Scientific Research & Creativity: the Best Practice for New Life of Cultural Heritage

COORDINATED BY
CNR-ISPC

The material knowledge, together with the documentation, constitutes a fundamental step in the knowledge of techniques and the craftsmanship 'wisdom' that has brought these artifacts to the present day.
This is achieved through targeted diagnosis using advanced instrumentation designed to provide precise answers. The facilities offered by CNR-ISPC range from non-invasive and micro-invasive portable instrumentations to laboratory instruments and access to the facilities of the E-RIHS infrastructure. The integration of the information is useful to realize the desired knowledge scenario of a heritage asset which can carry out to the physical reconstruction besides the virtual reconstruction. The knowledge gathered can also lead to the discovery of restoration techniques used in the past, ancient restoration, which is not only an insight for the Heritage Science, but also represent a clue for a reasoned reconstruction of the asset.
The information collected constitutes a 'context-consistent' dataset on which to train specific AI algorithms for virtual reconstruction, the prediction of deterioration process, an essential step to achieve reconstruction, first virtual then physical, in synergy with art historians and archaeologists who can support, through their studies, different intervention hypotheses and compare them in a broader scenario. The need, to provide tools and objective elements for accurate reconstruction, is most keenly felt where degradation events, natural or anthropic of various kinds, no longer allow an integral reading of the artifact.

The combination of methodologies and techniques belonging to the hard sciences with those peculiar to the humanities thus represent, particularly for the field of archaeology and architecture, an innovation with respect to traditional practices thanks to the use of Computer Graphics methodologies, both 2D and 3D.

Virtual Restoration, thus defined, can be an opportunity for study, often art works cannot be restored, either due to technical problems or lack of resources. In digital everything is possible, through digital elaborations carried out with Computer Graphics programmes it is possible to recreate in print portions of the artifact or additions that are coherent and compatible with the context both from a material and stylistic and art historical point of view.
In any case, the principle followed will be that restoration, whether virtual or physical, and conservation are two disciplines whose aim is to seek the best compromise between the need to transmit the cultural heritage to future generations and to conserve it in a sustainable manner.
WP objectives are articulated synergistically with WPs:

- The process of knowledge, both material and artistic, is a symbiotic path between the disciplines of hard sciences and humanities. The importance of this synergy is at the heart of a virtuous cycle of research for sustainable regeneration;
- Technology transfer through

Computer Graphics systems and tools is an open challenge that must follow an evolutionary process with the support/contribution of different disciplines, only a 360° systemic approach allows the triggering of a virtuous process. AI can be the 'fuel' that semi-automatically feeds the virtuous mechanism by inspiring a natural evolutionary learning process;

• Critical issues for the regeneration and/or reconstruction of an asset, whether by virtual or physical means, must be analyzed and studied already in the design of the diagnostics and documentation activities, which form a common thread throughout the entire process.

3D photogrammetric model. Sculpture of a boy holding a hare (inv. no. 6533). Fountain ornament from Pompeii. National Archaeological Museum, Naples. (CNR-ISPC)

ORGANIZATION OF TASKS

T4.1 Best practices and guidelines for conservation.

• Definition of the criteria for the design of the diagnostics and monitoring activities on cultural heritage asset for the selected case studies (in connection with WP3). The selection of case studies was established in collaboration with restorers and it brought to the selection of representative materials and conservation issues (potential outputs for WP5),

• Definition of best practices and guidelines for the design of restoration works and their executions (potential outputs for WP5),

• Definition of criteria and processes for sustainable restoration. The concept of sustainability is necessarily broadened to include aspects of compatibility with previous restoration works and with the original materials (potential outputs for WP5).

T4.2 AI as a bridge between research and creative industry

• Development of tools that from diagnostic data and art historical archaeological knowledge "teach" artificial intelligence algorithms how to develop or improve restoration and maintenance works (in connection with WP2, WP5 and WP6).

T4.3 Digital fruition

• virtual technologies for museums and art collections and other heritage contexts for sharing with different targets.

Definition of best practices and guidelines for proper and effective dissemination of target-differentiated content (IBRIDA exhibition).

Modeling and experimentation at the Center's sites to activate diversified technology transfer pathways (in connection with WP2, WP5 and WP6).

DELIVERABLES

D4.1 guidelines for the implementation of a diagnostic and monitoring project, (Report)

D4.2 guidelines for implementing a regeneration project: from virtual restoration to physical restoration (Report),

D4.3 AI as a process optimization tool based on Computer Graphics methodologies for returning a compatible and sustainable 'intervention' (Report, Demo),

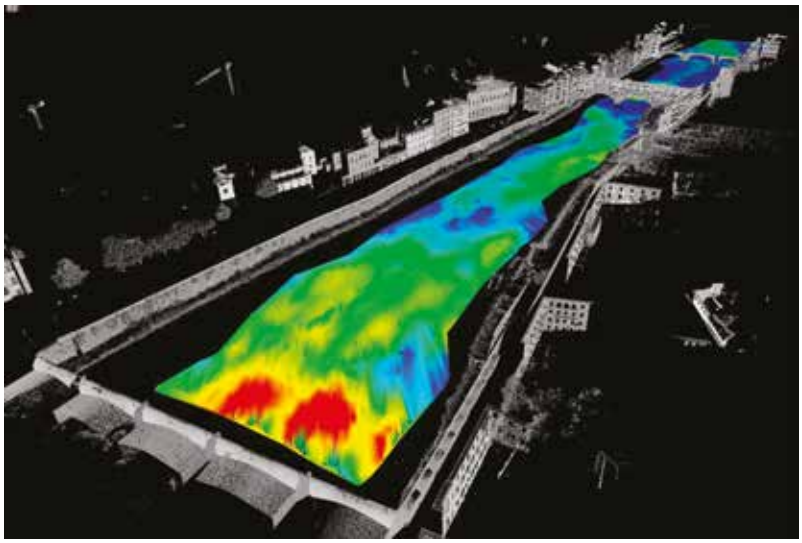
D4.4 definition of criteria, best practices and lines for conscious and consistent transfer to the creative industry sector (Report, Demo).

CASE STUDIES

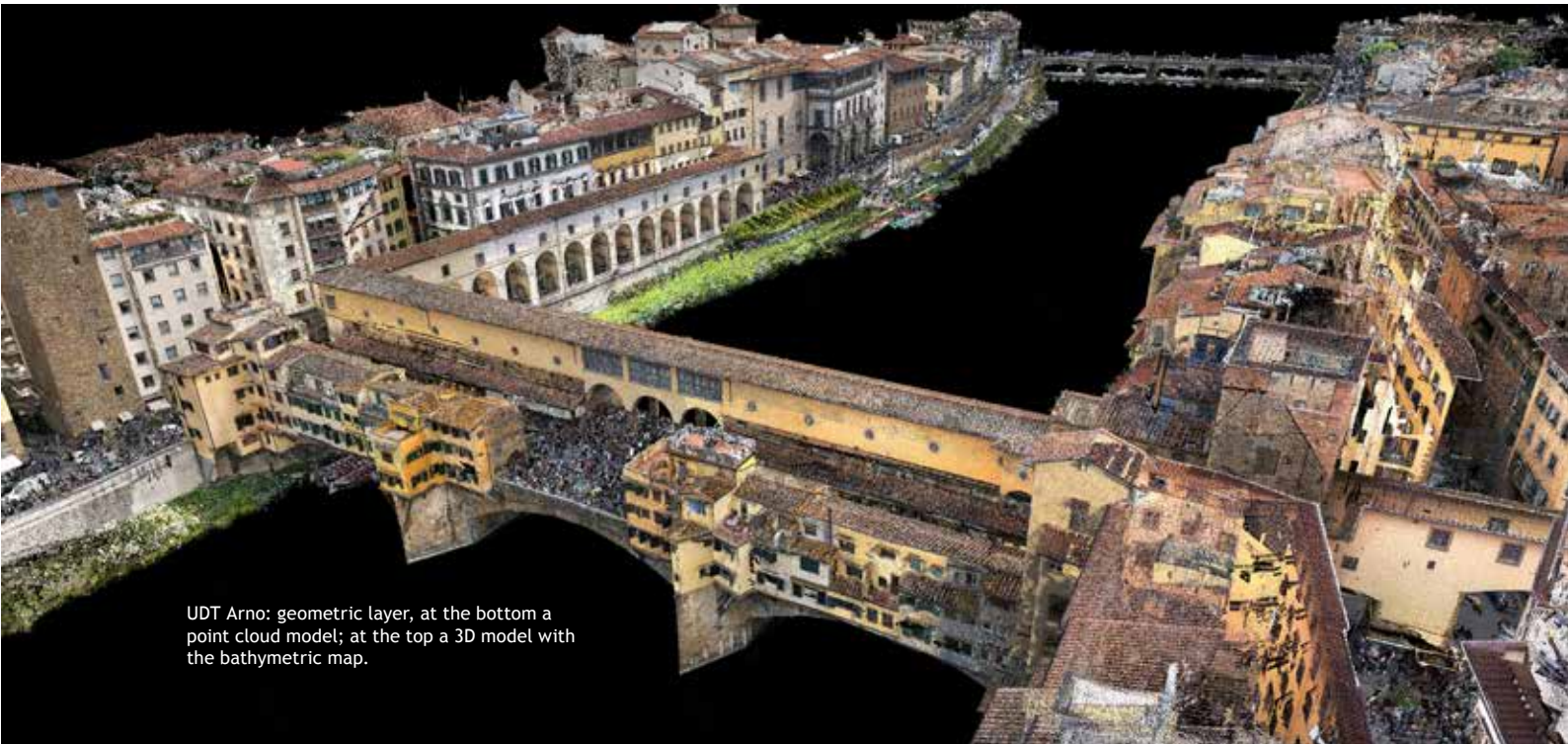
Protecting the Arno River and its Historic Urban Landscape from Climate Risks

By GeCo Lab

The historic centre of Florence, crossed by the Arno River and immersed in its landscape context, has remained virtually unchanged over the centuries, so much so that it was recognised as a UNESCO World Heritage Site as early as 1982. The awareness of the intimate relationship between landscape and architecture, between the river and the city, combined with the preservation of traditional building materials and techniques, has made it possible to preserve fundamental values such as integrity and authenticity. In recent years, however, the intensification of extreme weather events, the rapid deterioration of materials and infrastructure, and the growing impact of mass tourism have highlighted the need for advanced systems to monitor and manage urban environmental risks. In this context, the concept of the digital twin is emerging as an innovative technological solution: a dynamic, updatable digital model that can faithfully reproduce a physical environment, enabling real-time monitoring, predictive analysis and long-term risk mitigation strategies.



The Arno River, together with its infrastructure and the urban fabric that surrounds it, is an ideal case study for exploring the potential of the Urban Digital Twin, a tool that enables assessments and simulations at both architectural and urban scales



UDT Arno: geometric layer, at the bottom a point cloud model; at the top a 3D model with the bathymetric map.

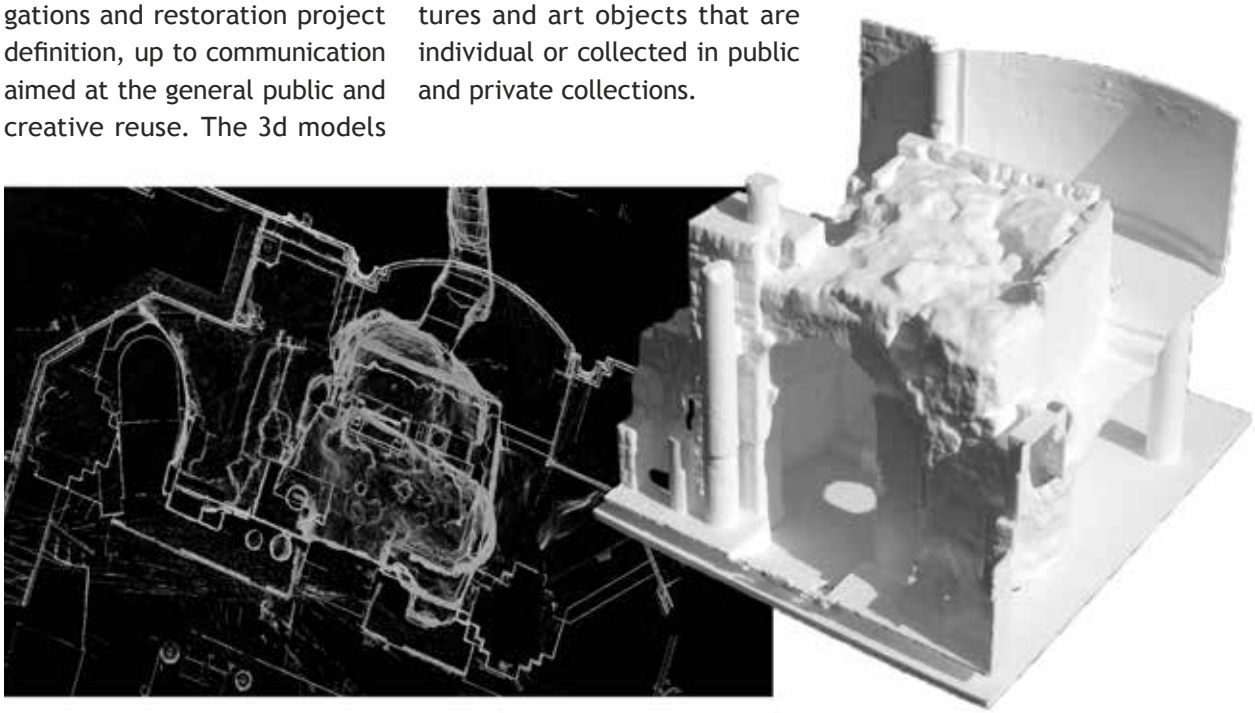
DIGITIZING MEMORY FOR LOOKING INTO THE FUTURE

COORDINATED BY
UNIVERSITY OF FLORENCE

The acquisition, processing and management of three-dimensional spatial data are key aspects of the knowledge journey and thus the domains of documentation and preservation of tangible cultural heritage. Methods and techniques specific to geomatics are now commonly used tools for documenting cultural heritage. The different types of spatial models obtained (point clouds, 3D models, H-BIM...) are used throughout the conservation cycle, to deepen knowledge and support diagnostic investigations, as models for structural investigations and restoration project definition, up to communication aimed at the general public and creative reuse. The 3d models thus created provide a kind of digital twin of reality: this concept constitutes the contemporary and technologically up-to-date declination of the "Open System of Knowledge" and, as such, for its creation requires a very diverse range of data, quantitative and qualitative, geometric and thematic, to be obtained and investigated in order to produce accurate, comprehensive and reliable digital representation. The classes of artifacts considered will be both archaeological and built heritage sites (buildings, settlements, etc.) and ancient and contemporary sculptures and art objects that are individual or collected in public and private collections.

The quality of the proposal offered resides:

- *in developing workflows appropriate for assets of different sizes and characteristics and also sustainable in critical scenarios such as assets at risk, emergency relief, developing countries, etc. (in conjunction with WP3);*
- *in the preparation and dissemination of best practices for data processing and 3D modeling, including those aimed at visualization in extended reality and physical reproduction contexts (in conjunction with WP3, WP4 and WP6);*



From the point cloud model to the physical replica: Nazareth, the Church of the Annunciation. Courtesy GeCo Lab

From the point cloud to the digital surface, structured into articulated semantic levels. Jerusalem, the Aedicule of the Holy Sepulchre. Courtesy GeCo Lab

- *in experimenting with artificial intelligence systems for semantic segmentation and georeferencing of information according to GIS, BIM, Digital Twin, etc. paradigms;*
- *In the transposition of the most up-to-date research activities to high-level training (in connection with WP5).*

WP2 activities will be divided into the following tasks:

T 2.1 DEFINITION OF WORKFLOWS FOR THE DIFFERENT SCENARIOS ENVISAGED AND AT DIFFERENT SCALES.

- *Evaluation and description of workflows articulated by technologies and methods,*
- *implementation and description of data acquisition and processing processes, with special attention to metadata for transmissibility and retraceability of the processes themselves;*
- *Drafting guidelines for training.*
- *design and implementation of aids for communication and teaching of the workflows already mentioned.*

T2.2 INTEGRATION OF MULTI-RESOLUTION AND MULTI-SENSOR DATA.

- *Development and evaluation of possible workflows for the integration of multi-sensor and multi-resolution data in hazard-prone areas,*
- *Criticality assessment/integration of heterogeneous data acquired multi-sensor, multi-scale, multi-resolution,*
- *Design and implementation of test areas in which to carry out and repeat acquisitions over time.*

T 2.3 IMPLEMENTATION OF DIGITAL MODELS

- *Evaluation of the most efficient methods of information management of the built heritage using digital models,*
- *Definition of protocols for the implementation of digital models for the purposes of restoration and management and enhancement,*

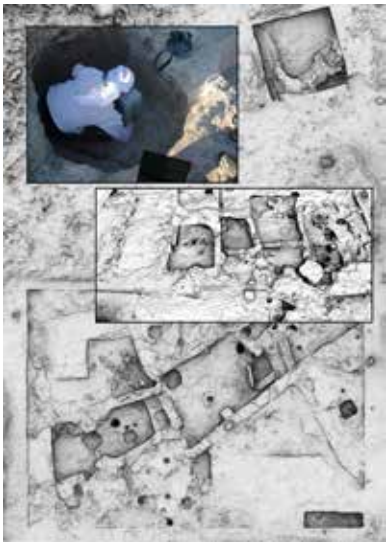
T 2.4 APPLICATION OF ARTIFICIAL INTELLIGENCE TECHNIQUES FOR SEMANTIC ENRICHMENT OF MODELS,

- *Evaluation on the appropriateness/methods of using artificial intelligence techniques in the different scenarios envisaged,*
- *Drafting of guidelines on the use of artificial intelligence techniques for cultural heritage storytelling and enhancement*

DELIVERABLES

D 2.1 report to illustrate the guidelines and workflows optimized during the project
D 2.2 report on the integration of different sensors
D 2.3 repository of digital models of the various case studies considered (historical buildings, archaeological areas, objects) for both experimental (for Research Center activities) and demonstrative (for Higher Education activities) purposes predominantly identified in the extended Mediterranean area
D 2.4 dataset of semantically classified point models based on i.a. systems.

The surface model of the archaeological excavation, Erimi Archaeological Project, Cyprus. Courtesy GeCo Lab



Digital Creativity and Artificial Intelligence

Coordinated by the Accademia di Belle Arti of Carrara

The project aims to bridge the past, contemporary artistic creativity, and heritage preservation. While digital technology initially seemed to promote dematerialization and virtualization in art, recent years have seen a growing convergence between the physical and digital realms, cultural heritage and technological innovation, as well as new technologies and sensory perception.

This convergence has been enabled by advancements that facilitate the material translation of digital designs.

At the same time, interactive simulations and virtual realities increasingly draw upon the expertise traditionally associated with the fine arts—such as painting, sculpture, and design—rather than relying solely on programming and data processing to achieve high-quality results.

The strength of this proposal lies in the ongoing research and educational activities at ABA CARRARA, which establish a bridge between its renowned Sculpture School—whose centuries-old experimental tradition continues to define both the city and the Academy—and the School of New Technologies of Art, Italy's first of its kind and one of the most highly regarded nationally.

The availability of advanced equipment for digital acquisition and physical reproduction allows for the hybridization of knowledge, cultures, and techniques from sculpture and digital arts. Applications range from artistic production (sculpture, design, multimedia installations, virtual reality) to cultural heritage conservation and restoration, as well as digital modeling, animation, and the video game industry.

T 6.1 DIGITAL EXHIBITION

The conceptualization of an exhibition will showcase the fragility of cultural heritage through the digitization of *Le Ore Danzanti*, the invaluable plaster model of Carlo Finelli's neoclassical masterpiece.

Finelli, a leading neoclassical sculptor, destroyed many of his plaster studies towards the end of his life, making *Le Ore Danzanti* a rare and fragile work.

This model now serves as a reference for conserving the marble sculpture housed at the Hermitage Museum in St. Petersburg.

The exhibition will highlight the passage of time and the role of digitization in preserving cultural heritage. Integrating contemporary art, new media art, and communication disciplines, it will create a dynamic interplay of words flowing in multiple directions within a virtual architectural space. This approach will encourage reflection on the meaning of the CHEDAR acronym.

T 6.2 THE CHEDAR METAVERSE: PLACES OF MEMORY

This task involves designing and developing a shared virtual environment hosted on established digital platforms. The visual metaphor will resemble a galaxy of interconnected "places of memory," forming a hypertextual network of evolving knowledge islands that reflect the diversity of expressions and experiences explored within the project.

The virtual exhibition space will serve as a digital scenography populated with artworks, rhetorical figures, and elements that are not merely digital replicas of physical artifacts but also subjects of study and restoration. It will feature abstract landscapes, words, and symbols, serving as points of convergence between cultural heritage (architectural sites and traditions) and the beauty of nature.

Through virtual reality, this space can be explored freely across space and time at the speed of thought, embodying the conceptual framework of places of memory as envisioned in this project.

T 6.3 PHYGITAL EXPERIENCE

The CHEDAR Metaverse is not meant to remain a self-contained digital space. Instead, it will be extended through phygital experiences, where digital and physical realities intertwine.

On specific occasions, the metaverse experience will be expanded into physical memory spaces within architectural and museum environments.

Additionally, by leveraging wearable technologies, it will facilitate in-person encounters that seamlessly blend digital enhancements with real-world interactions. These setups will enable participants to benefit from the advantages of digital overlays while preserving the irreplaceable intensity of face-to-face human communication.

A New Generation of Multidisciplinary Experts for Cultural Heritage Challenges

COORDINATED BY
UNIVERSITY OF FLORENCE

Education, dissemination of Italian restoration culture, and technology transfer of skills to the countries of the extended Mediterranean are central goals of the project.

The quality of the proposal offered resides:

- In the selection of highly qualified faculty in the topics of digitization of cultural heritage, research, management and restoration of cultural heritage, and physical and virtual reconstruction for use and enhancement. These research and operational directions are well rooted in the scientific activities and training paths of the co-proposing institutions (degree courses, PhDs, Level I and II Masters, Postgraduate Schools, Higher Education Courses, etc.);
- In continuity with the scientific activities envisaged by the project and developed in WP2, WP3 and WP4. This ensures on the one hand the updating of scientific content, and on the other hand the application to the specifics of case studies characteristic of the areas of the extended Mediterranean. Higher education activities will be framed in distinct tracks in terms of duration, themes and target audience:
- Postgraduate courses (master's degree recognized by the University of Florence);
- Summer/winter schools, aimed at students and graduates.

Teachers will be designated by all co-proposing institutions based on course content.

Management and administration activities of WP5 educational initiatives will be coordinated by WP1, as described in T1.3.

Courtesy GeCo Lab

The Chedar WP5 consists of the following tasks:

T 5.1 MASTER

- Educational programming,
- Operational management of teaching,
- Monitoring the Quality of Teaching

T 5.2 SUMMER/WINTER SCHOOL

- Educational programming,
- Operational management of teaching,
- Monitoring the Quality of Teaching

T 5.3 EVALUATION OF THE TRAINING COURSE

- Assessment of management coordination,
- Evaluation of the training content achieved,
- Evaluations of possible corrective actions for the continuation of activities,
- Final report

DELIVERABLES

D 5.1 curriculum,
D 5.2 summer/winter school educational programs,
D 5.3 student assessment analysis report

COMMUNICATION AND OUTREACH

LEAD PARTNER ISTITUTO SUPERIORE PER LE INDUSTRIE ARTISTICHE DI FIRENZE

T 7.1: DEVELOPMENT OF A COMMUNICATION PLAN

Currently, a strategic communication plan is being created. This involves defining clear objectives, engaging specific stakeholders, and selecting the scientific and educational content to share. Once the strategy is established, it will be crucial to implement the planned actions by choosing the most suitable tools and measures. Finally, it will be important to define a system for evaluating the effectiveness of the approaches and tools used.

T 7.2: CREATION OF A DESIGN SYSTEM KIT

Work is underway to create a Design System Kit, a tool that will provide the project with a coherent and recognizable visual identity. This is not just a style guide; it will be a dynamic digital kit suitable for various forms of communication, both physical and digital. This system will follow a strict syntax but will also be flexible enough to adapt to different communication and interaction needs.

T 7.3: CREATION OF A WIKI REPOSITORY

Additionally, there is ongoing design and development for a shared online environment where users can freely input information related to the project. It is expected that each piece of information will include bidirectional links to create a map of relationships and interconnections.
The goal will be to provide new interpretative and educational models. By using machine learning techniques, the system can highlight aggregations and connections, thus creating a dynamic archive of interdisciplinary knowledge and contributing to the formation of a visual metaverse.

T 7.4: DEVELOPMENT OF AN OUTREACH PLAN

The results to be shared, which may include knowledge, skills, and experiences gained through the activities of the Research and Advanced Training Center, require effective strategies for dissemination to various audiences in order to establish indicators for assessing the real impact of the activities. This process will help measure the results achieved and formulate recommendations for the future.

T 7.5: IMPLEMENTATION OF ENGAGEMENT INITIATIVES

Given the premises outlined above, this further phase involves implementing initiatives aimed at informing and engaging various stakeholders, such as the scientific community, institutions, stakeholders, citizens, schools, and the media. Periodic events related to the project will be organized, including kickoff meetings, intermediate workshops, and annual conferences. Additionally, partners will participate in national and international industry events, such as conferences and seminars. It will therefore be essential to continue publishing results in open access journals to ensure adequate dissemination within the scientific community. At the same time, more accessible publications will be aimed at a wider audience. There will also be efforts to promote advanced training offerings, such as master's programs, to attract participants from various countries.Furthermore, there will be active involvement of schools through training activities based on multidisciplinary approaches, supported by educational materials developed in pilot projects. Awareness-raising activities directed at institutions and decision-makers will aim to channel resources toward training professionals suited for digital transformation.

www.chedarproject.org website map

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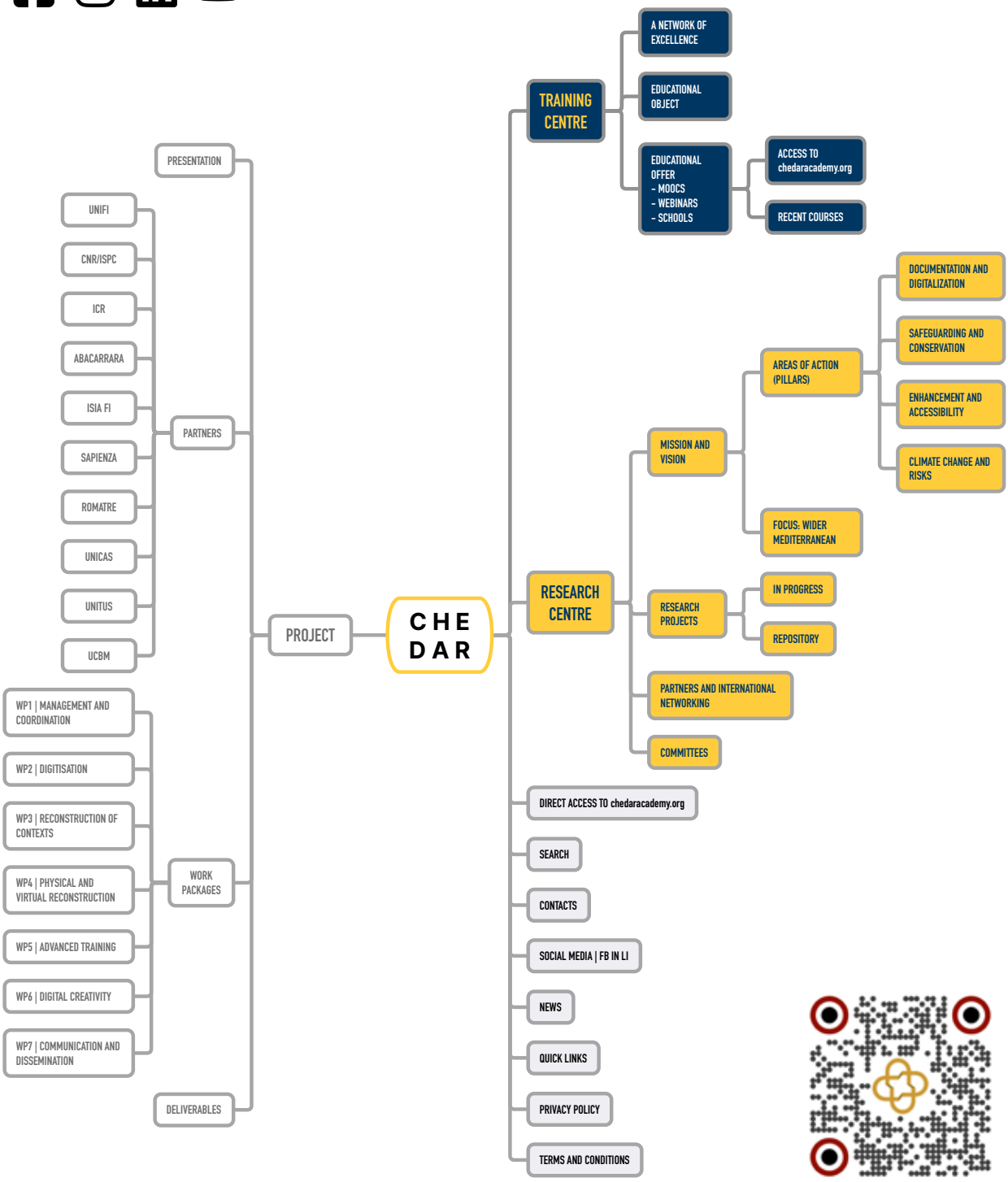

CHEDAR PARTNERS

UNIVERSITÀ DEGLI STUDI FIRENZE

The University of Florence, whose origins date back to 1321, is today one of Italy's leading institutions for research and education quality. With 1,800 faculty members, more than 1,600 researchers, and 21 departments, it ranks among the most productive public research universities in the country, active across all major scientific fields.
The University promotes innovation through patents, spin-offs, and partnerships with industry, supported by its Research Enhancement Center. Strongly oriented toward internationalization, the University of Florence is a member of the EUniWell consortium, has over 500 agreements in around 100 countries, offers numerous courses in English, and runs joint degree programs. Each year, it welcomes more than 4,000 international students and over 1,000 Erasmus students.
The University is also home to centers of excellence such as LENS (European Laboratory for Non-Linear Spectroscopy) and CERM (Magnetic Resonance Center). Since 2018, it has held the HR Excellence in Research Award, reflecting its commitment to high-level research integrated into the European and global landscape.
It leads the CHEDAR project. Directed by Professor Grazia Tucci, the Center serves as an international hub for innovation through the integration of advanced technologies with particular attention to climate and anthropogenic risks in the broader Mediterranean area.

ISTITUTO CENTRALE PER IL RESTAURO

The Central Institute for Restoration (ICR) is a technical body of the Ministry of Culture specialised in the restoration and conservation of cultural heritage. Since 2014, it has been part of the General Directorate for Education and Research and is a permanent member of the ICCROM General Council.
It participates in European Commission projects and collaborates with the UNESCO World Heritage Committee, acting as a key interlocutor on conservation policies and strategies. ICR hosts the School of Higher Education (SAF), responsible for training future restorers in accordance with the Cultural Heritage and Landscape Code. The Institute maintains the theoretical and methodological approach of Cesare Brandi, while integrating innovative research, training and restoration, ensuring a constant exchange between theory and practice.
The Institute brings together art historians, architects, archaeologists, physicists, chemists, biologists and restorers specialising in various materials, including paintings, textiles, paper, metals, ceramics, stone, wood and leather. Interdisciplinarity is at the heart of the ICR's philosophy, encouraging collaboration between experts to refine restoration techniques, applying the latest scientific advances, particularly in non-destructive testing and technological innovation, to safeguard cultural heritage for future generations.

The Academy of Fine Arts of Carrara, founded in 1769, is one of Italy's oldest and most prestigious artistic institutions. It has a rich tradition of artistic education, nurturing generations of artists and sculptors who contribute to the nation's cultural heritage. The Academy offers diverse programs across 10 schools, including Sculpture, Painting, Set Design, Cinema, Photography, Audiovisual, Decoration, Design, Art Education, Comics and Illustration, Art Graphics, and New Art Technologies. Located in Carrara and surrounded by the Apuan Alps, the Academy's historic building features frescoed halls and inspiring spaces.

It encompasses five campuses equipped with cutting-edge laboratories, fostering a cosmopolitan environment with students from 42 countries. Each program is designed to provide a strong theoretical and practical foundation, emphasizing innovation and artistic experimentation.

The Academy has historically hosted a distinguished faculty, including names like Bartolini, Cybei, Bodini, Desmarais, Prayer, Pelliccia, Gangeri, Baratta, and more recently, Munari, Alviani, Fabro, and Mari. Since its inception, it has also appointed Honorary Academicians, among whom are historical figures like Napoleon Bonaparte, Antonio Canova, and John Flaxman. It maintains a close connection to the region's marble-working tradition, offering students access to workshops and inspiration from Carrara's famous marble quarries. Additionally, it was the first institution in Italy to offer a course in New Art Technologies, establishing it as a leader in digital and multimedia arts education.

ISIA *Firenze*

The Istituto Superiore per le Industrie Artistiche di Firenze (ISIA) is a public university institute within the AFAM sector, dedicated to education, research, and experimentation in Design. Founded in 1975, its educational offerings include three-year courses, specialized two-year programs, master's degrees, and post-diploma courses aimed at training designers who can tackle contemporary challenges. To maximize direct interaction between students and faculty, access to courses is regulated through admission tests. With a well-established teaching model, ISIA offers a theoretical-practical approach characterized by laboratory experiences and instruction from industry experts. Classes are supplemented by lectures and workshops led by recognized professionals. A distinctive feature of ISIA is the development of applied research projects through its labs, where students and faculty collaborate on social and economic issues. Currently active labs include Urban Lab, Health, Mars, AI, and Hyde. ISIA Florence also participates in the "Joint Doctorate in Service Design for the Public Sector" in collaboration with various Italian universities. It is a founding member of the "Politecnico delle Arti e del Design di Firenze," a new interdisciplinary educational hub that brings together ISIA, the Music Conservatory "Luigi Cherubini," and the Academy of Fine Arts. Through established partnerships with companies and institutions, the hub aims to pave the way for innovative and highly multidisciplinary training in the national artistic landscape.

UNIVERSITÀ DEGLI STUDI DELLA TUSCIA

Forty-three years after its foundation, the University of Tuscia remains one of the youngest, most dynamic and flexible institutions on the national academic scene.

Despite its relative youth, it has continuously grown and evolved, standing out for its capacity for innovation, adaptability, and excellence.

The commitment of its administrative, technical, and scientific community has ensured a steady balance of successful initiatives and tangible achievements.

The University of Viterbo integrates its core functions—scientific research, teaching, and training—with third mission activities, ensuring a strong connection with society, industry, and institutions. These objectives are pursued through six departments, restructured under Law 240/2010 for greater efficiency and interdisciplinarity.

The administrative framework is constantly being refined to streamline bureaucratic processes, and improve both research output and user experience for students and faculty engaging with university services.

In recent years, the university has grown, expanding academic programs, increasing high-impact research publications, and launching national and international R&D projects. At the same time, recruitment efforts have focused on attracting highly qualified young researchers and administrators, strengthening the university's ability to tackle contemporary challenges and maintain its position as a key player in the global academic landscape.

UNIVERSITÀ DEGLI STUDI DI CASSINO E DEL LAZIO MERIDIONALE

The University of Cassino and Lazio Meridionale, founded in 1979, currently has about 250 faculty members and 250 administrative staff, serving approximately 7,500 students. Its small size fosters direct and continuous interaction between faculty and students throughout their academic journey, encouraging active participation in laboratories, libraries, and teaching facilities, and promoting a highly personalized learning experience.

Institutional activities—teaching, research, and the "third mission"—are structured within five departments, covering a broad and interconnected range of scientific and interdisciplinary fields. The university offers 30 bachelor's and master's degree programs, three PhD programs, and several specialized master's degrees, ensuring a diverse and comprehensive educational experience that meets both academic and professional demands.

Research is supported by nearly 60 highly specialized laboratories, enabling the development of cutting-edge projects in collaboration with national and international partners. These facilities also provide technological consulting and applied research solutions for institutions and industries. University plays a pivotal role in the regional industrial, cultural, and socio-economic landscape, fostering knowledge transfer and innovation through numerous research collaborations, third-party agreements, patents, and spin-offs.

Sapienza Università di Roma

Founded in 1303, Sapienza is the oldest university in Rome, the largest in Europe, with over 120,000 students and Italian University number 1 in world rankings. Its mission is to contribute to the development of the knowledge society through research, excellence and quality education and international cooperation. The main world university rankings place the University at the top in Italy for the quality of its research and teaching and for its international dimension. Sapienza's educational offering include 300 bachelor's and master's programs, over 60 in English, 200 master's degrees, more than 90 doctoral programs, and 80 graduate schools. Sapienza is organized into 11 faculties, a school of advanced studies, a postgraduate school of aerospace engineering, 58 departments, as well as numerous research and service centers, 48 libraries, the Sapienza Museum Complex with its 18 museums, the Sapienza Sport Center, the Sapienza Music orchestras and choirs, the Theatron project, and RadioSapienza web radio. The student body includes more than 30 thousand out-of-state students, 10,000 international students and more than 2,200 students per year on international mobility. Sapienza is a founding promoting partner of the Lazio Cultural Technology District Center of Excellence DTC Lazio and a promoting entity within the PNRR of the Extended Partnership on Humanistic Culture and Cultural Heritage CHANGES and the innovation ecosystem Rome Technopole.

Roma Tre

Roma Tre University was established in 1992 and has since become a key reference point in the national and international academic landscape, thanks to its high-quality teaching programmes and research excellence.

The University has 13 departments, including Architecture, Business Economics, Civil, Computer Science and Aeronautical Technologies Engineering, Economics, Education Science, Foreign Languages, Literatures and Cultures, Humanities, Industrial, Electronic and Mechanical Engineering, Law, Mathematics and Physics, Philosophy, Communication and Performing Arts, Political Science, and Science. Additionally, Roma Tre boasts a vibrant academic community with 996 faculty members and 751 non-academic staff, supporting a student body of over 35.000 students.

Roma Tre has cultivated a reputation as a dynamic and forward-thinking institution, offering a broad spectrum of academic programmes. It provides 113 degree courses, including 33 Bachelor's programmes (first cycle), 53 Master's and single-cycle programmes (second cycle), and 27 PhD programmes (third cycle). This has led, step by step, to the successful recognition of Roma Tre at the international level as well. The University is a member of, among others: UNICA Network (Universities of European Capitals) ; UNISCAPE (European Network of Universities for the Implementation of the European Landscape Convention) ; EUA (European University Association).

CNR is the largest public research body under the Ministry of Education, University and Research, conducts interdisciplinary research and promotes European and international collaboration.
As a key stakeholder in EU projects, CNR has participated in more than 700 H2020-funded initiatives and is an active member of the association of European Heads of the Research Councils (EuroHORCs) , the European Science Foundation (ESF) and Science Europe (SE). Since its reform in 1963, CNR has focused on social sciences, humanities, and cultural heritage.
Today, these disciplines are concentrated in the Department of Social Sciences and Humanities, Cultural Heritage (DSU-CNR).
The Institute of Cultural Heritage Sciences (ISPC), part of DSU-CNR, leads interdisciplinary research and contributes to CHEDAR, promoting heritage-based innovation. With over 180 researchers, ISPC develops innovative approaches to studying, preserving, and enhancing cultural heritage, focusing on three key themes: Human Past, Heritage at risk, and Sustainable Management. ISPC collaborates with universities, research consortia, and national and international programs. It plays a leading role in SSH Research Infrastructures such as E-RIHS and DARIAH , supports higher education, and fosters training initiatives for post-doctoral and doctoral students.

University institute dedicated to undergraduate and postgraduate education and advanced research. Established in 1992, today the university operates the School of Medicine and Surgery, the School of Engineering, the School of Science and Technology for Sustainable Development and One Health, and 4 doctoral programs. In Italy, UCBM has been systematically ranked at the top for the quality of education provided to a selected group of students. In addition, the University hosts 50 multidisciplinary Research Units. Annual scientific production is constantly and rapidly increasing, exceeding 900 articles and 6,000 ISI cumulative impact factors in 2023, along with a growing amount of research funding raised from competitive sources in Italy, Europe, and worldwide. The current UCBM has more than 80 active projects and a high success rate of projects carried out in collaboration with companies. Technology transfer activities are rapidly growing with approx. 30 ongoing research projects with large companies and SMEs, 21 patent families (of which 12 co-owned) in areas like rehabilitation engineering, microengineering, regenerative medicine, biomedical instrumentation, oncology diagnostics, and food analysis, and 8 spin-off companies accredited by the University since 2015. An outstanding network of key national and international scientific and academic partners, with over 200 collaborations, has been continuously developed and strengthened over the years through specific cooperation agreements.