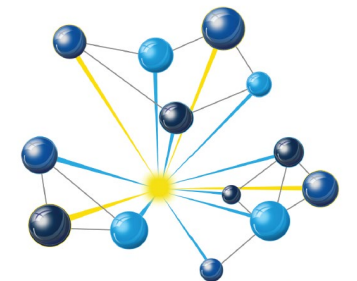
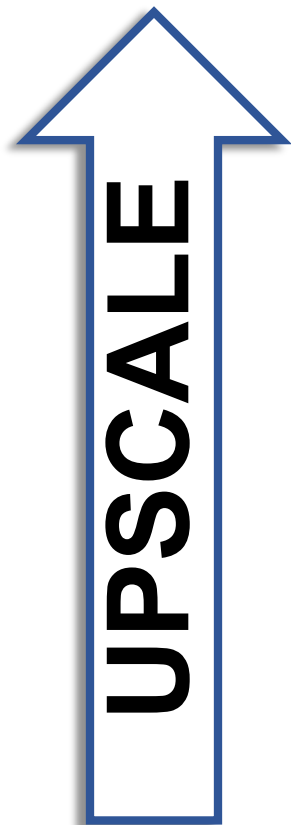


Vanguard Initiative – Pilot Project on Efficient and Sustainable Manufacturing (ESM)



VANGUARD INITIATIVE
New growth through smart specialisation

Vanguard Initiative Pilot Projects' Methodology



COMMERCIALISE

- Launch of new ventures and start - ups
- New value chains
- TRL 9

DEMONSTRATE

- Networked demonstration
- Pilot lines and first of a kind factories
- TRL 6 – 7 – 8

CONNECT

- Matching events for complementary partners
- Developing demonstration cases

LEARN

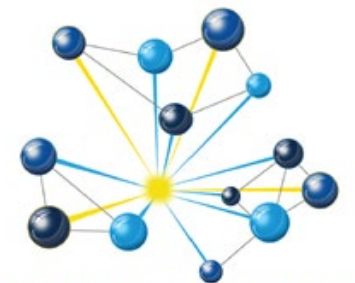
- Developing a scoping paper
- Mapping questionnaire
- Identify lead regions and actors



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Vanguard Initiative Pilot Projects Overview

3D-printing	ADMA Energy	Efficient and Sustainable Manufacturing	Bioeconomy	New Nano-enabled Products
3D printed hybrid component	Corrosion	De-and Remanufacturing	Lignocellulose refinery	Nanowires for ICT and energy applications
Additive Subtractive Platform High Precision & High Finish Production	Manufacture of large-scale components	Smart and adaptive manufacturing	Bio-aromatics	Nano enabled Micro System for Bio Analysis (NeMs4Bio)
3D printed automotive components for large, medium, and small complex parts	Operations and Maintenance	Digital and virtual factory	Turning waste-gas into value	Nano Enabled Printed Electronics
Machinery, tooling and complex shapes	Sensing and Instrumentation	Sustainable materials and surface treatments	Biogas beyond energy production	
3D-Printed Customized Components for Orthosis, Exoskeleton and Exoprosthesis		Energy-flexible and resource-efficient factory operation (EFREFO)	Bio-aviation fuel	
Mass-customised 3DP consumer products			Food and feed ingredients from agro-food waste	
3DP in Textile			Food and feed ingredients from algae	



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Efficient and Sustainable Manufacturing (ESM)

“ To develop a European networked infrastructure of pilot plants in key areas of manufacturing, supporting company innovation in breakthrough technologies and applications that require manufacturing efficiency and sustainability

Lead regions: Catalonia and Lombardy

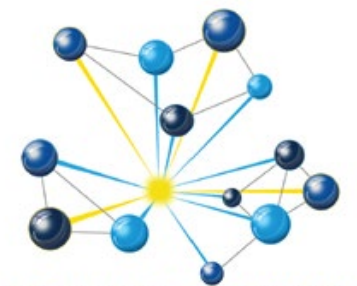
Participating regions: Auvergne-Rhône-Alpes, Baden Württemberg, Basque Country, Emilia-Romagna, East Netherlands, Flanders, Galicia, Navarra, Norte, Pays de la Loire, Saxony, Scotland, South Denmark, Slovenia, South Netherlands, Tampere, Trentino, Wallonia



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Objectives

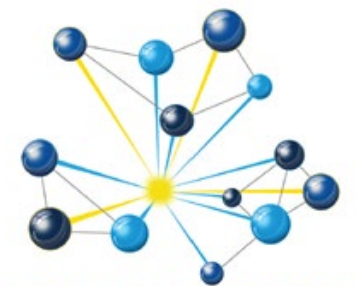
- To **create a network of demo sites at regional level** that will enable manufacturing companies to develop and introduce highly efficient and sustainable processes, technologies, systems and methods
- To **promote the utilisation of enabling technologies within two domains:**
 - Manufacturing efficiency
 - Environmental and social sustainability of manufacturing
- To **create greater competitiveness of companies, thanks to improved manufacturing efficiency, based on smart specialisation**, and the positioning of companies in new competitive value chains.



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Where are we now?

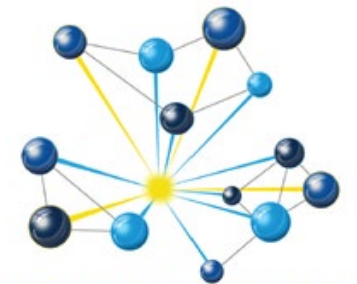
- **Successful in a number of EU-funded projects**, Interreg MED and Horizon 2020:
 - Greenomed (INTERREG MED)
 - SCREEN (Horizon 2020)
 - FiberEUUse (Horizon 2020)
 - CarE-Service (Horizon 2020)
- The De- and Remanufacturing case was invited by DG Growth and DG Ecfm at the workshop on "Investment Platforms" held in Brussels in November 2017
- The De- and Remanufacturing case has more than **50 letters of intent form industrial stakeholders** and the **Regions involved signed a MOU** to highlight the commitment of the authorities



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Objectives for 2018

- Integration and consolidation of new regions in the demo cases
- Boost the progress of the demo cases
- Identify interlinkages between demo cases
- Position the pilot in the EU framework and increase awareness of the ESM pilot and its demo cases

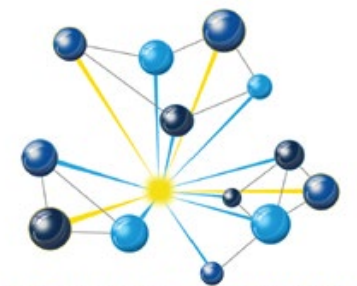


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Overview of demo cases

The ESM pilot is currently composed of five demo cases, with different levels of development, scope and nature:

- De- and remanufacturing (Circular Economy)
- Smart and Adaptive assembly and manufacturing systems
- Advanced Sustainable Surface and Material Technologies 4 Functional Polymer Components
- Digital and virtual factory integrating planning and simulation into operative environments
- Energy-flexible and resource-efficient factory operation (EFREFO)



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De- and remanufacturing (Circular Economy)

De- and remanufacturing (Circular Economy)

Objective:

- integrate a multidisciplinary set of advanced and innovative enabling technologies and digital innovations in the field De-and Remanufacturing (TRL 7-8)
- exploit the regional Smart Specializations in synergic way to offer services to European end-users, mainly manufacturing companies, to solve specific sustainability-oriented problems related to their products.

Leading regions:

Lombardy (IT)

Participating regions:

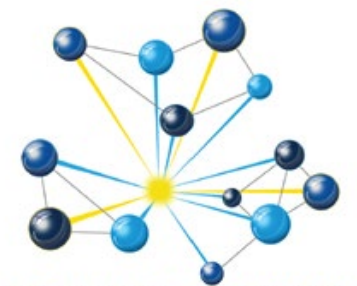
Scotland (UK), Saxony (DE), Tampere (FI), Flanders (BE), Basque Country (ES), Norte (PT), Emilia Romagna (IT), Wallonia (BE)

Interested region to be included:

East Netherlands (NL), South Netherlands (NL), Catalonia (ES), Pays de la Loire (FR)

Contact person:

Marcello Colledani – marcello.colledani@polimi.it



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Smart and Adaptive assembly and manufacturing systems

Smart and Adaptive assembly and manufacturing systems

Objective:

- Develop a European network of highly **reconfigurable** and **intelligent** assembly/manufacturing systems for the production of highly personalized components and products
 - *Reconfigurable* intended as designed for rapid change in structure in response to sudden changes
 - *Intelligent* conceived as equipped with technologies able to acquire, transfer, interpret, and analyse the information and to control the assembly/ manufacturing process.

Leading regions:

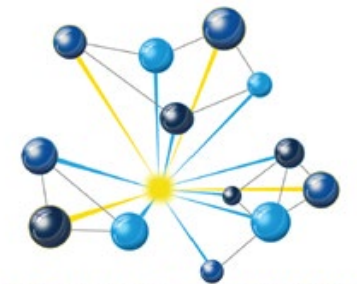
South Netherlands (NL)

Participating regions:

Lombardy (IT) - Basque Country (ES) - East Netherlands (NL) - Emilia Romagna (IT) – Flanders (BE) – Ranstad (NL)
South Denmark (DK) – Tampere (FI) – Norte (PT)

Contact persons:

Coen de Gaaf – CdGraaf@brabant.nl



VANGUARD INITIATIVE
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Advanced Sustainable Surface and Material Technologies 4 Functional Polymer Components

Advanced Sustainable Surface and Material Technologies 4 Functional Polymer Components

Objective:

- Deployment and Integration of Networked Pilot lines and plants with processing and characterization capabilities for Sustainable polymer advanced surfaces manufacturing at large industrial scale, where to collaborate, validate and up-scale efficient, sustainable and economically competitive products and processes, are the objective of this pilot concept towards high TRL opportunities

Leading regions:

Catalonia (ES)

Participating regions:

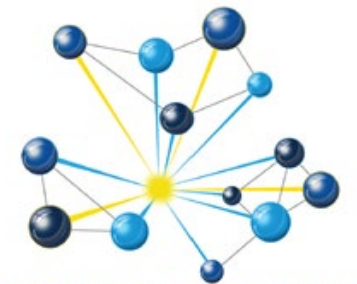
Lombardy (IT), Auvergne Rhone Alpes (FR)

Interested region to be included:

East Netherlands (NL) - Navarra (ES) – Pays de la Loire (FR)

Contact persons:

Jordi Romero - jordi.romero@eurecat.org



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Digital and virtual factory integrating planning and simulation into operative environments

Digital and virtual factory integrating planning and simulation into operative environments

Objective:

- companies are supported in redesigning their capabilities and operating models to take full advantage of digital technologies and new business models, allowing at the same time to secure and strengthen their competitiveness and market position.
- to manage and integrate the processes of multiple factories in global networks
- offer methods and software solutions

Leading regions:

South Netherlands (NL) and Tampere (FI), Lombardy (IT)

Participating regions:

Catalonia (ES), Norte (PT), Pays de la Loire (FR), Saxony (DE), East Netherlands (NL)

Interested regions:

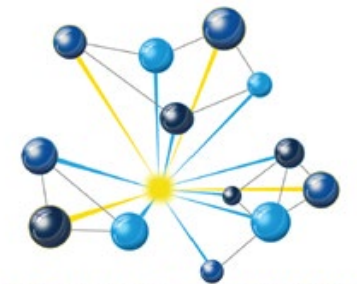
Galicia (ES), Navarra (ES), South Denmark (DK), Trentino (IT)

Contact persons:

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Minna Lanz - minna.lanz@tut.fi

Sergio Gusmeroli – sergio.gusmeroli@polimi.it



VANGUARD INITIATIVE
New growth through smart specialisation

Energy-flexible and resource-efficient factory operations

Energy-flexible and resource-efficient factory operation

Objective:

- Factory operation in various sectors with regards to resource efficiency (capture and storage of energy use and process data, simulation-based energy-sensitive factory control) and flexible use of energy (including e.g. integration of renewables and smart grids)
- Creation of cross-regional Digital Platform that can facilitate the access of companies to innovative sustainability assessment tools.

Leading regions:

Saxony (DE) – Norte (PT)

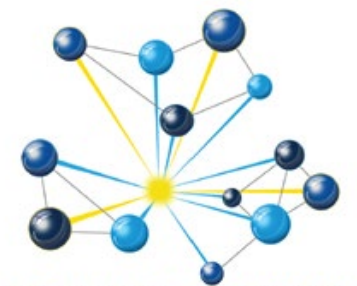
Participating regions:

Baden-Württemberg (DE) - Basque Country (ES) – Lombardy (IT) – Navarra (ES) - Pays de la Loire (FR)

Contact person:

Katja Haferburg - katja.haferburg@iwu.fraunhofer.de

Antonio Baptista - abaptista@inegi.up.pt



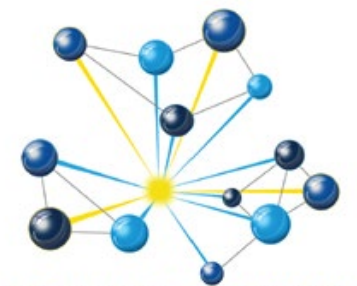
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Thank you for your attention!

Thank you for your attention!

For any questions, please contact the leading regions of the ESM Pilot:

Leading regions	Organisations	Contact persons
Lombardy (IT)	AFIL	Giacomo Copani giacomo.copani@afil.it
Lombardy (IT)	AFIL	Roberta Curiazzi roberta.curiazzi@afil.it



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