

**PROJECT DETAILS**  
**PROJECT REFERENCE**  
 646178  
**START**  
 01/06/2015  
**DURATION IN MONTHS**  
 36  
**TOTAL COST**  
 6.965.320,43 euros  
**EU CONTRIBUTION**  
 6.332.586,68 eur  
**CALL IDENTIFIER**  
 H2020-NMP-2014-two-stage  
**TOPIC**  
 NMP-21-2014

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



**PARTNERS**



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[www.nanocathedral.eu](http://www.nanocathedral.eu)

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The project leading to this application has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 646178



**Nano-Cathedral**

**NANOMATERIALS FOR CONSERVATION OF EUROPEAN ARCHITECTURAL HERITAGE DEVELOPED BY RESEARCH ON CHARACTERISTIC LITHOTYPES**



**HORIZON 2020**



CATHEDRAL OF PISA



CATHEDRAL OF SANTA MARÍA DE VITORIA



ST. STEPHEN'S CATHEDRAL OF WIEN



## OBJECTIVES

The objective of the Nano-Cathedral project is to provide "key tools" for restoration and conservation:

- On representative lithotypes
- On European representative climatic areas
- With a time-scale/environmental approach
- With technology validated in relevant environment (industrial plant and monuments)
- Exploiting results also on modern stone made buildings.

A general protocol will be defined for the identification of the **petrographic and mineralogical** features of the stone materials, the identification of the degradation patterns, the evaluation of the causes and mechanisms of alteration and degradation, including the correlations between the relevant state of decay and the actual microclimatic and air pollution conditions.

The project will contribute to the **development of transnational cultural tourism and to the development of common European shared values and heritage**, thus stimulating a greater sense of European identity.

## OSLO OPERA HOUSE



SINT-BAAFS CATHEDRAL OF GHENT

## INNOVATION

The results of the project will provide both **innovation** in technology and rationalization of the **conservation** policy affording a renewed knowledge of the complex system "**treatment/stone substrate**", and of the durability threshold of these treatments.

Innovative materials, such as **nano-particle based consolidants and proper polymer nano-composites based coatings** will be developed.

In particular, the employment of nano-particle with different composition will allow to provide methods for **consolidations, protection and pollutants decomposition**, thus preventing part of the **degradation** and providing long-term **conservation**, ensuring the development of **sustainable and compatible materials and methods**.

## APPROACH

**Multidisciplinary approach**; granted by the presence of expertise covering the field of geology and materials science, institutions for management and **preservations of the cathedrals**, restoration companies and also nano-particles and coating producers.

**The industrial partners** directly involved in the production processes and technology of restoration will allow the development of affordable methodologies, granting reliability of the developed chain.

**Scalability towards industrial needs** will be achieved by in situ tests.

**Dedicated modelling,  
Tailored characterizations,  
Standardization of the production,  
Treatments application.**

**This kind of synergy is NANO-CATHEDRAL's key for innovation.**

## KICK OFF EVENT

