

PROGETTO DI RICERCA “*CHIARA Cultural Heritage Innovation Adopting Risk Assessment- Advanced procedures for the enhancement of nationwide built heritage (positioned in isolated and/or peripheral locations)*”

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Obiettivo dell'assegno di ricerca è supportare le analisi previste dal progetto *CHIARA Cultural Heritage Innovation Adopting Risk Assessment- Advanced procedures for the enhancement of nationwide built heritage (positioned in isolated and/or peripheral locations)*, che si propone di sviluppare indicatori di vulnerabilità e di rischio per il patrimonio culturale correlato a fattori climatici e microclimatici, alla luce del climate change. L'indice – assente nella scheda di rischio SIT - è centrale per assicurare prospettive ottimali di conservazione del patrimonio, di programmazione ed efficacia degli interventi.

Piano delle attività

WP 1 Identification of case studies

WP1

Lead beneficiary: Federicoll

Participants: UniBO, PoliMI

Title of Work Package: *Identification of case studies; collection of constructive and microclimate data*

Months: 1-16

Goals: *WP1 will define the case studies for the following phases. The UO have already pre-identified case studies that meet the criteria set out in the Detailed Project Description. Buildings will be chosen on the basis of the representativeness of large sets of objects, in relation to both their characteristics and their location, taking care to cover different latitudes and situations as varied as possible, and also in relation to the altitude above sea level, and with respect to the heritage hosted inside them. These activities will be carried out in parallel with the implementation of the detection instruments for the microclimatic monitoring campaigns in the selected buildings for which the authorisations have been obtained from the competent safeguarding authorities. The data collection phase will be carried out in collaboration with the INGV.*

T1.1 – Identification of assets to be investigated [months: 1-4]

Task Leader: Federicoll

Participants: UniBO, PoliMI

This task will define assets to be surveyed, starting from the pre-selection already implemented by partners. The selection aims to obtain cases referring to different situations and as much as possible summarising the environmental and macro-climatic conditions that can be detected in the country.

T1.2 – Definition of protocols for the collection of various types of data [months: 1-4]

Task Leader: Federicoll

Participants: UniBO, PoliMI

This task will define the protocols to be followed for the collection of the various types of data related to the survey assets, in order to generate a homogeneous documentary base on the identified assets. The results will be achieved through the analysis of existing protocols, starting from those developed by the ICCD, and their refinement according to the specific aims of this project.

T1.3 – Data collection on context and case studies; design of data collection networks [months: 1-6]

Task Leader: Federicoll

Participants: UniBO, PoliMI

Task finalised to the collection of necessary and preparatory data for the subsequent phases of the investigation. Results achieved through the collation of data, also diachronic, on the physical-environmental context (urban/extra-urban) in which the object to be investigated is located (Federicoll), on the historical-constructive events of the various artefacts (UniBO, Federicoll, PoliMI), on their conservation conditions and on the methods of use (UniBO, PoliMI).

T1.4 – Collection (and editing) of data on structural degradation and vulnerabilities [months: 5-10]

Task Leader: Federicoll

Participants: UniBO, PoliMI

This task will focus on the heritage (architectural assets; heritage guarded within them) under investigation, investigating its characteristics and conservation problems. Collection of information through research on indirect sources and on-site visits, and elaboration of thematic outputs.

T1.5 – Implementation of microclimate monitoring/dust detection [months: 5-16]

Task Leader: PoliMI

Partecipanti: UniBO, Federicoll

This task will be responsible for the implementation of the detection instruments to be used inside the investigated buildings. The results will be achieved through the positioning of specific probes for monitoring T, RH, CO₂, light radiation and dust.

WP 2 Microclimate data collection

Lead beneficiary: PoliMI

Participants: UniBO, Federicoll

Title of Work Package: Microclimate data collection and behavioural and probabilistic modelling

Months: 6-22

Goals: WP2 will define the microclimatic behaviours of the case studies investigated and the related probabilistic models. These activities will be carried out through the collection of microclimatic data and the construction and testing of behavioural and probabilistic models.

T2.1 – Collection of microclimate data [months: 6-16]

Task Leader: PoliMI

Partecipanti: UniBO, Federicoll

Task related to the microclimatic campaigns carried out the periodic collection of microclimate data recorded by the probes positioned inside the buildings under investigation.

T2.2 – Construction of models relating to the behaviour of case studies [months: 12-20]

Task Leader: PoliMI

Partecipanti: UniBO, Federicoll

Task of analysis of the microclimatic behaviour of the studied buildings in different seasons. The results, also based on statistics of historical macro and microclimatic data, will be achieved through the construction of models of the behaviour of buildings from the point of view of the indoor microclimate.

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T2.3 – Validation of probabilistic models [months: 16-22]

Task Leader: PoliMI

Partecipanti: UniBO, Federicoll

This task will develop indications about the expected microclimatic behaviour of the investigated buildings. The results will be achieved through the testing and validation of probabilistic models.

WP 3 Refinement of risk indices

Lead beneficiary: UniBO

Participants: PoliMI, Federicoll

Title of Work Package: Refinement of risk indices; definition of strategies aimed to enhancement

Months: 7-24

Goals: The WP3 will refine the risk indexes and the valorisation strategies of the investigated heritage, starting from the aspects which are necessary to build the Heritage Communities, to raise the awareness of the local communities and to identify the subjects able to implement the above mentioned strategies. The optimal conditions of heritage preservation and visitors' comfort and the interventions useful to detect risk situations and to optimise the conditions of conservation and fruition will be defined. These activities will be carried out in parallel by the local OUs, and also through seminar activities between the sites and researchers involved in the research.

T3.1 – Refinement of risk indices (verification of compatibility) [months: 7-14]

Task Leader: UniBO

Partecipanti: PoliMI, Federicoll

This task will evaluate the effectiveness of the indices already present in the literature and the integrative indices, already proposed by researchers at the headquarters, in relation to the monitoring data already

collected, with the aim of minimising the possibility of damage actually occurring to the heritage under investigation.

T3.2 – Optimising conditions of conservation and use [months: 15-22]

Task Leader: UniBO

Partecipants: PoliMI, Federicoll

Task to define strategies for the enhancement of the buildings under investigation from a twofold point of view: on the one hand, that of optimising the conservation conditions, both of the building hosting the heritage, and of the assets constituting the heritage (Federicoll, PoliMI); on the other hand, that of optimising the conditions of use, including the definition of the admissible number of visitors and the improvement of their "well-being" (UniBO). The results will be achieved through the evaluation of data from monitoring campaigns and preparatory studies, already available in the literature.

T3.3 –Definition of strategies for heritage enhancement (macro-set); assessment of possible measures aimed to reduction of

epidemic risk (control of viral factors) [months: 17-22]

Task Leader: UniBO

Partecipants: PoliMI, Federicoll

Task of definition of the general enhancement strategies (setting up Heritage Communities and networks of volunteers for the subsequent management of the monitoring and warning systems), on the basis of best cases of nationwide heritage valorisation both in Italy (Cultural Districts; promotion of heritage on the basis of interaction with local communities...) and abroad (Heritage Communities in Spain and Germany; French proximity communities...). In this phase, and in relation to the evolution of the pandemic crisis, it will be evaluated how to include in the research the results of the current experimental phase concerning epidemic risk reduction strategies in the Heritage sector (FISR 2020 - CapsulART-2021, Enhancing Preservation and Health in Artistic and Cultural Sites During Pandemic Event).

WP 4 Dissemination of results

Lead beneficiaries: UniBo, PoliMI, Federicoll

Title of Work Package: Dissemination of results

Months: 3-36

Goals: WP4 will disseminate the results achieved by the project through the involvement of the officials of the territorial Soprintendenze, of the bodies and centres to which the case studies belong, the publication of papers, the organisation of scientific meetings; and the participation in thematic events on the topics dealt with during the project.

T4.1 – Awareness-raising activities of bodies entrusted with heritage protection and management [months: 3-4;12-13;25-36]

Task Leader: UniBO

Partecipants: PoliMI, Federicoll

Task for the awareness-raising activities of Soprintendenze, Museum Centers, Dioceses and Local Authorities owning or involved in the management of the properties. The results will be achieved through the involvement of the officials of the Soprintendenze in the processes of knowledge and data analysis, as well as the staff of the other Bodies listed above.

T4.2 – Publication of papers in scientific journals and organisation of exhibitions [months: 14-15;24-36]

Task Leader: PoliMI

Partecipants: UniBO, Federicoll

Task for writing and publishing scientific papers on the collected data and outputs of the project, and organising travelling exhibitions. Results achieved through the publication of at least 6 scientific papers in Scopus or Web Of Science indexed journals and the setting up of exhibitions in the sites involved in the project.

T4.3 – Organisation of scientific meetings and outreach activities [months: 3-4;12-13;25-36]

Task Leader: Federicoll

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Partecipants: UniBO, PoliMI

This task will organise scientific meetings related to the project and dissemination activities of it on specialised websites on cultural heritage. Results will be achieved through the organisation of seminars, conferences and online communication activities.