NANORESTART

Nanomaterials for the Restoration of Works of Art

The conservation of modern and contemporary works of art requires advanced solutions at the cutting edge of modern chemistry and material science. The NANORESTART project focuses on the synthesis of novel poly-functional nanomaterials and on the development of highly innovative restoration techniques to address the conservation of a wide variety of materials. The ground-breaking nature of our research can be more easily outlined by focusing on specific issues.

Consortium Map

HORIZON 2020

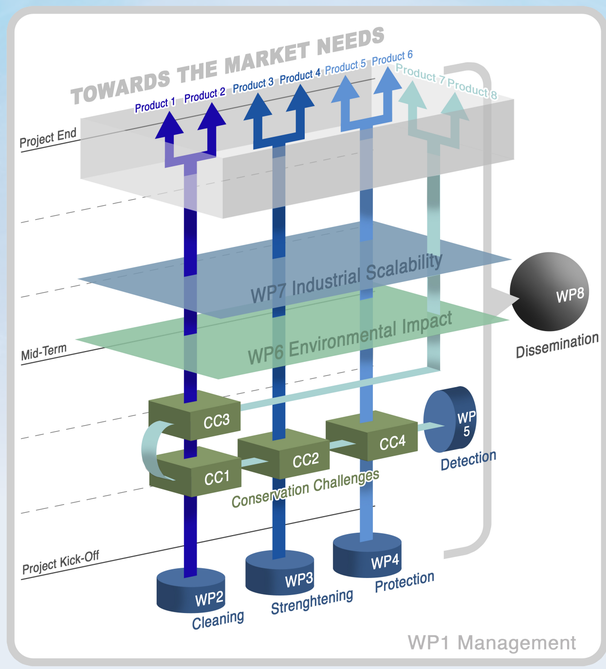
PROJECT STRUCTURE

Conservation challenge 1
Cleaning of contemporary painted and plastic surfaces (CC1)

Conservation challenge 2
Stabilization of canvases and painted layers in contemporary art (CC2)

Conservation challenge 3
Removal of unwanted modern materials (CC3)

Conservation challenge 4
Enhanced protection of artworks in museums and outdoors (CC4)



WP 2 - New tools for cleaning
Nanostructured residue-free cleaning fluids.

WP 3 - Surface strengthening and consolidation
Nanocellulose and porous silica particles.

WP 4 - Protection of surfaces
Polyfunctional protective systems.

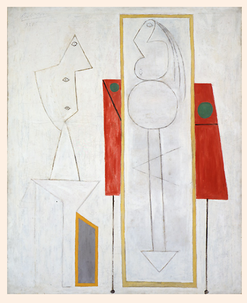
WP 5 - Nanostructured substrates for highly sensitive detection
Nanostructured substrates and sensors.

WP6 - Environmental impact assessment
Environmental impact assessment.

ACHIEVEMENTS AT MONTH 24

Pollock and Picasso masterpieces restored

Several **products developed** within NANORESTART are currently being **tested by conservators and restorers** on representative case studies. Among the selected works of art, **outstanding masterpieces** of contemporary and modern art, such as paintings by **Pollock** or **Picasso**, were **successfully restored** using **innovative hydrogels** and **nanostructured fluids** formulated by NANORESTART partners.



12 nanostructured fluids

Innovative **cleavable surfactants** were synthesized, which represent a new class of **spontaneously degradable amphiphiles**. About **12 environmentally friendly nanostructured fluids** were developed for the removal of unwanted materials from artistic surface.

10 gels for surface cleaning

Selective removal of unwanted modern materials, such as **adhesives** or **overpaints** due to vandal actions, was performed using **hydrogels loaded with nanostructured fluids** and **organogels**.

4 systems for fibers consolidation

The use of **cellulose derivatives** in combination with **nanoparticles** could ensure the **consolidation of fiber-based materials**. Several formulation for the **nanorelining** of canvases and for the **single-thread consolidation** of fibers are currently being developed.

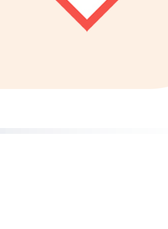
Polyfunctional protective systems, both **active** (releasing corrosion inhibitors) and **passive** (gas barrier), are being developed for the preservation of **metal artifacts** and **rapid prototyping materials**.

6 protective coatings

A **disposable electrochemical sensor** was developed for convenient detection of **gaseous formaldehyde** that is considered as one of the most important indoor pollutants. It can be used as a **marker molecule for material degradation**.

1 disposable sensor

CLP and **ecotoxicity** of developed products were evaluated **following EU safety regulations**.



Title: NANOmaterials for the REStoration of works of ART

Project reference: 646063

Topic: NMP-21-2014 - Materials-based solutions for protection or preservation of European cultural heritage

Call for Proposal: H2020-NMP-2014-two-stage

Total cost: EUR 9 178 647,25

EU Contribution: EUR 7 918 397

Duration: 42 months

Start Date: 2015-06-01

Consortium: 27 partners from 12 countries

Project Coordinator: CSGI - Consorzio Interuniversitario per lo Sviluppo dei Sistemi a Grande Interfase (Firenze, IT)