

CleanProd is a Coordination Action of the 6<sup>th</sup> Framework programme<sup>1</sup> aiming at

**observing, linking, coordinating and Consolidating RTD actions in Europe in order to support effective and efficient innovAtion on sustaiNable PROduction processes with the use of innovative technologies**

Sustainable Manufacturing is a key component of any sustainable development policy. But, cleaner production raises issues when trying to meet Europe's environmental policy targets, with related impacts on industrial competitiveness.

CleanProd focuses on three classes of processes, impacting many industrial sectors (aerospace, automotive, energy, agro-food, etc.), and which will require more and more innovations to improve their sustainability.



### Ambitions of CleanProd

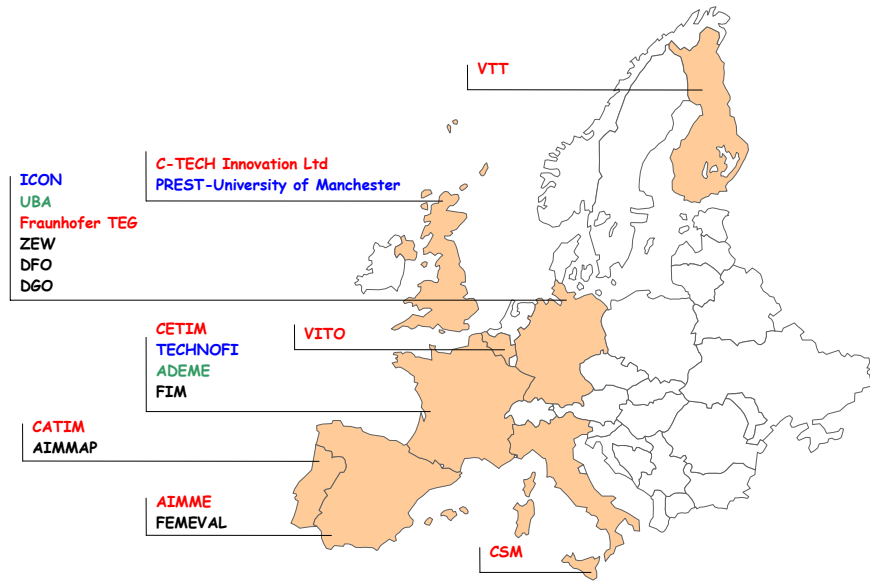
The project's ambitions are five fold:

- Design **2020 European visions** for the development of sustainable manufacturing processes in the three sectors;
- Propose **research roadmaps** pinpointing R&D topics that need to be coordinated at EU level, Member State level or even regional level;
- Launch a **European Observatory** on sustainable manufacturing that will become the permanent European knowledge repository for industrial users;
- Implement a **first set of R&D coordinated activities**, based on priority needs identified, and involving professional associations and national environmental agencies;
- Enrich the **European manufacturing Technology Platform** with a **sustainability dimension**, through a permanent working group able to deal with comparable issues in other sectors of clean/sustainable manufacturing.

<sup>1</sup> Project supported by the European Commission, Directorate NMP, under contract N° NMP2-CT-2006-033150

## The team

19 partners from 8 Member States: Belgium, Finland, France, Germany, Italy, Portugal, Spain and UK. The consortium brings together the complementary competences of **Research Centres**, **Innovation experts**, **Industrial associations**, and **Environment agencies**.



## The results – 2020 European visions, research roadmaps and R&D coordinated activities

The project team envisions different orientations for the year 2020.

### Surface preparation

- To reduce the pollution emission of chemical processes
- To reduce the energy consumption of physical processes
- To reduce the exhaust pollution and energy consumption of existing processes, using process controllers in conjunction with an integrated optimisation of coating and machining / forming
- To evaluate the impacts of existing and new cleaning processes
- To enhance surface conversion

### Surface treatment

- To favour water based paints
- To improve the quality features of powder spraying processes
- To have changed the Electroplating paradigm where improved process efficiency is reached at lower energy expenses and pollutant production
- To have validated more energy efficient drying after coating processes
- To have validated the potential of new coating materials over their life time (nano powders / sol gel / ionic liquids)
- To have achieved 30% to 40% resources savings (material and energy) in painting and electroplating

### Machining / Forming

- To optimise lubricant needs at shop floor
- level taking into account the final part quality, cleaning an recycling constraints

- To amplify the use of near net shape processes that reduces machining needs
- To promote machining processes allowing for low particle emissions
- To promote low energy lubricant free forming processes

The full roadmaps include the description of a set of possible projects to be conducted in order to properly reach the 2020 visions, through the 2015 targets (intermediate step). These R&D initiatives will be proposed in the frame of future 7<sup>th</sup> FP calls.

In addition, the project team highlights horizontal activities which precise 2020 visions for the integration of the three processes:

- To use eco-efficiency indicators taking into account the three processes at company level
- To integrate these eco efficiency indicators into the information system of manufacturing companies (ERP linking shop floor and management)
- To use real time process control approaches that embed eco efficiency indicators within their optimisation loop
- To maximise the eco efficiency performance at shop floor level through increased process integration

### The results – European Observatory

The European Observatory for Eco-Manufacturing has been developed in order to boost innovation in the manufacturing industry towards more environmentally friendly processes. It is built upon a community of experts active in the research and development of eco-manufacturing technologies, who believe that Europe must keep the world leadership in this field as a key driver of economic growth and employment (<http://www.ecomanufacturing.eu>).

This Observatory hosts a knowledge area, fed by recognized experts of the clean production technologies. You will find road maps, Best Available Technologies, Regulatory information, scientific papers, technology articles, etc... which make the state-of-the-art in your sector, and put them in a long term perspective.

The Cleaner Production Europe web site will drive you to research results that are ready for uptake by the industrial players.

The Greenovate! Web site offers opportunities for networking with other players of the eco-innovation sphere, relying on a contacts database. As a high level web portal, this Observatory relays major international Events dealing with eco-technologies for cleaner process. It also proposes links to relevant web sites disseminating valuable information about eco-manufacturing at European scale.

### The results – Enriching Manufuture Technological Platform

Manu*future* is a Technological Platform recognised by the European Commission, with a mission to propose, develop and implement a strategy based on Research and Innovation, capable of speeding up the rate of industrial transformation to high-added-value products, processes and services, securing high-skills employment and winning a major share of world Manufacturing output in the future knowledge-driven economy.

Its main objectives are:

- Competitiveness in manufacturing industries
- Leadership in manufacturing technologies
- Eco-efficient products and manufacturing
- Leadership in products and processes, as well as in cultural, ethical and social values


CleanProd shall contribute to the third indent by confronting roadmaps.

### CleanMéca conference

CleanProd results will be presented during the next CleanMéca conference, to be held in Senlis (France), between the 14<sup>th</sup> and the 15<sup>th</sup> of October 2008 (<http://www.cleanmeca.org>).

The 2008 edition will focus on Machining/Forming of materials, surface preparation and coating by dry way process, cleaning and cleanliness of mechanical parts and industrial effluents' treatment and recycling.

### Contact

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Industrial associations	ZEW, DFO, DGO, AIMMAP, FEMEVAL, FIM
Environment agencies	ADEME, UBA