Collaborative Doctoral Award

Heritage BIM: New ways of digital management for the historic built environment

Research area: Heritage Management and Building Operation & Management

University Partner
University of Reading, School of the Built Environment

Project Summary
The vision of this research is to develop an innovative digital information model suitable for use in the heritage sector to record, display and conserve the historic built environment. This will draw on the increasing use of Building Information Modelling (BIM) in design and construction, but with an emphasis on discovering how current approaches need to be adapted to suit the specific requirements of the heritage sector. BIM is essentially a 3D visual model of a building, populated with structured data related to its fabric and assets. This enables a range of stakeholders to access and interrogate information: from architects and clients in the design phase, to construction professionals and facilities managers in the build and use phases. BIM is heavily promoted by Govt. and industry as a vital tool to understand and manage the built environment, but its use to date has been almost exclusively in new buildings. This leaves substantial potential for BIM as a tool for understanding and managing a broader range of existing buildings, including historic and heritage sites.

Our proposal is to develop a 'Heritage-specific BIM' (H-BIM), to take account of important differences between new and historic buildings, including:

- As-built rather than as-designed geometries: a fundamental part of the character of historic buildings is their irregular shapes and materials.
- Definition of 'assets': BIM assets are aimed at facilities management (e.g. location and specification of services). Heritage BIM would need more information on the fabric and materials of the building, and to recognize a more varied range of uses.
- Change over time: A key aspect of historic buildings is their chronology. Heritage BIM would need to be able to identify, describe and display the past. This should include data from archives and archaeological science.
- External access: Heritage BIM would need to be made easily accessible and user-friendly to facilitate an active social role for our historic environment.

These are the key themes identified at this stage, but since this is uncharted territory, we expect that the student will develop these issues and identify new ones.

Our key research questions are therefore: 'What would a Heritage BIM look like, and how could it be used?'

The results of this exciting, innovative research will have wider implications for the development of BIM making it more suitable for existing buildings outside the heritage sector. We expect keen interest to come from at least two sources: the heritage sector, as the source of the case study; and the design and construction sector, for whom the usefulness of BIM in refurbishment and

restoration projects is as yet untested. As the prospective supervisors are embedded in these two sectors, it is anticipated that dissemination activities will be well attended by influential members of each community.

Contact Details

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