


Chapter 3

The Review of HBIM– Retrofit Framework for Enhancing the Performance of Heritage Building Conservation Projects in Malaysia

Khairool Aizat Ahmad Jamal

 <https://orcid.org/0000-0003-4674-581X>

Taylor's University, Malaysia

Shahrul Yani Said

 <https://orcid.org/0000-0002-7727-5438>

Universiti Teknologi MARA, Malaysia

Siti Norlizaiha Harun


Universiti Teknologi MARA, Malaysia

Ahmad Fahmi Zainazlan

 <https://orcid.org/0009-0002-8396-806X>

Taylor's University, Malaysia

Noor Azeyah Khiyon

 <https://orcid.org/0000-0003-1477-3373>

Universiti of Reading Malaysia, Malaysia

DOI: 10.4018/979-8-3373-5278-7.ch003

ABSTRACT

Heritage buildings (HB) are crucial cultural and historical assets facing modern challenges. Retrofitting, combined with Historic Building Information Modeling (HBIM), offers innovative processes, tools, and datasets to enhance project performance and extend the lifespan of HBs. While global studies integrate HBIM-enabled retrofitting, its implementation in Malaysia remains limited due to a lack of procedural guidance and studies on its impact on enhancing performance in HB conservation projects. This research aims to propose an HBIM-retrofit framework to improve design performance and guide conservation practices. A systematic review based on content analysis of research publications and grey literature was conducted to identify HBIM-retrofit themes, leading to the development of a conceptual framework underpinned by task-technology fit theory. The framework would serve as preliminary guidance for practitioners to systematically adopt HBIM-retrofit procedures for innovative decision-making and sustainable outcome, thus advancing HB conservation practice in Malaysia.

1. INTRODUCTION

Heritage buildings (HB) are iconic symbols of Malaysia's rich cultural heritage, reflecting the nation's unique background, character and preserving these buildings for future generations is essential. An initial study by the Department of Museums and Antiquities, identified over 39,000 HB constructed between 1800 and 1948 in 235 in urban and rural areas across Malaysia and significant concentrations of these buildings are found in urban areas like Kuala Lumpur, Georgetown, and Ipoh, which collectively boast over 7,334 HB within its core areas (Ipoh, 2020; Georgetown, 2021). Furthermore, recent studies highlight the distribution of HB in Malaysia shows more than 20,000 buildings are considered historical and worthy of conservation (Yusoff, 2021). Hence, immediate actions are necessary to protect these valuable assets from various threats and challenges.

HB holds substantial economic, historical, socio-cultural, educational, architectural, and utilitarian values. The inclusion of Malacca and Georgetown as UNESCO World Heritage Sites has increased demand for conservation projects which has led to heightened awareness and positive attitudes towards preserving HB (Halim, 2021; Azizi et al., 2016). Conserving HB involves enhancing the lifespan of existing structures, akin to refurbishment efforts but distinct from new construction (Harun, 2021). Subsequently, these buildings faced numerous challenges in the 21st century, including defects, neglect, deterioration, and declining performance. Furthermore,

34 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/the-review-of-hbim-retrofit-framework-for-enhancing-the-performance-of-heritage-building-conservation-projects-in-malaysia/383471

Related Content

Low Appetite for High Tech: When the Indifference of Inhabitants to Digital Mobilities Impedes a Smart Suburbs Project

Claire Tollis, Alain L'Hostis and Redha Boubakour (2020). *International Journal of Urban Planning and Smart Cities* (pp. 45-57).

www.irma-international.org/article/low-appetite-for-high-tech/244200

Social Adaptation of Children in a Mixed Age Group in Montessori Preschool Educational Institution

Santa Dreimane (2018). *International Journal of Smart Education and Urban Society* (pp. 40-51).

www.irma-international.org/article/social-adaptation-of-children-in-a-mixed-age-group-in-montessori-preschool-educational-institution/208927

Speaking Truth to Power

Pierre Clavel (2014). *International Journal of E-Planning Research* (pp. 16-22).

www.irma-international.org/article/speaking-truth-to-power/108867

Predictive Analytics for Urban Development Using ML Technique

Swapna Sarita Swain, R. V. Raghavendra Rao, Ch. Ram Mohan Reddy, Harkirat Kaur, Meenakshianand Sampath Boopathi (2025). *Urban Mobility and Challenges of Intelligent Transportation Systems* (pp. 383-402).

www.irma-international.org/chapter/predictive-analytics-for-urban-development-using-ml-technique/375305

3I Engineer (Industry, Innovation, Interculturality): An Experience Between UTFPR/BR and UTC/FR

Marizete Righi Cechin, Décio Estevão do Nascimento, Bruno Ramondand Luiz Alberto Pilatti (2023). *The Impact of HEIs on Regional Development: Facts and Practices of Collaborative Work With SMEs* (pp. 1-16).

www.irma-international.org/chapter/3i-engineer-industry-innovation-interculturality/325275