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Guimarães, Portugal -- Digital guardians: A new method of data management for at-risk cultural heritage in Bavaria -- Risks and Responsibilities: The German Tendaguru Collection as Chiltural Heritage and its 3D Digitisation -- AI-Driven Analysis in Point Clouds for Archaeological Documentation -- Digital Preservation and Restoration of Historic Buildings in Agadez, Niger -- Digital Humanities and Physics Applied to the Study of Cultural Heritage Objects: the case of ex-votos -- "Fostering Community-Cultural Heritage Resilience in Post-Disaster Scenarios: Merging Hands-On Experience with Digital Technologies in the OPHERA Project" -- Digital tools for assessment and communication of historic architectural heritage restoration project: The case study of Palazzo Saladini di Rovetino in Ascoli Piceno, Italy -- Preserving and Communicating a Sudanese Heritage Site through a Digital Exhibition -- Digital Heritage Documentation for Protecting and Rebuilding Tangible Heritage in Natural Disaster and Conflict Zones -- Restoration and Digitisation of the Tarxien Stone Bowl: A Multidisciplinary Approach.

Sommario/riassunto

This open access book presents a collection of papers focusing on a range of digital technologies and their use in the protection and restoration of cultural heritage. Digital tools - from 3D scanning and photogrammetry to Heritage Building Information Modeling (HBIM), Digital Twins, and Extended Reality (XR) - are transforming the way we understand and care for tangible heritage. These technologies are applied to both record the physical form and material conditions of a site and to permit simulations of deterioration, design interventions, and careful reconstruction. A central theme of this volume is post-disaster restoration and how the scientific and technical aspects of restoration can be made accessible to a broader audience through innovative visualizations, interactive platforms and storytelling. Digital tools should not only serve experts but also allow the public to participate both on-site and remotely via the web. This book advocates a holistic approach to heritage management, combining cutting-edge technology with local knowledge, risk analysis with creative reuse, and positioning the act of restoration as a bridge connecting the past, present and future.