Session

Preserving Cultural Heritage in the Digital Age: HBIM and the Challenges of Climate Change and Innovation

Chairpersons:

Piotr Kuroczyński (Hochschule Mainz – University of Applied Sciences) - Germany

Yusuf Arayici (Northumbria University) - United Kingdom of Great Britain and Northern Ireland

Constanze Fuhrmann (German Federal Environmental Foundation) - Germany

Description and Motivation:

The Charter of Venice presents a pivotal opportunity to critically assess the preservation and documentation of cultural heritage in the digital era. With historical assets increasingly vulnerable to climate change, extreme weather events, environmental degradation, conflict, and other global challenges, innovative tools like Building Information Modelling (BIM) under the ISO 19650 standard offer promising solutions.

This session at the international conference "New Technologies and Cultural Heritage" (https://chnt.at/) delves into the transformative potential of BIM in safeguarding built cultural heritage through digitalization. Focusing on the standardization and interoperability of 3D data sets, the session invites contributions exploring BIM's role in historic preservation, documentation, and conservation.

Topics of interest include:

- Case studies of BIM applications in cultural heritage projects, preferably those addressing climate change impacts or resilience.
- Environmental monitoring and simulation using BIM for heritage preservation.
- Climate change risk assessment and adaptation strategies through BIM.
- Advanced methodologies for data acquisition and 3D modeling of historical structures.
- Integration of BIM with technologies such as laser scanning, photogrammetry, and AI for enhanced visualization and interpretation.
- Development of heritage-specific BIM databases for detailed analysis and planning and monitoring.
- Ethical and legal dimensions of digitizing cultural heritage

Participants will also explore the use of BIM for addressing the environmental impacts of climate change on heritage sites (such as information on rising sea levels, changing precipitation patterns, or extreme weather events). Special attention will be given to supporting maintenance and repair strategies, and fostering stakeholder collaboration through digital twins and ontologies.

Target Audience:

The target group for this session includes professionals, researchers, and practitioners from the fields of cultural heritage preservation, digital technology, and environmental science, with a focus on those interested in the intersection of technology and heritage. Specific groups include:

– Cultural Heritage Professionals: Conservators, restorers, heritage site managers, and curators using digital tools for preservation and documentation.

– Digital Technology Experts: BIM specialists, architects, engineers, and 3D modeling professionals working on heritage conservation projects.

– Academics and Researchers: Scholars and researchers studying heritage preservation, digital methodologies, and climate adaptation strategies.

– Environmental Scientists: Experts in climate change risk assessment, adaptation strategies, and environmental monitoring for heritage sites.

– Policymakers and Legal Experts: Professionals addressing the ethical and legal dimensions of digitizing cultural heritage and creating relevant policies.

Keywords:
HBIM, preservation, documentation, monitoring, climate change

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