

NANORESTART



HORIZON 2020

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CSGI - Center for Colloid and Surface Science -

October 19 th, 2015

Bruxelles



TOPIC: NMP-21-2014

“Materials-based solutions for protection or preservation of European cultural heritage”

Specific challenge:

Europe has significant cultural diversity together with exceptional ancient architecture, built environment and artefact collections.

However time, exposure and environmental changes present **significant threats to this cultural heritage** (which is one of the assets on which the tourism-related industry relies).



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Nanorestart Consortium

26 partners from 14 different countries

| no.* | Participant organization name | Abbreviation | Country |
|------|--|--------------|-----------------|
| 1 | Centre for Colloid and Surface Science, University of Florence | CSGI | Italy |
| 2 | Chalmers University of Technology | CUT | Sweden |
| 3 | Antonio Mirabile, Paper conservator | AM | France |
| 4 | National Museum of Denmark | NMD | Denmark |
| 5 | National Research Council | CNR-DSCTM | Italy |
| 6 | Tyndall National Institute, University College of Cork | T-UCC | Ireland |
| 7 | MBN Nanomaterialia | MBN | Italy |
| 8 | National Institute of Chemistry | NIC | Slovenia |
| 9 | Aurelia Chevalier Atelier | AC | France |
| 10 | UFRGS – Universidade Federal do Rio Grande do Sul | UFRGS | Brazil |
| 11 | University Ca' Foscari of Venice | UNIVE | Italy |
| 12 | AkzoNobel | AKZO | Sweden |
| 13 | CEA - Commissariat à l'énergie atomique et aux énergies alternatives | CEA | France |
| 14 | Arkema | ARK | France |
| 15 | University of Santiago de Compostela | USC | Spain |
| 16 | University College of London | UCL | UK |
| 17 | Zentrum für Bucherhaltung GmbH | ZFB | Germany |
| 18 | University of Barcelona | UB | Spain |
| 19 | Tate | TATE | UK |
| 20 | Associazione Italiana per la Ricerca Industriale | AIRI | Italy |
| 21 | Art Institute of Chicago | AIC | US |
| 22 | Instituto del Patrimonio Cultural de España | IPCE | Spain |
| 23 | Rijksmuseum Amsterdam | RMA | The Netherlands |
| 24 | University of Amsterdam | UVA | The Netherlands |
| 25 | Universidade Federal do Rio de Janeiro (UFRJ), School of Fine Arts | UFRJ | Brazil |
| 26 | Accademia delle Belle Arti di Brera | BRERA | Italy |

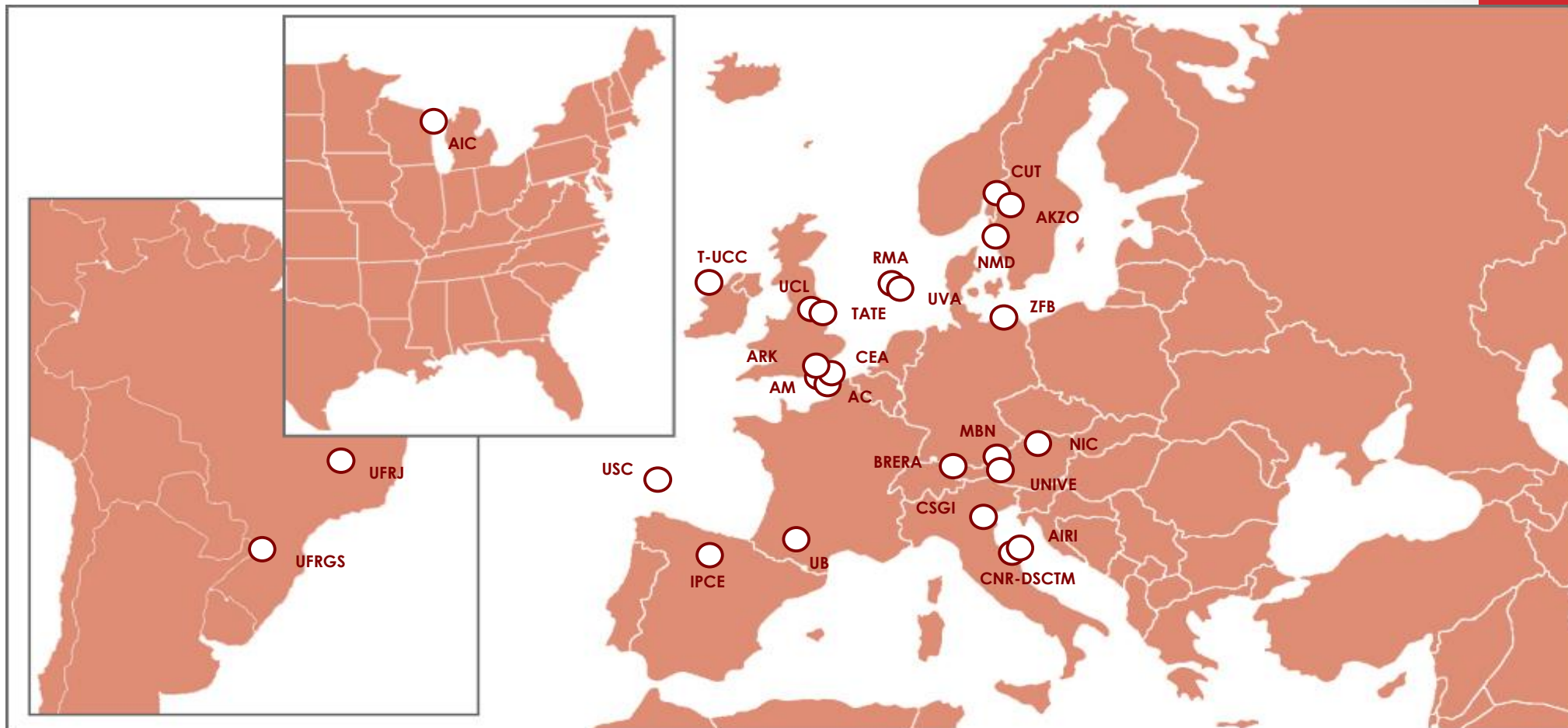


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Nanorestart Consortium Map



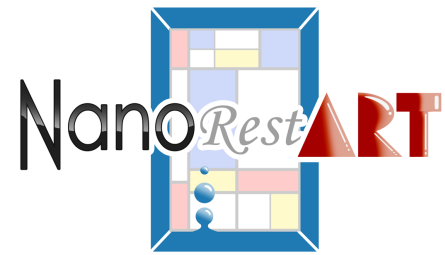
NANORESTART focuses on nanotechnologies and contemporary art.

Why?

Contemporary art is a major challenge for conservators since there is a significant lack of established conservation methodologies that can safely tackle the often extremely fast degradation of materials used by contemporary artists.

The most effective way to solve this issue is to **develop specific materials to counteract the degradation and consolidate works of art.**

The originality and the excellence of the NANORESTART are in the **synthesis of novel poly-functional nanomaterials and the development of highly innovative restoration techniques** to address the conservation (*cleaning, strengthening, diagnostics, and long-term protection*) of a wide variety of materials mainly used by modern and contemporary artists



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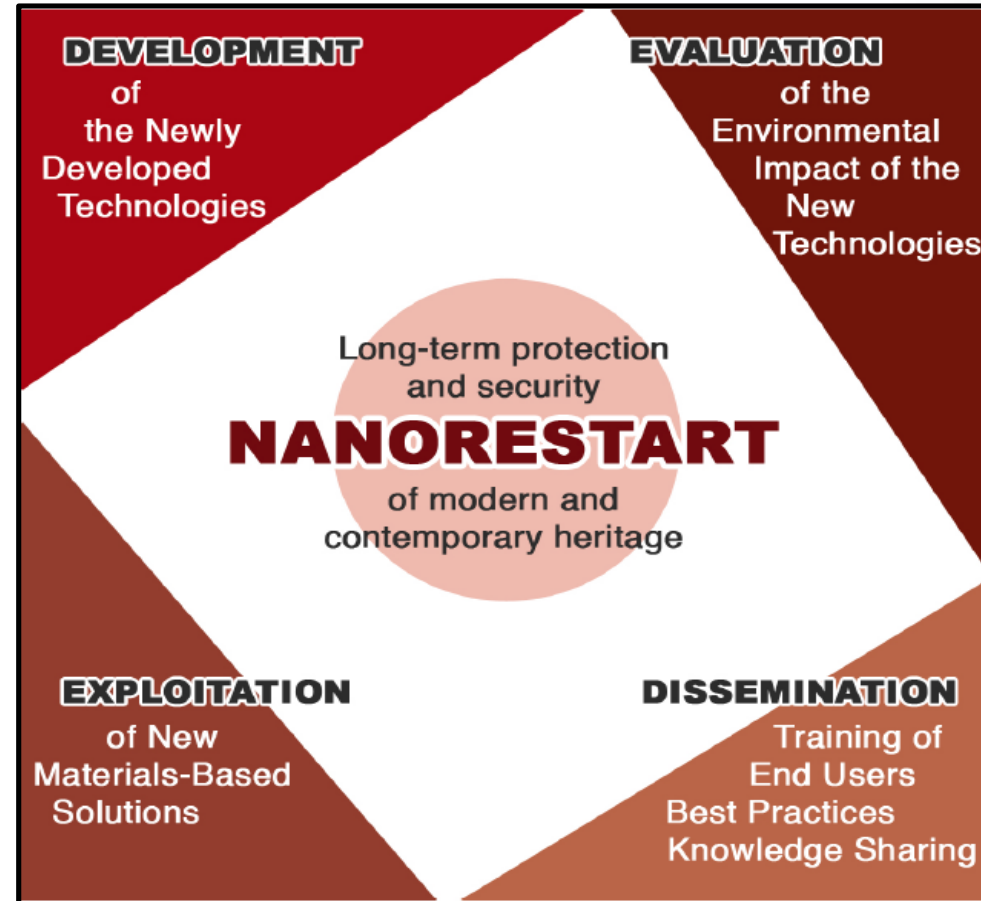
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DURATION

42 months as of 1 June 2015

BUDGET

The estimated eligible costs of the action are **about EUR 9 million**



4 MAIN ACTIVITIES

Conservation challenge 1 - Cleaning of contemporary painted and plastic surfaces

Conservation challenge 2 - Stabilization of canvases and painted layers in contemporary art

Conservation challenge 3 - Removal of unwanted modern materials

Conservation challenge 4 – Enhanced protection of artworks in museums and outdoors



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Trademarks already registered by CSGI
under the project NANOFORART* and already available to conservators

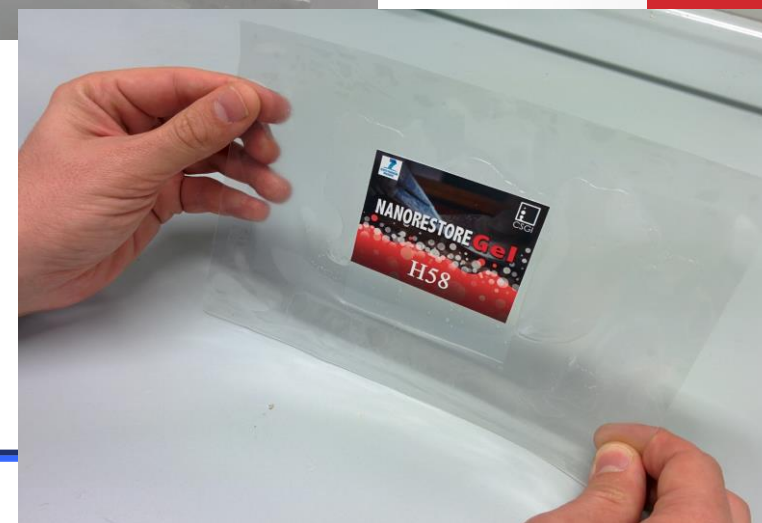
Nanorestore®
(distributed by CTS)

Nanorestore Paper®

Nanorestore Gel®

Nanorestore Cleaning®

18 NEW PRODUCTS
distributed by CSGI
www.csgi.unifi.it

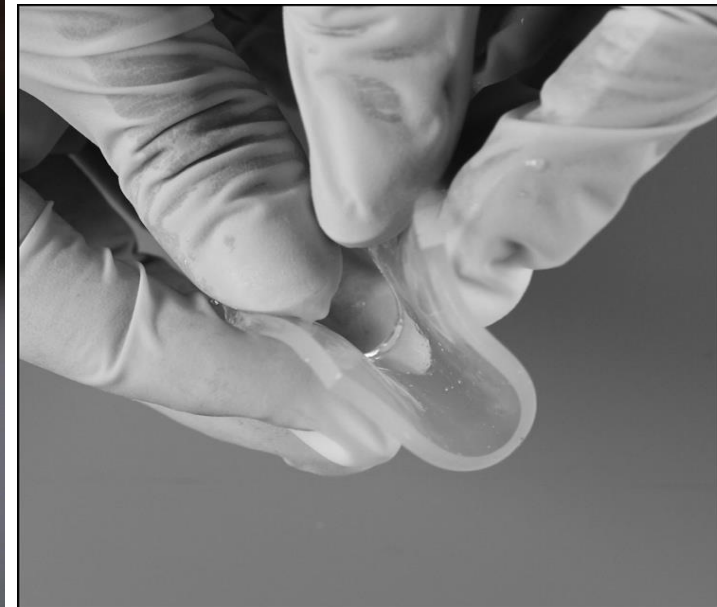


* http://cordis.europa.eu/project/rcn/101376_en.html

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Semi-IPN p(HEMA)/PVP Hydrogels

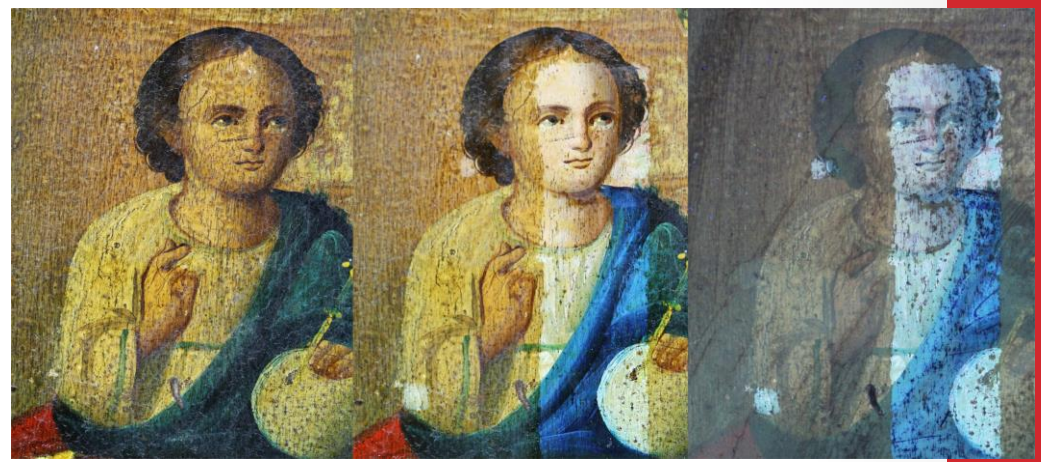
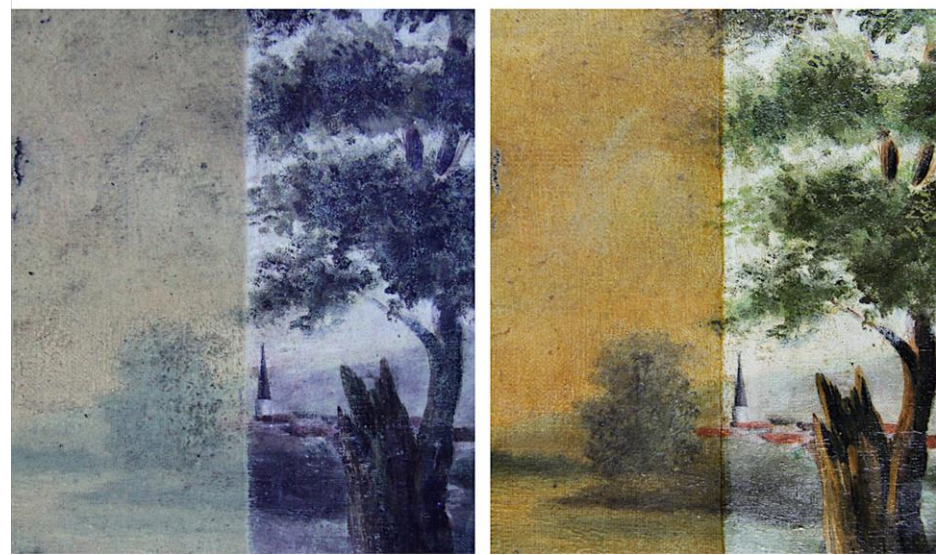
Hydrogels are **transparent or translucent** and **easy to manipulate**. They have enough **mechanical strength** to be synthesized as **film-shaped** (ca. 1- 2 mm thick).



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CLEANING

Removing acrylic on acrylic!
An impossible job with
conventional technologies



Street art by Banksy

CLEANING

An impossible job with
conventional technologies

Jackson Pollock

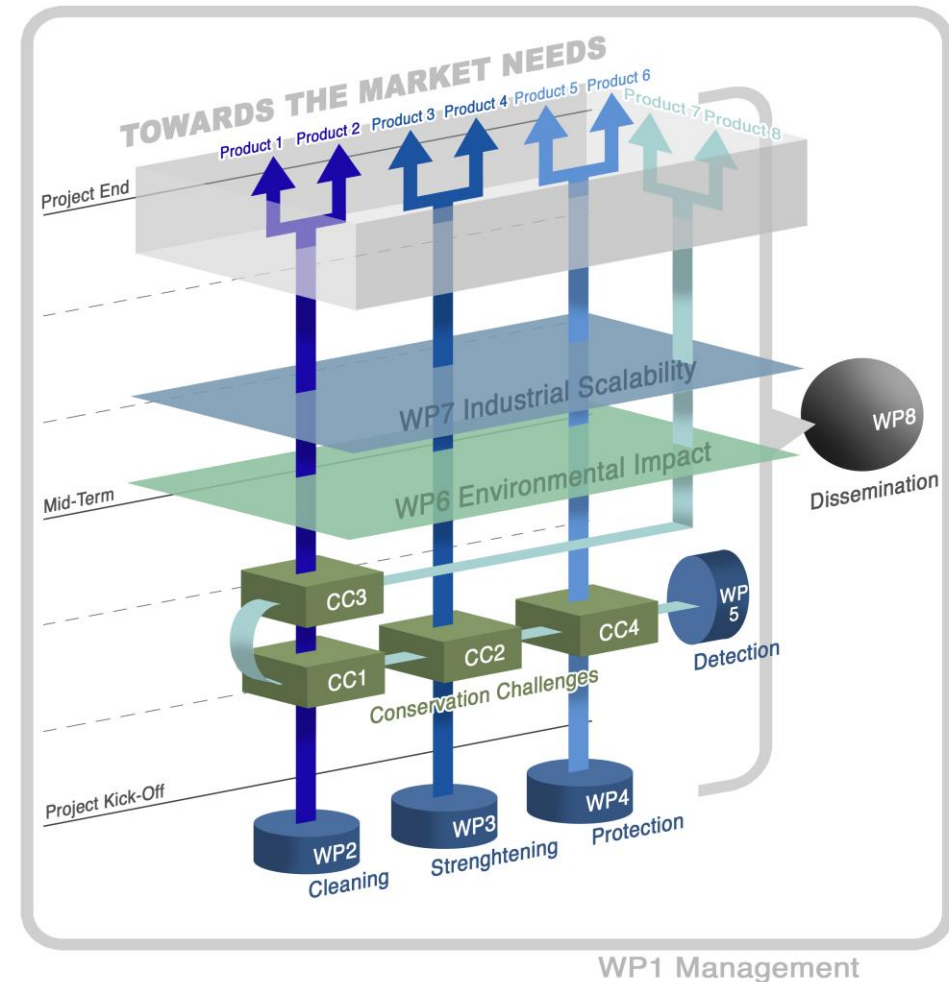


Industrial scalability and the feasibility **to reach TRL7** (outlining and testing the up-scaled productions)

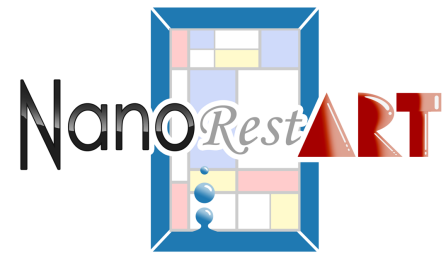
At least 4 products are expected to be obtain from the project

After about 4 months activity we have already 1 product for the market registered as

Nanorestore Plus®



CC1 - Cleaning of contemporary painted surfaces
 CC2 - Stabilization of painting layers and canvases in contemporary art
 CC3 - Removal of unwanted modern materials
 CC4 - Enhanced protection of artworks in museums and outdoor



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Final remarks

Art is important also from a economic point of view

For a chemist/physicist art can be seen as just materials

Materials degrade so art degrade

The knowledge of degradation, and the inversion of the degradation pathways are important not only for art conservation since the outcome is valuable to different important fields of human activity

Playing with materials and nanoscience in the field of art conservation can improve **the image and perception of Science and in particular of Chemistry and Material Sciences**