

Implementation of noninvasive diagnostics:

Paintings Macro X-ray scanning

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Pillar Cultural Heritage – Spoke 4 / WP 6

SAMOTHRACE 2nd Year: Experimental Prototypes Demo Showcase

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CONTEXT:

- **The Innovation** focuses on the examination of paintings with a multimodal noninvasive imaging approach for understanding material composition and degradation.
- **The audience** are CH stakeholders that require advanced tools to study and preserve their collections without removing them from the original context.
- **Limited existing solutions** implementing mobile advanced approaches.
- **Technological transfer** and spin-off.



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SOLUTION:

- The combined **MA-XRF** and **MA-XRPD** platform enables simultaneous elemental and crystalline phase mapping in situ, capturing a more comprehensive knowledge of materials used in paintings.
- It is superior in **high-resolution and chemical sensitivity**, it pinpoints both the pigments, degradation or previous restoration, offering vital data for conservation and valorization efforts.
- Applied for access in competitive calls for the **E-RIHS infrastructure on Heritage Science**.



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DEVELOPMENT PLAN UNDER SAMOTHRACE ECOSYSTEM

- **Starting point:** prototypal devices available for MA-XRF and MA-XRD with initial TRL 3
- **Finalized setup** for MA-XRF/MA-XRD devices including advanced detection system and real-time mechatronics with a target TRL 5 at this project step.



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NEXT STEP UNDER SAMOTHRACE ECOSYSTEM

- Implementing the multimodal approach with ancillary spectroscopies and integrating digital platforms and AI/ML analytical approaches for data elaboration and for enhanced interpretation.
- Target TRL is 6. Project plan includes an analytical protocol and guidelines for using mobile X-ray technologies for the investigation of paintings.



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THANK YOU

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VISIT OUR DEMO AT BOOTH N. 9



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