

# Towards a Digital Modelling for the Heritage Management System of the Emirate of Sharjah (UAE)

R. Sabri\* and S. B. Abdalla†

\* Architectural Engineering  
University of Sharjah  
University City, Sharjah, UAE  
e-mail: rsabri@sharjah.ac.ae, web page: <http://www.sharjah.ac.ae>

† Architectural Engineering  
University of Sharjah  
University City, Sharjah, UAE  
e-mail: sabdalla@sharjah.ac.ae, web page: <http://www.sharjah.ac.ae>

## ABSTRACT

Finding innovative tools for the documentation and conservation of increasingly widening heritage portfolios has been dominating the research agendas since the beginning of the 21<sup>st</sup> century. Recently research activity has focused in various aspects of the configuration and utilization of digital applications in heritage management. Case studies from different geographical contexts have revealed significant insights regarding the integration and management of heterogeneous data in digital models. However, this has remained an under-researched area in the context of United Arab Emirate (UAE)'s architectural heritage. This paper investigates the advantages, potentialities, and feasibility of integration of Heritage Building Information Modeling (H-BIM) into the heritage management system of the Emirate of Sharjah (UAE). This research starts with collating and analyzing information about the present management system of the heritage institutions in Sharjah, employing semi-structured interviews with heritage professionals, archival surveying, and physical observations on heritage buildings. It then proceeds to documentation of a selected case study building using the 3D scanning technology (scan-to-BIM). A digital model is created by utilizing point-cloud data, and employing Autodesk Revit Architecture. This multi-layered 3-Dimensional (3D) model creates a platform for representing the architectural heritage data in a conceptualized and semantically enriched system, including three main themes: 1) architectural elements, 2) preservation state of materials and structure, and 3) physical interventions. The discussion of the findings of the research focuses on the comparative advantages, feasibility, and practicality of integrating digital based smart datasets into Sharjah's existing heritage management system. The paper concludes with a set of recommendations regarding the pivots of integrating digital applications in heritage management for developing efficient conservation strategies.

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