Guest Editorial Preface

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Jason Underwood, School of the Built Environment, University of Salford, Salford, UK

Bimal Kumar, School of Engineering and Built Environment, Glasgow Caledonian University, Glasgow, UK

Farzad Khosrowshahi, College of Engineering & Science, Victoria University, Melbourne, Australia

It is with great honour that the UK BIM Academic Forum (BAF) presents the Guest Editorial for this special issue of the International Journal of 3D Information Modelling. This special issue includes a selection of highly commended papers from the 1st UK BAF International conference held in Glasgow, 11th-13th September 2016. The UK BAF is the BIM4 Community special interest group representing Higher Education; formed in 2011 in response to the requirement on HEIs to respond to the changing need across the digitally transforming UK construction industry. BAF consists of a group UK built environment academics representing a large majority of Higher Education Institutions (HEIs) that aims to create a dynamic collaborative group, to enhance and promote teaching and learning together with the research aspects of BIM; thereby serving as a conduit between industry demands and BIM education in HEIs. This event represented the first international conference of the UK BAF; providing a platform for bringing together academics and practitioners involved with BIM research and development, as well as implementation, to exchange the state-of-the-art ideas around the core themes of education & training, process & standards, strategy & implementation, knowledge management & decision support, BIM maturity & assessment, asset handover & operational management, and technology.

The first paper by Jurado, Carrasco, and Agullo de Rueda, *Implementation Framework for BIM Methodology in the Bachelor Degree of Architecture*, focuses on establishing the overall academic benefits of a BIM methodology framework and specify the academic formats and implementation design that facilitates achieving them. Their framework is configured from the diverse formats actually implemented in the European University of Madrid (UEM), and aims to establish a harmonized BIM 'Learnflow' that is easily comprehensible for both the internal and external academic community. While their methodology, in its various formats, does not differ from the many of the usual examples of BIM implementation, the author's goal is now to introduce it to those in a more holistic and thorough approach in order to achieve a solid and stable teaching environment. The authors have established an eminently graphical implementation framework that promotes an agile and flexible

application. Furthermore, the framework provides a global overview to facilitate adoption and synergic development concerning all the architectural disciplines.

The paper by Ventura and Ciribini, *Client and User Involvement through BIM-related Technologies: A Review,* presents a review of some of the BIM-related technologies that could effectively support clients and end-users' involvement in the briefing process. The authors consider four main types of information technologies which they group as 1. rule-based validation tools, and 2. simulation-based validation tools. A comparative analysis of the technologies is presented that identifies what has already been done and possible future trends, evaluates their integration in the briefing process and, finally, takes into account both their advantages and disadvantages in supporting clients and users' involvement. The authors conclude that the current challenges are formalising the involvement of clients and end-users in a digitally-enabled briefing and design processes, rather than related to the use of information technologies to involve them.

Hjelseth through their conceptual paper, *Building Information Modelling (BIM) in Higher Education based on Pedagogical Concepts and Standardised Methods*, the use of pedagogical frameworks to enable the systematic implementation of BIM in higher education is explored. A number of pedagogical frameworks are explored, including Integrated Design and Delivery Solutions (IDDS), Technological Pedagogical Content Knowledge (TPACK), and Trinity of BIM as building information model/-modelling/-management (BIM3P). The author illustrates the applicable implementation through connecting the BIM-related methods to the pedagogical framework. The author proposes that this enables BIM to be integrated into most architecture and engineering subjects without separate training in software, whereby focus is given to understanding the relevant information to support design and fact-based decisions. Thereby, such an integrated approach, the author proposes, can enable a change of perspective from learning BIM as a separate topic into 'learning BIM for learning architecture and engineering'.

The final paper by Doukari, Naudet and Teulier, *Merging IFC-based BIM Models*, proposes a new way of understanding data exchanges with IFC through a new approach that offers an alternative of information exchange by merging models. The authors propose an automatic merge tool, which is assisted by an IFC objects manipulation interface. This tool allows an automatic merging in order to create one consistent IFC synthesis model that enables understanding the IFC models created by different designers displaying their data such as objects tree, quantity of objects by type, etc. The result may be used by all BIM software without any loss of information; thereby providing relevant solutions to the interoperability problem in BIM projects.

Through these papers, highly commended by the conference organising committee, a variety of issues around the themes of education and training, and technology in the field of BIM/Digital Construction are addressed. Heartfelt thanks go to the authors on their contribution to this special issue and the field.

Professors Jason Underwood, Bimal Kumar, and Farzad Khosrowshahi