



ESM Pilot

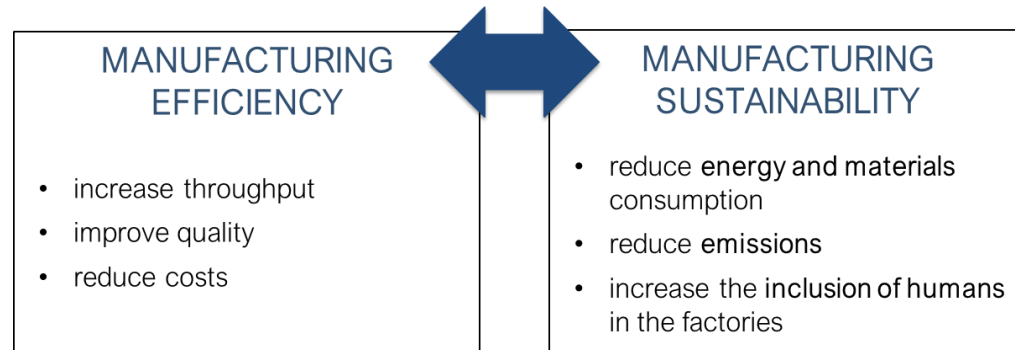
Efficient and Sustainable Manufacturing Pilot

Giacomo Copani – ESM Co-Coordinator

Joan Guash - ESM Co-Coordinator

Patrick Vuillermoz- ESM Co-Coordinator

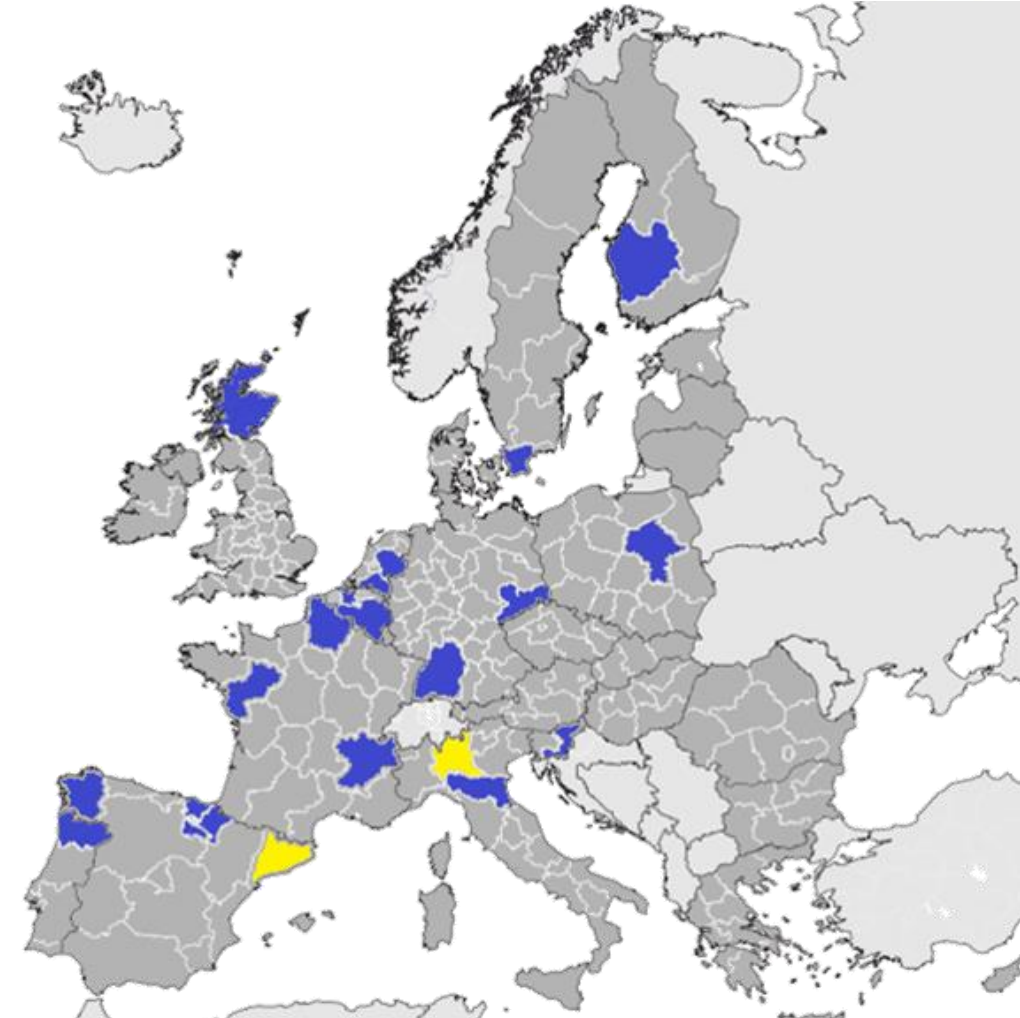
Efficient and Sustainable Manufacturing ESM Pilot



Partner Regions (21)

Lombardy - Catalonia - Auvergne Rhone Alpes

- | | | |
|---|---|--|
| <ul style="list-style-type: none">• Baden Württemberg• Basque Country• East Netherlands• Emilia Romagna• Flanders• Friuli Venezia Giulia• Navarra | <ul style="list-style-type: none">• Norte• Pays de la Loire• Saxony• Saxony Anhalt• Scotland• Slovenia• South Netherlands | <ul style="list-style-type: none">• Tampere• Upper Austria• Wallonia• Wales |
|---|---|--|
- In talks with...**
- Lower Saxony
 - East & North Finland
 - Grand Est



De- and Remanufacturing

Technologies and business models for circular economy to re-use, remanufacture and recycle products and materials in all sectors.



Marcello Colledani

AFIL, Politecnico di Milano *Lombardy*

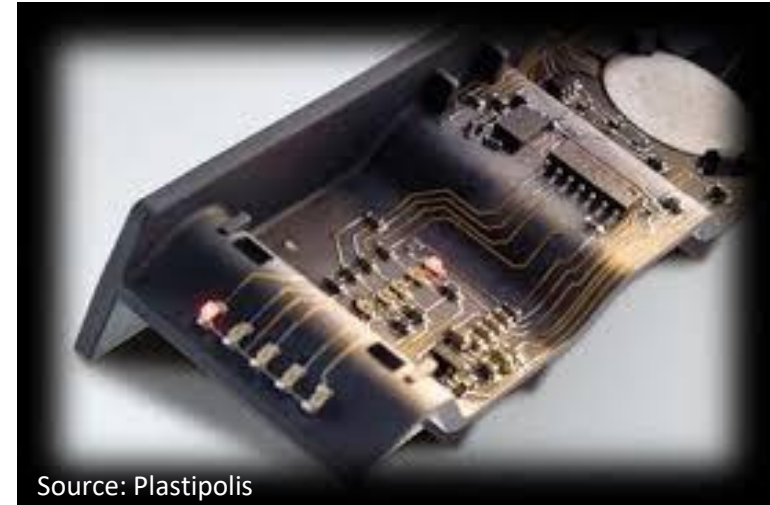
marcello.colledani@polimi.it

Regional/Cross-Regional Use Case	Involved Regions
1.Composite Recovery from Wind Energy System	Basque Countries, Saxony, Lombardy, Tampere, Scotland
2.Heavy machinery components remanufacturing	Tampere, Basque Countries, Lombardy, Saxony, Emilia Romagna
3.Automotive parts remanufacturing	Scotland, Lombardy, Saxony, Norte
4.High-value TLC systems and Electronics Recovery	Lombardy, Tampere
5.Metal components reprocessing	Saxony, Tampere, Lombardy, Wallonia
6.Remanufacturing of e-motors	Saxony, Lombardy
7.Plastics recycling and re-use in electornics	Flanders, Lombardy, Wallonia
8.Automotive Li-Ion batteries disassembly, remanufacturing and re-assembly for second use	Lombardy, Saxony, Basque Countries
9.Photovoltaic panels de-manufacturing	Flanders, Lombardy
10. Machining equipment retrofit and upgrade	Emilia Romagna, Lombardy
11. Manufacturing of metal-sponge catalysts from aluminum waste material for chemical catalysts.	Emilia-Romagna, Lombardy
12.Recovery of both metallic and non-metallic parts of slags, incinerator bottom ash, leaded glass - closing the material loop.	Wallonia, Lombardy, Basque Countries

Polymer-based functional products

Advanced sustainable surface treatments and material technologies for functional polymer components in various applications

 **Patrick Vuillermoz**
POLYMERIS – Auvergne Rhone Alpes
patrick.vuillermoz@polymeris.fr



Regional/Cross-Regional Use Case	Involved Regions
1. Smart Plastronic Components	<u>Auvergne Rhone Alpes, Catalonia</u>
2. Nano-Functionalised Polymer Products	<u>Catalonia</u>
3. Sustainable coatings and surface treatments on Polymers for demanding applications	<u>Lombardy, Navarra</u>
4. Polymeric Bio-based solutions	<u>Auvergne Rhone Alpes, Navarra</u>
Advanced Lightweight Polymer Composites (Potential Topic)	<u>East Netherlands</u>

Digital Transformation

“Industry 4.0” technologies applied to manufacturing environments to realise highly performing and human-centred digital/virtual factories



Sergio Gusmeroli

Politecnico di Milano – Lombardy

Sergio.gusmeroli@polimi.it



Coen de Graaf

Province of Noord-Brabant – *South Netherlands*

CdGraaf@brabant.nl



Minna Lanz

TUT – *Tampere*

minna.lanz@tuni.fi



Regional/Cross-Regional Use Case	Involved Regions
1. Product Engineering and Lifecycle Management	Lombardy, Auvergne-Rhône-Alpes
2. Factory efficient and sustainable manufacturing	Catalonia, East Netherlands, Norte, Emilia Romagna, Basque Countries
3. Quality control and predictive maintenance	Baden-Württemberg, Navarra, Slovenia, Friuli Venezia Giulia
4. Robotics and Human Interaction	Lombardy, Baden-Württemberg, South Netherlands, Tampere

VANGUARD INITIATIVE

Energy-flexible and resource-efficient factory operation

Technologies and methods to optimize energy/materials consumption in manufacturing processes and to realize emission-neutral factories



Antonio Baptista

INEGI – Norte

abaptista@inegi.up.pt



Source: Fraunhofer IWU

Regional/Cross-Regional Use Case	Involved Regions
1. Energy-aware scheduling for improved factory operation	Saxony, Norte, Lombardy, Navarra, Baden Wurttemberg, Pays de la Loire
2. Energy and environmentally-efficient steel making and advanced manufacturing plants	Lombardy, Navarra, Saxony, Norte
3. Eco-efficient thermal industrial processes	Norte, Saxony, Navarra, Baden Wurttemberg, Lombardy
4. Smart Energy in industrial applications	Baden-Württemberg, Saxony, Pays de la Loire, Navarra



ESM Pilot

Efficient and Sustainable Manufacturing Pilot

Elena Mossali – ESM Co-Coordinator
Elena.mossali@afil.it

Giacomo Copani – ESM Co-Coordinator
giacomo.copani@afil.it