

NTNU the Norwegian University
of Science and Technology

Project Coordinator

Jon Yngve Hardeberg
jon.hardeberg@ntnu.no

Deputy Coordinator

Sony George
sony.george@ntnu.no

Project Manager

Anneli T. Østlien
anneli.ostlien@ntnu.no



SCHWEIZERISCHES NATIONALMUSEUM, MUSÉE NATIONAL SUISSE, MU-
SEO NAZIONALE SVIZZERO, MUSEO
N. NATIONAL SVIZZER.



Hes·so
Haute Ecole Spécialisée de
Wallonie occidentale
Fachhochschule Westschweiz
University of Applied Sciences and Arts
Western Switzerland



Cyprus
University of
Technology



UNIVERSITEIT VAN AMSTERDAM

UBFC
UNIVERSITÉ
BOURGOGNE-FRANCHE-COMTE

RIJKS MUSEUM
amsterdam

7reasons
AMSTERDAM

HEXAGON



neo
NORSK ELEKTRØ OPTIKK AS

NATIONAL MUSEET
FOR HUNDT, ARKITEKTUR
OG DESIGN

inp Institut national
du patrimoine



<http://change-itn.eu>



@ITNCHANGE



@CHANGEITN



@ITNCHANGE



15 Early Stage Researchers
Trained by Experts from Conservation,
Imaging and Computer Science



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 813789.



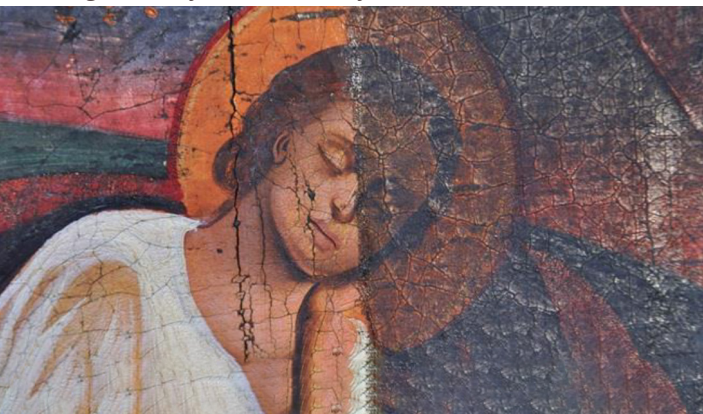
Marie Skłodowska-Curie
Innovative Training Network

Cultural Heritage (CH) Objects have inevitably changed over time, demonstrating alterations to materials' appearance, due to structural or chemical degradation, human interventions, or simply environmental deposits. Documenting, understanding, monitoring, and interpreting these changes is crucial to their preservation and the retention of their values.

THE CHANGE PROJECT

The **CHANGE** project trains a new generation of Early Stage Researchers (**ESRs**) towards a common goal – assessing the changes of tangible CH using state-of-the-art multimodal imaging techniques in complement to the more traditional analytical techniques. Novel methodologies for data registration, image processing and visualization are implemented directly on CH objects to characterize and evaluate degradation processes and conservation-restoration treatments. The project aims to take CH digitization to a new level by exploring digital datasets for deeper analysis and interpretation.

An altar piece after & before cleaning
Image courtesy of the University of Oslo



“an interdisciplinary approach”

Experts from Conservation, Imaging and Computer Science are joining to provide training for 15 PhD students to look for the best possible ways to monitor the changes.



CHANGE group in front of the MUNCH paintings in the Aula of the University of Oslo

CHANGE CAPTURE & TRACKING

Multiscale and multimodal strategies and systems

CHANGE STUDYING

Computational methods to study changes (characterization, visualization & monitoring)

CHANGE APPLICATION

Changes during the alteration and conservation of CH artifacts

Research Publications

Find CHANGE publications by scanning this QR code.



PhD PROJECTS

- ◆ ESR1 Imaging techniques for change documentation and monitoring of challenging CH materials
- ◆ ESR2 Quality evaluation in CH Digitization
- ◆ ESR3 Registration techniques for differential and multi modal data
- ◆ ESR4 Analysis & visualization of multi modal image data in CH surfaces monitoring
- ◆ ESR5 Portable multi modal device(s) for surface measurement/monitoring
- ◆ ESR6 Development of multi modal image data fusion methods for change monitoring
- ◆ ESR7 Small scale 3D imaging and processing in
- ◆ ESR8 Capture & characterization of change in the appearance of CH objects surface
- ◆ ESR9 Appearance change assessment: Link between local geometry & global appearance descriptors
- ◆ ESR10 Imaging-based documentation & analysis for change monitoring of novel dry-cleaning restoration/ conservation methods for unvanised paintings
- ◆ ESR11 Analysis & assessment of degradation of polychrome metal artworks
- ◆ ESR12 Analysis & monitoring of degradation of historic glasses
- ◆ ESR13 Surface appearance imaging and analysis of reflective metallic objects
- ◆ ESR14 Enrichment of 3D volumetric data with metadata and semantics
- ◆ ESR15 Characterization of surface change of historical metals by imaging and computer vision

9 Countries

9 Beneficiaries

9 Partners