

Smart Specialisation Platform for Industrial Modernisation

Thematic Partnership

Efficient and Sustainable Manufacturing

Start Date (09.2013)

MONITORING PROGRESS REPORT

Reporting Period: from July 2018 to December 2018

This Report is presented to the relevant Working/Steering Committee.
It contains three parts:

- I. Management Report prepared by the Lead Region(s)***
- II. Progress Report prepared by the Lead Region(s)***
- III. Previous versions of the Progress Report; i.e., part II of past reporting periods***

The report is a “cumulative” report, i.e. it is updated every six months and covers the entire period of the Partnership.

Confidentiality: this document (part I) will be made available to the public via the Partnership’s web page except for chapter *II.E. Self evaluation*.

Based on the monitoring results, the European Commission will decide on the following year’s support.

Executive summary (max. 250 words):

The partnership on Efficient and Sustainable Manufacturing was born in the framework of the Vanguard Initiative and it is promoted by Lombardy and Catalonia.

Its focus is on technologies, methods and tools aimed at:

- Increasing throughput, quality, environmental and social sustainability of manufacturing activities while reducing costs;*
 - Reducing energy, emissions, resources and materials consumption,*
 - Increasing the inclusion of humans in the factories*
- Vision: Manufacturing should become efficient and sustainable to enable European reindustrialization and to preserve environment and planet's resources. Manufacturing efficiency and sustainability are two challenges to be addressed in a synergic way and systemic view.*

The idea is to conceive and develop a European network of infrastructure and pilot plants in key-manufacturing areas, where companies can test innovative solutions before the industrial uptake. By exploiting and valorizing available research results, ESM European pilot plants have the potential to support companies' innovation in breakthrough technologies and applications that require manufacturing efficiency and sustainability.

This approach will increase the competitiveness and the development of European value chains, exploiting synergies and complementarities of different regional specialization.

The ESM Vanguard pilot is aimed at overcoming the barriers limiting innovation and the transfer of research results to industry in Europe, through the development of an European synergic network of pilot plants accessible to companies in a logic of Smart Specialization. Each Region will develop and operate pilot plant nodes coherent to regional industry and competences, offering to European companies a "one stop shop" for the industrial uptake of new technologies and innovative business model.

I. Management Report prepared by the Thematic Platform/Lead Region(s)

I.A. Partnership Action Fact Sheet

- **Partnership:** *Vangurd ESM - Efficient and Sustainable Manufacturing*
- **Partnership's web-page:** <http://s3platform.jrc.ec.europa.eu/efficient-and-sustainable-manufacturing>
- **S3 Thematic Platform:** *Industrial Modernisation*
 - **Objectives:** *The ESM partnership will conceive and develop a European network of infrastructure and pilot plants in key-manufacturing areas, where companies can test innovative solutions before the industrial uptake. These plants will have the following characteristics:*
 - *Their TRL should be higher than 7.*
 - *They should be clearly focused on applicative domains in terms of industry and technology in order to satisfy industrial and societal needs. “Efficient and Sustainable Manufacturing” is a too-wide concept for a pilot plant.*
 - *They should address ambitious industrial applications: the pilot plants will have to enable at industrial scale applications that are currently not diffused or existing.*
 - *They should be motivated and supported by the demand of the industry.*
 - *They should be able to absorb newest technologies. They should be developed according to a “modular approach” where the different elements are linked in a system. Different technologies and pilot should be connected and combined.*
 - *They should be open to companies and should constitute a neutral environment in which companies can setup and test new products, processes and technologies before implementing them for own commercial purpose.*
 - *They should constitute a potential playground for cross-sectorial collaboration.*
 - *Companies, also SMEs, should find in the pilot plants the ingredients they usually lack for implementing innovation: highly innovative testing and process development facilities, but also multi-disciplinary competences and know how. In this sense, pilot plants should be more than facilities. They should create an innovative ecosystem for the valorisation of research and improve industrial competitiveness. Pilot plants should act as the framework where new value chains are created.*
 - *They should not be a “one time experiment”, but they should operate in the medium-long term in order to generate several results over time for a multitude of different customers.*
 - *The ownership up to a single company (or to a restricted group of companies) should be considered taking into account the need to guarantee openness and access rights to a wide number of users.*
 - *They should involve a significant number of companies as founders and users in order to have wide industrial impacts.*
 - *They should be grounded on the already available knowledge, including research and innovation infrastructure, which is currently not widely accessible.*
 - *They should find a clear and complementary identity with respect to the other pilot initiatives that are currently on-going in Vanguard, in Spire and in other relevant European initiatives*
- **Lead Region(s):** *list of regions/countries leading this partnership*

Lombardy
Catalonia

• **Official partner regions:** list of regions/countries that have officially committed to follow this partnership and have been active in the last six months.

Baden Wurttemberg - DE	Skane - SE	Emilia Romagna -IT
Saxony-DE.	Norte - PT	Navarra - ES
Basque Country - ES.	Scotland -UK	Pays de la Loire - FR
Flanders - BE.	South Netherlands - NL	East and West Slovenia - SI.
Wallonia - BE	East Netherlands - NL	Galicia - ES.
Tampere - FI	Ranstad - NL	South Denmark - DK
Any other comments		

• **Other regions:** list of regions/countries that have expressed their interest in this partnership but have not signed a commitment letter).

Wales - UK	Please enter here...	Please enter here...
Piedmont - IT	Please enter here...	Please enter here...
Friuli Venezia Giulia - IT	Please enter here...	Please enter here...
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Any other comments		

• **Intentions to join:** list any regional/national authorities
(Please list here all other regions that have expressed their interest to join the partnership)

• **Other participants (other than national/regional authorities):**
(Please list here all other (non-region) participants (clusters, institutes, RTOs, etc.))

AFIL - Italy, Lombardy, Milan	PRODUTECH - Portugal, Norte, Porto	University of Leuven - Belgium, Flanders.
EURECAT - Spain, Catalonia, Barcelona	Scottish Institute for Remanufacture - England, Scotland	MUSP Lab - Italy, Emilia Romagna.
TUT - Finland, Tampere, Tampere	Fraunhofer IWU - Germany, Saxony, Chemnitz	CTP - Belgium, Wallonia.
INESC - Portugal, Norte, Porto	TECNALIA - Spain, Basque Country.	BRAINPORT - The Netherlands, South Netherlands, Eindhoven
PLASTIPOLIS - France, Auvergne Rhone Alpes, Lyon Politecnico di Milano - Italy, Lombardy, Milan University of Bergamo - Italy, Lombardy, Bergamo ITIA-CNR - Italy, Lombardy Milan OOST NL - The Netherlands, East Netherlands AGORIA - Belgium, Flanders AIN - Spain, Navarra Fraunhofer IPA - Germany, Baden Wurttemberg INEGI - Portugal, Norte EMC2 - France, Pays de la Loire TECOS - Slovenia		

<p>Representative of Lead Region 1: (name, institution, address, phone, e-mail) Giacomo Copani - AFIL, Via E.Oldofredi 23, Milan giacomo.copani@afil.it Roberta Curiazzi - AFIL, Via E.Oldofredi 23, Milan - roberta.curiazzi@afil.it</p>	<p>Representative of Lead Region 2 (if applicable): (name, institution, address, phone, e-mail) Joan Guasch - EURECAT, joan.guasch@eurecat.org</p>
<p>European Commission Coordinator: (name, e-mail) Please enter here...</p>	<p>Any other relevant information: Please enter here...</p>

I.B. Thematic Working Areas (WA)

- **Thematic Working Areas** (if any, please list of WAs, region(s) in charge of it, names and affiliations of involved regional/national authorities, and other actors)

Working Area	Region in Charge	Involved regions	Other actors
<p>De- and Remanufacturing.</p>	<p>Lombardy</p>	<p>Lombardy, Scotland, Saxony, Tampere, Norte, Basque Country, Flanders and Emilia Romagna; Wallonia Interested Regions: Catalonia;South Netherlands;East Netherlands; Pays de la Loir</p>	<p>AFIL - Italy, Lombardy, Milan EURECAT - Spain, Catalonia, Barcelona TUT - Finland, Tampere, Tampere INESC - Portugal, Norte, Porto PRODUTECH - Portugal, Norte, Porto Scottish Institute for Remanufacture - England, Scotland Fraunhofer IWU - Germany, Saxony, Chemnitz TECNALIA - Spain, Basque Country University of Leuven - Belgium, Flanders MUSP Lab - Italy, Emilia Romagna CTP - Belgium, Wallonia Other actors</p>
<p>Advanced sustainable surface and coating manufacturing technologies on polymer materials</p>	<p>Catalonia</p>	<p>Lombardy, Auvergne Rhone Alpes Interested Region: Slovenias</p>	<p>AFIL - Italy, Lombardy, Milan EURECAT - Spain, Catalonia, Barcelona PLASTIPOLIS - France, Auvergne Rhone Alpes, Lyon Politecnico di Milano - Italy, Lombardy, Milan</p>

<i>Smart and Adaptive manufacturing</i>	<i>South Netherlands</i>	<i>Tampere, Norte, East Netherlands, Basque Country, Emilia Romagna, Ranstad, South Netherlands, Flanders, Slovenia</i>	<i>AFIL - Italy, Lombardy, Milan TUT - Finland, Tampere, Tampere INESC - Portugal, Norte, Porto PRODUTECH - Portugal, Norte, Porto OOST NL - The Netherlands, East Netherlands AGORIA - Belgium, Flanders</i>
<i>IDigital and virtual factory</i>	<i>Lombardy South Netherlands Tampere</i>	<i>Lombardy Catalonia Saxony Norte Navarra Pays de la Loire Galicia South Denmark</i>	<i>AFIL - Italy, Lombardy, Milan TUT - Finland, Tampere, Tampere INESC - Portugal, Norte, Porto PRODUTECH - Portugal, Norte, Porto OOST NL - The Netherlands, East Netherlands</i>
<i>Energy-flexible and resource-efficient factory operation (EFREFO)</i>			
<i>Saxony and Norte (Coordinators)</i>			
<i>Basque Country</i>			
<i>Lombardy</i>			
<i>Navarra</i>			
<i>Baden Wurttemberg</i>			
<i>Pays de la Loire</i>			

I.C. Overview of past activities (past six months, the 2nd half of 2018)

Past Meetings

<i>Title</i>	<i>Date</i>	<i>Place</i>
<i>Restricted demo-case meeting</i>	<i>28.06.2018</i>	<i>Milan, IT.</i>
<i>SC Meeting</i>	<i>10.09.2018</i>	<i>Virtual</i>
<i>SC Meeting</i>	<i>01.10.2018</i>	<i>Virtual</i>
<i>SC Meeting - 15.10.2018</i>		
<i>Internal demo-case meeting 17.12.2018</i>		

Past Workshops

<i>Title</i>	<i>Date</i>	<i>Place</i>
<i>ESM Mid Term Event</i>	<i>29.06.2018</i>	<i>Milan, IT.</i>
<i>"Digital and Virtual" and "Smart and Adaptive" workshop</i>	<i>15.11.2018</i>	<i>Milan, IT</i>

"Sustainable surface Treatments and coating" workshop - November 2018 - Barcelona
ESM Plenary meeting 18.12.2018 Brussels

Past Dissemination Activities

<i>Title</i>	<i>Date</i>	<i>Place</i>
<i>European Congress on eco-plastics</i>	<i>05.07.2018</i>	<i>Lyon</i>
<i>GREENOMED First Political meeting</i>	<i>03.12.2018</i>	<i>Brussels</i>
<i>Any other comments</i>		

I.C. Overview of future activities (the next 6 months – the 1st half of 2019)**Future Meetings**

<i>Title</i>	<i>Date</i>	<i>Place</i>
<i>Please enter title here...</i>	<i>Please enter date here...</i>	<i>Please enter place here...</i>
<i>Please enter title here...</i>	<i>Please enter date here...</i>	<i>Please enter place here...</i>
<i>Please enter title here...</i>	<i>Please enter date here...</i>	<i>Please enter place here...</i>
<i>SC meeting will be planned every two months according to the 2019 Action plan</i>		

Future Workshops

<i>Title</i>	<i>Date</i>	<i>Place</i>
<i>ESM Mid term event</i>	<i>June 2019</i>	<i>TBD</i>
<i>ESM Final event</i>	<i>Please enter date here...</i>	<i>Please enter place here...</i>
<i>Any other comments</i>		

Future Dissemination Activities

<i>Title</i>	<i>Date</i>	<i>Place</i>
<i>Automation & Testing Exhibition</i>	<i>13-14/02/2018</i>	<i>Torino</i>
<i>Please enter title here...</i>	<i>Please enter date here...</i>	<i>Please enter place here...</i>
<i>Any other comments</i>		

II. Progress Report prepared by the Lead Region(s) of the partnership, describing **results achieved during this period**, in no more than 3 pages (the report is “cumulative”).
All items listed in Sections A, B, and C, below, must be addressed.

Additional documentation such as extended technical reports and/or proceedings of workshops may be provided separately as an annex to this report (and should be referenced in the report).

II.A. Innovative results

- Innovative results and achievements that could be attributed to the Partnership.
(Specific examples of Results vs. Objectives)

** Identification and establishment of interlinks among demo-cases:*

"Smart and Adaptive" and "Digital and Virtual" demo-cases worked together during this months to clearly point out synergies and overlapping and evaluate the possibility of merging the two demo-cases.

**Boost the progress of the demo-cases*

Governance issues related to the coordination of demo-cases in ESM pilot have been monitored and pilot coordinators are working to ensure a strong governance to all the demo-cases to ensure their progress.

In the framework of interregional partnership pilot action, De-and Remanufacturing demo-case has elaborated a document addressed to DG REGIO with specific guidelines on the support services needed by the demo-cases. Moreover, although the concept is very well consolidated, De-and Remanufacturing demo-cases worked to the extension of the project including new interested Regions with a structured use-case.

- Tangible short- and medium-term socio-economic impacts achieved or expected.
(Specific examples)

More than 15M€ mobilized through EU projects by the stakeholders involved in ESM network, some of them are directly impacting on companies activities since they are main partners of the projects, which are generated from ESM use-cases

II.B. Inter-regional and inter-partnership collaborative results

- Additional results obtained from working with other partnerships under the thematic S3 Platforms. (Specific examples)

There are a number of synergic partnerships (sometimes overlapping) that we are planning to contact to eventually start cooperating with them. Considering the topics addressed by Efficient and Sustainable Manufacturing the other synergic partnerships can be:

- SMEs to the Industry 4.0

- European Cyber Valleys

- Artificial Intelligence & Human Machine Interface

- Chemicals

- Textile Innovation

- Evaluation of the involvement of relevant business sector (clusters, SMEs, business associations, chambers of commerce, etcetera) in the Partnership activities. (Specific examples)

Besides the political commitment of the Regions involved in the partnership, each Region has appointed one or more technical counterparts for the development of the demo-cases contents in line with the regional priorities.

Accordingly, several stakeholders are currently part of the network, as mentioned in section IA, as coordinator or regional technical representatives in the different demo-cases. In addition to these universities or research centers some demo-cases have been able to actively involve industrial companies in the partnership. This is the

case of De- and Remanufacturing, which involves more than 60 companies. To further confirm their commitment toward the initiatives and the pilot projects they have signed letters of intent, stating their willingness of contributing with in-kind investment for the realisation of the pilot infrastructures.

- Evaluation of whether **the level of inter-regional cooperation is sufficient** to potentially provide *practical and relevant socio-economic impacts*. (Specific examples)

The interregional cooperation established within the Vanguard ESM partnership generated a number of parallel opportunities that are concretely contributing to the socio-economic impacts expected:

- Improvement of innovation capabilities of ESM stakeholders (more than 15M€ mobilized through EU project)

II.C. New activities

- Involvement of regions from EU13 Member States in the Partnership, in particular with respect to scoping, mapping and/or matchmaking. *In addition, justification should be provided if no EU13 regions are involved.*

Slovenia - The Region recently joined Vanguard association and regional stakeholders are now in the process of being integrated to the demo-cases of interest and aligned with their RIS3.

- Involvement of regions/countries from outside of EU28 Countries. (Number of participants from non-EU countries. Specify their contribution)

No non-EU countries involved

- Advancement and promotion of the Partnership through publications and other communication/outreach activities. (Number of outreach activities that resulted from the Partnership. A complete list with references and web-links should be given in an annex)

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- Activities and projects with partnerships working under other S3 Thematic Platforms (Agri-Food, Energy and Industrial Modernisation).

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