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## BIM TECHNOLOGIES AND URBAN HERITAGE IN THE CITY OF SURAT, INDIA

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Heritage cities in India are facing unprecedented pressure, due to the combination of climate change impacts, rapid urbanization and uncontrolled growth. This paper discusses the benefit of applying digital technologies, and in particular Building Information Modelling (BIM), in supporting heritage conservation in the historic city of Surat in India. Despite some efforts from the local government, urban cultural heritage is being neglected and historic buildings keep being replaced by ordinary concrete buildings at a worryingly rapid pace. Documentation and promoting of Surat's heritage is conducted through developing a set of virtual models (3D models and BIM objects) suitable to support the construction sector and traditional architecture and heritage. Discussions of challenges and issues of Surat's urban area is supported by a qualitative dataset, including in-depth semi-structured interviews and focus groups with local policy makers, planners, and heritage experts, triangulated by observation and a photo-survey of two historic areas. Findings from this study reveal a myriad of challenges such as: inadequacy of urban conservation management policies and processes focused on heritage, absence of skills, training, and resources amongst decision makers and persistent conflict and competition between heritage conservation needs and developers' interests.

## Biography

Dr Chiko Makore is an inclusive urban design and planning consultant and post-doctoral early career researcher. She has trained in architecture accredited by the Royal Institute of British Architects. She also has a Master's in Urban Planning from Oxford Brookes University and completed her PhD in 2018 from the SURFACE Inclusive Design Research Centre at Salford University. Since the completion of her PhD, she has worked as a post-doctoral researcher in multiple funded international projects on urban heritage conservation including projects funded by the Italian Ministry of Research, the Arts and Humanities Research Council and the Royal Academy of Engineering. Her collaborative research work has resulted in publications in peer-reviewed journals. She has presented her research at international platforms such as at the United Nations Conference on Housing and Sustainable Urban Development (Habitat 3) in Ecuador 2016 where she acted as chair and a panellist in sessions on inclusive urban development. Her current research interests include sustainable development, inclusive and social architecture and design, urban heritage conservation, digital heritage, Global South urbanism, urban planning research, healthy ageing, and inclusive higher education teaching & learning.

Lukman is a PhD Research Scholar in the Department of Civil Engineering of Sardar Vallabhbhai National Institute of Technology (SVNIT) Surat, India. He graduated in Civil Engineering and has a Master's degree in Construction Engineering and Management. His key research interest areas are applications of Artificial Intelligence, BIM, heritage conservation and maintenance management, and inspection and condition assessment of constructed facilities. He has experience with various digitization technologies for heritage monuments, such as laser scanning, photogrammetry, and AR/VR. His work includes digitizing the British, Dutch, and Armenian Cemetery monuments in Surat, India, constructed during 1649-1811 AD.