CITIES IN A CHANGING WORLD:
QUESTIONS OF CULTURE, CLIMATE AND DESIGN

• Paper / Proposal Title:
Digital Innovations for Architectural Traditional Heritage Conservation in Jordan

• Author(s) Name:
Claudia Trillo
Rania Aburamadan; Athena Moustaka; Kwasi Gyau Baffour Awuah; Chika Udeaja; Busisiwe Chikomborero Ncube Makore

• University or Company Affiliation:
Salford University, UK
Middle East University, Amman, Jordan
London South Bank University, UK

• Abstract (300 words):
Heritage cities are facing unprecedented pressure, due to the combination of climate change impacts, rapid urbanization and uncontrolled growth. Historic urban centres in Middle East and North Africa (MENA) countries are particularly exposed. This paper discusses the benefit of applying digital technologies, and in particular Building Information Modeling (BIM), in supporting heritage conservation based in hot arid climates. It explores this through a purposely chosen case study of traditional Jordanian architecture. Documentation and promoting of traditional homes are conducted through developing a set of virtual models (3D models and BIM objects) suitable to support the construction sector and traditional architecture and heritage in hot arid climates. This is achieved by: developing a new set of BIM objects related to the
traditional architecture heritage in Jordan, suitable to be used by engineers and architects in the development of interventions on the built environment and creating a library of 3D models of exemplar buildings (Jordan heritage and traditional architecture), suitable to be used to promote the tourist image of Jordan. The results from this paper set a precedent for further documentation and heritage conservation of traditional cities in Jordan, MENA countries and internationally. The paper discusses the integration of stakeholder input through a systematic stakeholder analysis and the issues and challenges of documenting traditional heritage and architecture. Thus, offering insights to the larger community of architects, conservationists, and planners.

• Author(s) Biography (200 words each):

Claudia Trillo

Dr. Claudia Trillo is an internationally recognized researcher, with a proven track record and an extensive network of collaborators. She began her research career in 1994 as an assistant researcher on a project run at Nordregio - a leading European research centre - and have now a very forward-looking research trajectory with multiple prestigious grants (+£1.3M£), many involving leading teams in the role of PI (+£480K). Since 1997 her research has been complemented by a strong commitment to knowledge transfer through constant engagement with enterprise delivered through high-profile consultancy and civil servant roles. She strongly believes in the transformative power of research and aims at achieving a major goal: to create innovative sustainable urban development and regeneration tools and methods to preserve local identity and cultural capital, along with the social, environmental and economic benefits.

Rania Aburamadan

Professor Rania Aburamadan graduated in 1998 with a First Class Honours degree in Architectural Engineering from Applied Science University in Amman Jordan. She worked as a Designer, Construction Site Engineer and as a graphic designer before undertaking Master degree in Urban Design at the Jordan University, Amman- Jordan in 2004. After which was followed by a period as a Senior Lecturer in Architectural department in Jordan University and Petra University and as a referee for graduation projects and other architectural design courses in several universities. On completion of her PhD in 2017, she joined to University of Petra as assistance professor in sustainable development specialist, and extensively design projects with students in several categories and levels. She was involved in a wide range of civil and structural engineering projects as an Engineer/Senior Engineer. She is a part of number of committees and has been on the working with number of grants and projects (HOBES, Jean Monnet Network, Erasmus- Un-Habitat and other national agencies). Her research interests are in the fields of sustainable management and development, and refugees studies, design science methodology, urban planning and collaborative communications.
Athena Moustaka

She joined the University of Salford as a Lecturer in Architectural Design in April 2015. Being originally trained as an engineer, and currently researching in the field of architectural theory, she always endeavours to reconcile my strong technical and on-site experience with her theoretical architectural interests in my teaching, research and architectural work. Her current inter-disciplinary research on concrete sits on the cusp of architecture and philosophy. Prior to turning her research focus on concrete, her interests revolved around the role of architecture in Science and Technology Studies and Ottoman architecture. Having worked professionally as an architect, She has experience in managing medium to large scale projects (with budgets up to 5.7 million euros), and on-site design implementation.

Kwasi Gyau Baffour Awuah

Dr Kwasi Gyau Baffour Awuah is an academic and a practitioner with extensive level of experience spanning over 21 years in international real estate projects and urban development processes. Kwasi has a strong focus on teaching, research and consultancy. Prior to joining University of Salford, he worked in industry in several capacities. He has been an assistant lands' officer/ lands officer/senior lands officer at the Ghana’s Lands Commission, chair of the sub-technical planning committee of the Ga East Municipal Assembly, Accra-Ghana and worked with the Corporate Estates of the Volta River Authority (VRA), Ghana. He was part of the team that worked on the 2009 fee fixing resolution for Ghana’s Lands Commission and represented the same institution at the inter-agency statistical group. He was involved in the implementation of multi-donor agency (ies) – World Bank, DFID, GTZ etc. built environment projects. Between 2002-2009, Dr Baffour Awuah worked with firms, such as Property Investment Consultancy (PIC), Haldrup Consultancy and Valuation & Investment Associates all in Accra on projects such as asset valuations of National Investment Bank (Ghana Ltd.), Agricultural Development Bank (Ghana Ltd.) and Central Bank of Ghana. He served on the continuous professional development (CPD) committee of the Valuation and Estate Surveying Division of the GhIS, and was the secretary of the Young Surveyors Association of the GhIS.

Professor Chika Udeaja

Professor Chika Udeaja is a professor of project management and construction at London South Bank University, UK. Prior to joining the School, he was the programme director for the construction project management at the University of Salford. Over the years, he has contributed to a number of scientific and academic committees. For example, as a committee member of ARCOM, he has been instrumental in facilitating doctoral workshops in order to promote/diseminate construction management research globally. His research interests cover technology, people and process related
aspects of the project management including how organisations manage information/knowledge and support decision making in a project environment.

**Busisiwe Chikomborero Ncube Makore**

Dr Chiko Makore is an inclusive urban design and planning consultant and post-doctoral researcher. She has trained in architecture accredited by the Royal Institute of British Architects. She also has a Masters 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) where she acted as chair and a panelist 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.