities and results, covering the project research areas: eco-efficiency, industrial symbiosis, management systems, motivation strategies and IoT.

Presently 3 workshops are foreseen in each country, in the following periods:

- the first to be held on the 2nd trimester of 2017 (Year 2, Q7), in order to present the project and its first results to the stakeholders;
- the second to be held on the 1st trimester of 2018 (Year 3, Q10) in order to present project developments;
- the third to be held on the 2nd trimester 2019 (Year 4, Q15) to present the project results.

All these workshops will be followed by a stakeholder exchange forum (see 3.2.6.).

At the end of the project an international conference will be organized in Portugal.

MAESTRI project will also mark its presence in other relevant national and international conferences on sustainability and resource efficiency related issues, as a way to disseminate the project and its results through the scientific community.

3.3.6. Stakeholder forums

In each partner country, a stakeholder forum will be organized after each project workshop, where a group of predefined stakeholders will be invited to further discuss, among other relevant issues:

- MAESTRI research methodologies;
- Architecture of the toolkits and IoT platform;
- Potentialities and limitations of the platform in real industrial environments and for specific activity sectors;
- Project outcomes and future research activities.

Each session will promote direct and proactive interactions between a group of invited stakeholders from process industries, academia, industrial associations and policy makers. A set of predefined questions will be presented to the participants, who will be asked to discuss them in groups, driven by a moderator. Opening out and exploring techniques, such as brainstorming, carousel or mind-mapping might be used.

3.3.7. Networking with other R&D projects

Contacts were already made with coordinators of SPIRE-04 projects addressing the development of resource efficiency and sustainability assessment tools, namely the projects MEASURE (Metrics for Sustainability Assessment in European Process Industries),

SAMT (Sustainability assessment methods and tools to support decision-making in the process industries) and STYLE (Sustainability Toolkit for easY Life-cycle Evaluation).

Networking is also planned with the SPIRE-06 projects EPOS (Enhanced energy and resource Efficiency and Performance in process industry Operations via onsite and cross-sectorial Symbiosis), SHAREBOX (Secure Management Platform for Shared Process Resources) and SYMBIOPTIMA (Human-mimetic approach to the integrated monitoring, management and optimization of a symbiotic cluster of smart productions units). Marco Estrela (ISQ) and Maria Holgado (UCAM) were invited to be part of the **EPOS Advisory Board** and have participated in the first meeting that took place in March, 23th in Brussels.

As part of cross-project learning, ISQ and UCAM were invited to participate in the EPOS Advisory Board meeting held in Brussels on 23/03/2017. Results of the first 18 months of EPOS project were presented with the opportunity to participants to raise questions / issues to be addressed in next months.

Participation to SPIRE dissemination events:

ISQ and UCAM also participated, presenting its results, to **1st SPIRE Thematic Workshop on Industrial Symbiosis, held in Brussels on the 30/03/2017** with the topic of Industrial Symbiosis (IS). The full-day workshop saw a morning session that gave industry perspectives on IS from representatives of SPIRE sectors including cement, steel, engineering, chemicals, water and ceramics. This session was concluded with an example of IS in action from the Smart Delta Resource initiative in Zeeland.

After lunch aspects of IS methodology were outlined by representatives of SPIRE projects MAESTRI, EPOS and SHAREBOX and the IS related objectives of the RESYNTEX project described. The workshop was concluded by an extended panel discussion examining how SPIRE can support the development of IS in its future activities.

The discussion and presentations brought out a number of key success factors for IS. The concept of IS is not new to many parts of the SPIRE community, but the need to spread and develop the concept between sectors to maximise resource and energy efficiency and develop the circular economy is clear. SPIRE projects are developing tools and collecting case studies that can help to identify IS opportunities and highlight benefits.

A crucial aspect in developing successful IS initiatives is establishing trust between the parties involved. Equitable sharing of risk and reward is needed to move projects forward and the use of facilitators to enable data sharing and communication can be useful. Regulatory issues can be a barrier to IS in particular through restrictions on cross-border trade in 'waste' and financing for implementing relatively small IS projects can also problematic.

There is a clear role for SPIRE as a cross-sectorial platform to promote the uptake of IS across European process industry and beyond into wider manufacturing. The tools and portfolio of case study libraries that SPIRE projects are developing will be a very valuable assets to spread the word on industrial symbiosis, business cases and sustainable cooperative strategies so as to identify opportunities and initiate new material and energy flows.

MAESTRI has been inserted in the A.SPIRE website as well as in the related newsletters.

Furthermore, an invited session guided by the activities of MAESTRI was organised within the Sustainable Design and Manufacturing (SDM17) conference, held in Bologna, Italy, on 26, 27 and 28 April 2017. The session was entitled *Resource and Energy Efficiency for*

Sustainability Advances in Process Industries and focused on contributions in the following areas:

- Challenges and barriers for energy and resource management in the process industry
- Lean management applications in the process industry
- Strategies for resource and energy efficiency in the process industry
- Tools and methods for continuous improvement in process industries
- Resource and energy efficiency assessment tools and methods
- Industrial Symbiosis applications in process industry
- Design tools for decision making in process manufacturing
- ICT and Internet-of-Things (IoT) applications for resource and energy efficiency
- Eco-innovative products, processes and services in process industry

The invited session attracted many contributions and 6 final papers were included for oral presentation: 3 from MAESTRI project, 2 from EPOS project and 1 from IMPROOF project. This resulted in fruitful discussions built on the work done within these three SPIRE projects.

3.3.8. Interviews

Within Work Package 4 "Industrial Symbiosis", initiated by UCAM in December 2015, the analysis of the State-of-the-Art was undertaken through the identification of an initial set of research gaps and challenges for the implementation of Industrial Symbiosis in process industries.

In order to complement the academic review, a suite of practitioner interviews to relevant stakeholders has been performed, encompassing both companies within MAESTRI and others who are not presently involved. These interviews helped provide insight into practitioner's current understanding and engagement with Industrial Symbiosis and elicit challenges to be addressed in future MAESTRI activities.

Short interviews were undertaken by UCAM during March, April and May 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.

3.3.9. Demonstration

Demonstration of project results will be achieved through the provision of Total Efficiency Framework training courses to industrial community.

These courses will be based on the previous developed training modules which were provided to the MAESTRI industrial pilots and will be oriented to teach the industrials to use MAESTRI managerial tools and methodologies.

The courses will be addressed two target groups inside the industrial community, middle management and top-management. Then, two different courses will be organized as class lessons and will be left open for the participation to all industrials sectors.

At least 20 training sessions will be provided during the project, 2 of each training courses will take place on the 5 MAESTRI countries. It is expected 20 persons per course.

3.3.10. 14th innovation event promoted by COTEC

The MAESTRI project was represented at the 14th innovation event promoted by COTEC (Portuguese enterprise association for innovation), which was dedicated to the circular economy theme. ISQ team present had the opportunity to present the project to the President of the Portuguese Republic.



Figure 2 – ISQ team with the President of Portugal at COTEC

3.3.11. XVI Symposium Luso-German

On the 4th of July 2017, the German-Portuguese Chamber of Commerce with the support of the German Federal Ministry of Economy and Energy, organised in Lisbon the **XVI Symposium Luso-German of Energy "Energy efficiency including renewable energies, in Industry"**. Antonio Baptista participated to the event presenting MAESTRI with a speech titled: "The relevance of Energy Efficiency within Industry 4.0". The presentation has been published on SlideShare:

<https://www.slideshare.net/AntnioBaptista/simposio-luso-alemo-energia-jul-2017>

During this event, MAESTRI has been presented to industries and governmental stakeholders.

3.3.12. Tools testing

Within Work Package 4 "Industrial Symbiosis", initiated by UCAM in December 2015, a reduced version of the prototype library of case studies and linked exchanges database developed within Task 4.2 "Library of case studies and open source database of waste" was made available through the MAESTRI website for an initial testing.

A “Symbiosis Space” webpage was created to introduce the main concepts and activities carried out in the task, including links to both the library and the database reduced versions.

The testing of the prototype was done as follows. The “Symbiosis Space” featured a link to an online form (developed using Google Forms) to gather feedback on the structure and content of the webpage, the library and the database. Such feedback was then used to improve the tools developed.

An invitation to test the prototype tools and complete the feedback form was sent by UCAM to MAESTRI industrial partners and by UCAM and other MAESTRI partners to external companies not presently involved in the project. In addition, the invitation was also sent for further diffusion to several National Centres for Cleaner Production and other industrial clusters/associations.

4. Stakeholder engagement work program

Stakeholder engagement		Year 1				Year 2				Year 3				Year 4			
	Activity	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16
Website	Launch																
	Upload updated information on project activities and state-of-the-art observatory																
	Registration system for visitors																
	Dissemination mailings																
	Regular updates																
Newsletters	Biannual newsletters																
Social-media	LinkdIN updates																
	Twitter feeds																
	Videos (website, youtube)																
Web portal	Launch																
	Regular updates and notification to registered users																
Interviews	Interviews to process industries																
Workshops	Portugal																
	United Kingdom																
	Italy																
	Germany																
	Poland																
	International conference in Portugal																
Stakeholder forums	Portugal																
	United Kingdom																
	Italy																



5. Concluding remarks

Stakeholder engagement activities developed in the first year of MAESTRI, included the launch of the project website and the presence in social media networks. The statistics of the dissemination and communication activities in these internet platforms are presented in the Report on communication activities – 2nd year (Deliverable D8.3).

The engagement of the scientific community was undertaken through networking with relevant SPIRE-04 projects in the areas of resource efficiency and sustainability assessment tools. Also, the partners have participated in several events (please see D8.3 for a full description).

Interviews to relevant stakeholders within WP4 – Industrial Symbiosis were also conducted by UCAM and the corresponding results discussed in the Report on challenges and key success factors and gap analysis for industrial symbiosis (Deliverable D4.1).

6. References

[1] Stakeholder Engagement Handbook, “Best practice guidelines for stakeholder engagement in research projects”, BiodivERsA, Paris, 2014.