



ICT-2011-9 600849



insiddo

Integration of technological solutions for imaging,
detection and digitisation of hidden elements in artworks

Project Summary

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- 1. Project outline**
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- Title: “**I**Ntegration of technological **S**olutions for **I**maging, **D**etection, and **D**igitisation of hidden **E**lements in artworks”
- Acronym: INSIDDE
- Duration: 36 months (from January 2013 – December 2015)
- Budget:
 - Total budget: 3 643 065 €
 - EC contribution: 2 897 106 €
- Reporting periods:
 - RP1**: M1-12
 - RP2**: M13-M24
 - RP3**: M25-M36

- INSIDDE objectives

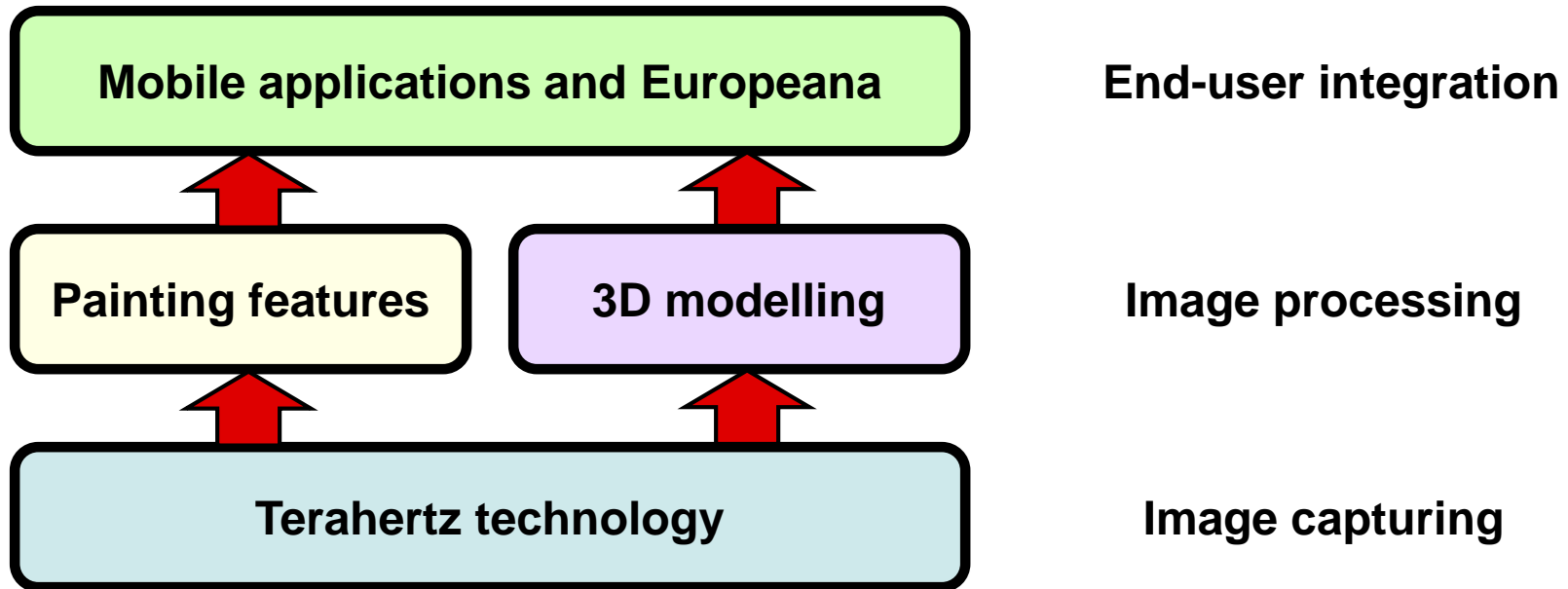
Unveiling unknown features – hidden paint layers, overpaintings, possibly underdrawing steps, brushstroke textures, sealed contents – ***of both 2D and 3D artworks for enhancing the knowledge-sharing of and the access to the digitised surrogates*** of the original cultural resources

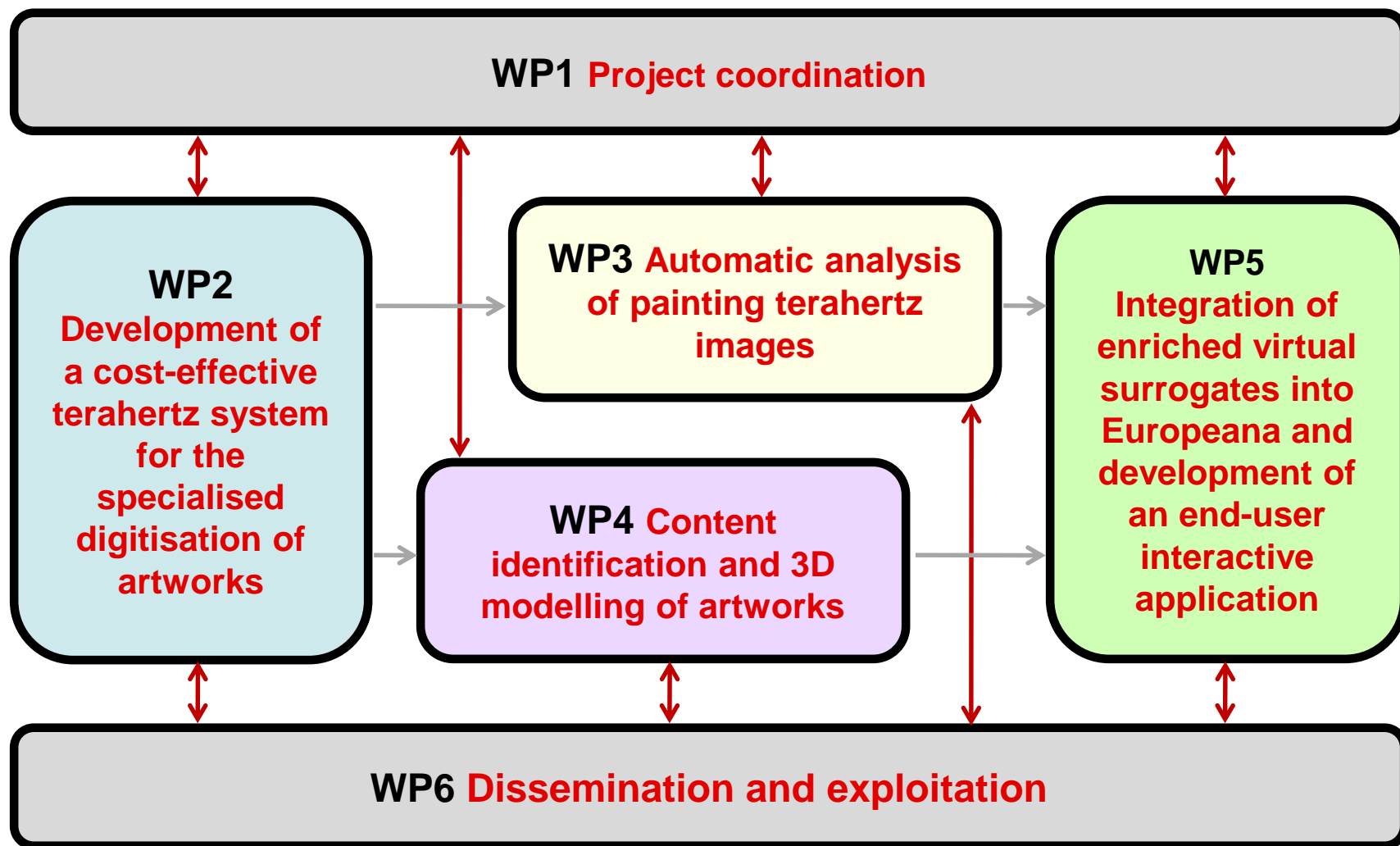
- **Advancing** the state-of-the-art of **digitisation technologies**
- **Adding value** to cultural content
- **Increasing** the range of **end-users**
- Assuring **affordability and widespread availability** of tools and services

- INSIDDE **scientific and technical** objectives
 - Development of graphene derivatives and the corresponding **high performance graphene based nonlinear components** for the efficient generation and detection of terahertz signals
 - Development of a **cost-effective high-performance 2D and 3D terahertz imaging and spectroscopy system** for the specialised digitisation of artworks
 - Development of **new techniques to process and analyses terahertz images** for extracting valuable information of terahertz images obtained from paintings
 - Development and improvement of techniques and modification of existing equipment for a **better modelling of paintings and 3D artworks**
 - **Integration of digital surrogates** of artworks **into Europeana**
 - Development of a **smartphone application based on Augmented Reality** for museums

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- Hierarchical model





● Aims

- **WP2** Development of a cost-effective terahertz system for the specialised digitisation of artworks
 - Bridging the technological gap in the lower terahertz frequency range
 - Development of a scanning system for large area 2D/3D THz imaging and spectroscopy of artworks
- **WP3** Automatic analysis of painting terahertz images
 - Digitisation of paintings employing the scanning system for feature extraction
 - Development of automatic image-processing and computer-vision techniques for the analysis of THz images of paintings
- **WP4** Content identification and 3D modelling of artworks
 - Integration of the THz scanning system with a multi-view structured light scanning
 - Acquisition and visualisation of multi-layer surface information
- **WP5** Integration of enriched virtual surrogates into Europeana and development of an end-user interactive application
 - Integration of 2D and 3D surrogates into Europeana
 - Development of an AR-based application to enhance visitor's experience at museums

● Outcomes

- **WP2** Development of a cost-effective terahertz system for the specialised digitisation of artworks
 - **Transmitters** and **receivers** in the range 0.14-1.1 THz
 - THz automatic **focusing system**
 - **Full characterisation** of the scanning devices
- **WP3** Automatic analysis of painting terahertz images
 - **XY scanning** system (mounted, assembled and tested)
 - Software for **automatic analysis** of terahertz images
 - Software for **modelling brushstroke characteristics**
 - Know-how on using **structured light for 3D brushstroke acquisition**
- **WP4** Content identification and 3D modelling of artworks
 - **3D scanning system** (mounted, assembled and tested)
 - **Demonstrator of albedo calculation**
 - **Integration of THz data** into 3D scans
 - **Identification of substances** using terahertz radiation

● Outcomes

- **WP5** Integration of enriched virtual surrogates into Europeana and development of an end-user interactive application
 - Demonstrator on 3D artwork models using the **smartphone application**
 - Reports on compilation of metadata and the **integration** of 2D/3D digital models with movement **into Europeana**

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● Consortium

- **Treelogic**
 - Spain
 - www.treelogic.com
- **ITMA Technology Materials**
 - Spain
 - www.itma.es
- **4DDynamics**
 - Belgium
 - www.4ddynamics.com
- **Regionalen Istoricheski Muzei Stara Zagora**
 - Bulgaria
 - www.museum.starazagora.net
- **Universidad de Oviedo**
 - Spain
 - www.tsc.uniovi.es
- **Technische Universiteit Delft**
 - The Netherlands
 - www.tudelft.nl
- **Consiglio Nazionale delle Ricerche**
 - Italy
 - www.ino.it
- **Museum of Fine Arts of Asturias**
 - Spain
 - www.museobbaa.com

● Roles

– Treelogic

- Coordinator and exploitation leader
- Smartphone application developer
- Europeana aggregator

– ITMA Technology Materials

- Synthesis/integration of graphene
- Dissemination and exploitation

– 4DDynamics

- Development of 3D scanning system and techniques
- Exploitation actions

– Regionalen Istoricheski Muzei Stara Zagora

- Artwork provider/advisor
- Dissemination leader

– Universidad de Oviedo

- Technical Manager
- Development of Tx and Rx
- Characterisation of THz system

– Technische Universiteit Delft

- Software developer for image processing techniques
- Dissemination and exploitation

– Consiglio Nazionale delle Ricerche

- Automatic focusing system
- Dissemination

– Museum of Fine Arts of Asturias

- Artwork provider/advisor
- Organisation of conference

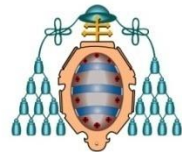
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- **Public website**
 - www.insidde-fp7.eu
- **Slideshare**
 - <http://www.slideshare.net/insidde>
- **Project Management Office**
 - info@insidde-fp7.eu

Coordinator

 treeellogic

Partners



UNIVERSIDAD DE OVIEDO

 itma
MATERIALS TECHNOLOGY

 TU Delft
Delft University of Technology

 4D DYNAMICS



INO-CNR
ISTITUTO
NAZIONALE DI
OTTICA


Regional
Museum
of History
Stara Zagora


MVSEO DE BELLAS ARTES DE ASTURIAS

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