

Acronym – SMUH

Title – Safeguard of Modern Urban Heritage: a cross-disciplinary WebGIS for Knowledge, Monitoring and Risk Analysis

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ERC sector – SH7

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Organization of PI – “Tor Vergata” University of Rome

Iuav role – partner

Other partners – “Federico II” University of Naples, University of Padua, Consiglio Nazionale delle Ricerche (National Research Council of Italy)

Duration – 24 months

Start – 18/10/2023

Closure – 17/10/2025

Project budget – € 234 704.00

Iuav budget – € 32 437.33

Funding to Iuav – € 32 437.33

Source of funding – MUR (Ministry of University and Research) - Call PRIN 2022

Description – The safeguard of the modern urban heritage – densely inhabited, characterized by binding durability limits and exposed to different environmental of risk – is a main axis of the sustainable development territory policies, according to the national goals of the 2030 Agenda and the PNRR program. Current research on the topic involves monodisciplinary approaches and strict limits for data interoperability.

Under this premise, this project (SMUH) develops a cross-disciplinary methodology for the safeguarding of the modern urban heritage, based on the spatial analysis of georeferenced data derived from i) archive surveys, ii) photogrammetric surveys, iii) satellite radar surveys, and managed on a 3D WebGIS platform. The methodology offers a holistic approach for the urban built environment safeguard – both in safety and cultural enhancement terms – via the integration of robust historical and technical knowledges, remote sensing, and risk analysis.

SMUH is developed by two case studies of geographical pertinence of the UR – selected modern urban areas of Roma and Verona on the Tiber and Adige rivers – representing benchmarks in morphological, technological, and environmental complexities terms, to test the scalability of the methodology.

Objectives – SMUH action is threefold: 1) *Data mining*: field research in historical archives concerning modern built environment (Catasto, Genio Civile, Technical Archives of Local Authorities); photogrammetric surveys; acquisition and elaboration of satellite SAR data to monitor displacements phenomena, at the building scale; 2) *Data managing*: 3D WebGIS-based georeferencing of the collected data; 3) *Data network*: spatial analysis of georeferenced data and elaboration of 3D-thematic-interactive-maps for the representation of the built heritage, in its historical evolution, and of the integrated structural risk.

SMUH's main results are:

1. increasing modern urban building environment historical- and technological- knowledge by spatial analysis of the evolution of construction techniques and structural typologies;
2. sharing unexplored, digitized and geo-referenced documentary sources, and related metadata in open-science platforms;
3. offering best-practices and guidelines for non-invasive structural monitoring – remote sensing – of the modern urban heritage;
4. producing 3D interactive digital tool to support Local Authorities decision making process concerning risk mitigation, conservation, and cultural enhancement of modern urban built environment.