

INTERNATIONAL SYMPOSIUM

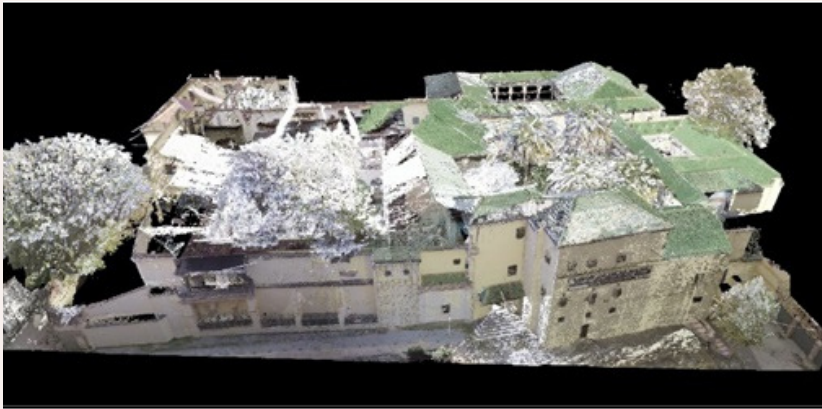
The Advanced Technologies for the Valorization and tourism Development of Cultural and Natural Heritage in Risk-Prone Territories

12 -13 May 2025 Constantine, Algeria (hybrid Mode)

Heritage and identities in an era of cultural globalization.

"Pertinence d'un regard introspectif savant pour le réquisitoire de la mémoire des territoires et des lieux"

There is every reason to believe that heritage is often associated with a country's national identity. A building, a natural site or a work of fine art obviously bear witness to the skills of human beings, giving it a universal dimension. However, its value and importance are even greater at a local level, where the cultural traits and symbolism that emanate from the work/site are better understood by local people (Anna Pirri Valentini, 2021). This consideration is illustrated by the general guidelines of the national policy, which aim to establish dynamic operating methods for governance and even territorial governance. The aim is to control the preservation and development of these assets, which are often subject to natural and man-made risks (Ebru Birinci et al., 2023).



Human history teaches us that territories are built up slowly, according to specific orders of sociological, economic and cultural change. This process generates traditional assets and triggers a continuous accumulation of a sense of belonging to the past (Choay 2009). This adherence to a collective memory and to the references imposed by the experience of a community brings us back to the balance of power between yesterday's man and today's man. And if "in each of us, in varying proportions, there is some of the man of yesterday; [it seems that] it is even the man of yesterday who, by the force of things, is predominant in us" (Durkheim 1938).

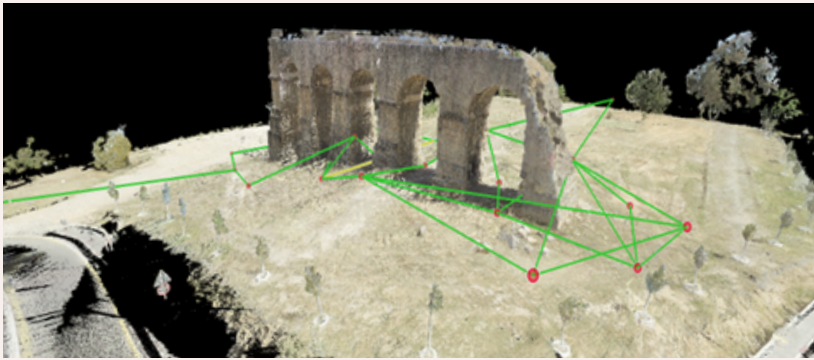
However, the challenges posed by the quest for development and the issues of the modern world frequently erode these traces, these identifying landmarks and this natural material.

Heritage sites and natural environments have been buried, abandoned and untended for thousands of years. As a result, they are exposed to a number of risks, both man-made and natural (Aysun Topaloğlu Uzunel., 2023). ICCROM has reported on the damage caused by the 2015 earthquake in Nepal. From the Dharhara Tower, to the UNESCO-listed Durbar Square, via the Swayambhunath Stupa; the earthquake wiped out a major chapter in Nepal's heritage. A feeling of déjà vu, since in 2003 an earthquake measuring 6.5 on the Richter scale wiped out the historic city of Bam in Iran. So much so that in the 17th century the town of Noto in Sicily was already completely destroyed by this natural phenomenon (Meng Zhu, et al 2021).



This heritage is threatened by conflict, war and looting. It is subject to intentional destruction and illicit trafficking. Interpol estimated in 2018 that 91,000 works of art and archaeological and cultural objects had been looted (Report on trafficking in cultural objects 2021), and this remains the third most lucrative form of trafficking in the world after drugs and arms. 10% of Syrian antiquities have been damaged by the war, and the six sites classified by Unesco have been placed on the list of World Heritage in Danger (La guerre en Syrie "une apocalypse culturelle" 2021). As for vandalism at the Mosul Museum, priceless objects from the Assyrian and Hellenistic periods have been ransacked (Adnan Almohamad, 2023).

Heritage also appears to be under threat from climate change, particularly in the Mediterranean region. The rise in temperatures, the variability of air humidity and groundwater levels, the frequency of floods and forest fires, as well as landslides and heatwaves. In addition, coastal erosion, rising sea levels and an increase in the number of periods of drought appear to have consequences for the stability and conservation of cultural diversity and biodiversity (Kapsomenakis et al., 2022).



Algeria has not been spared the damage to these heritage assets. The Foggara of Tindouf has been globally destroyed, so much so that its Seguias have been transformed into open-air rubbish bins (Remini 2019). The ksours and palm groves of the M'zab valley have lost their ecological balance as a result of urban pressure and urbanisation. The relentless introduction of new concrete constructions, foreign to the region, has led to the disappearance of the built heritage, rising water levels and contamination of the water table due to the botched sewage systems, as well as silting due to the disappearance of the plant cover (Bensalah et al. 2018).

On another level, the inappropriate use of certain classified sites, such as Constantine's safeguarded sector, contributes to the alteration and damage of heritage.

From speculators (trabendistes) introducing unsuitable materials to remodel their homes or commercial spaces (Boumaza, 1998), to residents deliberately destroying their homes to qualify more quickly for new social housing (Fantazi et al., 2019), Constantine's old city, like many traditional urban fabrics, appears to be deeply affected by ongoing degradation. Raising awareness about the vulnerable state of this territory highlights the need for new and advanced technologies, not only to preserve and respect historical culture but also to enhance it and promote its active use through well-defined actions aimed at fostering cultural and natural tourism.

Scientific progress must also be integrated, allowing us to envision the future and acquire new knowledge, methods, and tools. Every civilization leaves behind traces of its identity, blending the heritage of the past with a forward-looking perspective. It is essential to take action to enhance and promote our territories and their values, ensuring cultural assets are accessible to tourists.



Researchers and professionals are increasingly turning to digital solutions and advanced technologies to replace traditional methods. Technologies such as LIDAR (Light Detection and Ranging), used for remote sensing of physical objects, along with short-range photogrammetry and UAV photogrammetry techniques, are being integrated within the framework of environmental sustainability and digital reality.

3D scanning and the digital recording of buildings or sites are proving invaluable for preserving and, if necessary, restoring the original appearance of sites (Varol & Öksüz, 2024).

Digitization has extended into the fields of archiving, preservation, restoration, and the enhancement of cultural and natural heritage in high-risk environments. A notable example is the 2019 fire at Notre Dame de Paris, where restoration was made possible thanks to a scan of the historic monument recorded a few years earlier (Costantino et al., 2020).

On another level, the potential of digital technology makes heritage entities accessible to a wider audience, without temporal or geographical constraints, opening up new opportunities for knowledge, transmission, and sharing. Immersive technologies and mobile applications have enhanced multidisciplinary approaches to the sustainability of heritage sites and their tourism, incorporating tools such as Building



Information Modeling (BIM), Geographic Information Systems (GIS), Digital Twin (DT), Virtual Reality (VR), Augmented Reality (AR), Deep Learning (DL), 3D printing, and Blockchain (El-Belkasy & Shehata, 2024).



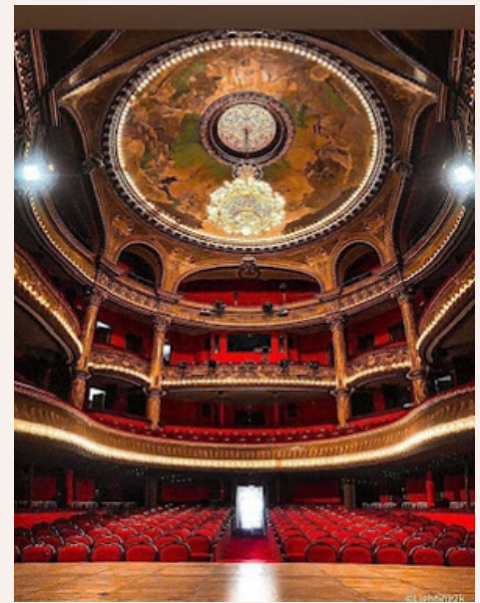
Digital technologies also contribute to strengthening the resilience of territories. On the one hand, they help protect the integrity of these sites, while on the other, they enhance their visibility and competitiveness within a globalized and increasingly interconnected tourism economy.

The conceptual framework structuring the seminar explores the potential of technological advancements in safeguarding and promoting the tourism of heritage in risk-prone territories. The objective is to develop, through a series of studies, experiences, and contributions, a research and development strategy aimed at drafting a contemporary charter for the application of advanced technologies.

This charter would not only enhance the value of heritage assets and manage the risks they face but also promote the tourism potential of cultural and natural territories.

This approach positions heritage as a strategic lever for sustainable territorial development, while ensuring respect for and protection of historical culture.

In this context, and as part of the celebration of Heritage Month by Algeria's Ministry of Culture and Arts (April 18–May 18), themed in 2024 as "Cultural Heritage and Risk Management," coinciding with the 2024 edition of the International Day for Monuments and Sites initiated by ICOMOS under the theme "Disasters and Conflicts through the Lens of the Venice Charter," the CRAT aims to launch a platform for reflection. This symposium will focus on the challenges of safeguarding cultural diversity and biodiversity and their connection to spatial planning.



In other words, our institution aspires to leverage the opportunities provided by advanced technologies to propose research avenues capable of building a strategy for safeguarding, enhancing, and promoting the tourism of cultural and natural territories. This strategy seeks to reconcile heritage valorization in risk-prone environments, tourism development, and innovation in territorial planning. The symposium will be structured around the following key themes:

Topic I: Cultural and Natural Heritage as a Lever for Sustainable Development

Topic II : The Risks Inherent in Cultural and Natural Territories

Topic III: Advanced Technologies to Enhance the Appeal and Tourism of Cultural and Natural Heritage

Topic IV: The Application of Advanced Technologies in Safeguarding and Managing Heritage-Related Risks

