

## GUEST EDITORIAL PREFACE

# Special Issue on CITA BIM Gathering 2014

*Alan V. Hore, School of Surveying and Construction Management, Dublin Institute of Technology, Dublin, Ireland*

*Barry McAuley, School of Surveying and Construction Management, Dublin Institute of Technology, Dublin, Ireland*

It is an honour to present the Guest Editorial for this special issue of the International Journal of 3D Information Modelling, which includes a selection of highly commended papers from the CITA BIM Gathering International conference held in Dublin on the 14<sup>th</sup> and 15<sup>th</sup> November 2013. The event was a unique milestone for the Irish construction industry, where all of the representative architectural, engineering and construction organisations collaborated in the design and execution of a highly respected international conference, which also served to showcase that the Irish construction industry is ready for the cultural change that Building Information Modelling will bring to our industry. The Irish construction industry is only too aware of how our international colleagues have embraced BIM implementation at a national policy level. In particular, the creative stance taken by our UK neighbours with their 2016 mandate. However, Ireland's construction industry is only starting to recover from a long and deep recession and presently there are many competing priorities for senior policy drivers to

tackle. Whilst organisations like CITA appreciate the Irish government's reluctance to take a leadership role in respect to BIM implementation, we believe that time is of the essence and courage is needed to prepare and lead the Irish construction industry to be ready to compete internationally on BIM specified projects and also to reengineer how we share information in our domestic industry to achieve better project results for all stakeholders.

The paper by Kehily et al. "*Linking Effective Whole Life Cycle Cost Data Requirements to Parametric Building Information Models Using BIM Technologies*" demonstrates the capabilities of BIM in leveraging Whole Life Cycle Cost (WLCC) data requirements to perform WLCC calculations and produce WLCC estimates. Bringing the complex WLCC calculations into suitable estimating software, such as, CostX provides the user with the tools to generate quantities, cost them and calculate the WLCC in real costs, nominal costs and Present Value costs. The authors demonstrate in this paper how they leverage BIM, by incorporating

WLCC data and calculations in a customised CostX workbook, thus providing the authors with the ability to live link the output values from the model to the values in the workbook to perform WLCC. The key benefits to cost professionals are; the ability to complete an WLLCA without having to do any of the time consuming PV calculations within a customised CostX workbook and using the BIM interface to generate quantities.

The paper by Redmond et al. *“Designing a Framework for Exchanging Partial Sets of BIM Information on a Cloud-Based Service”* reviews a rationale for using a partial data set in BIM exchanges, influenced by the recognized difficulty of exchanging data at element or object level which depends on the information requiring compatible hardware and software, in order for the data to be read and transferred freely between applications. The solution was not to introduce a new schema in contrast to the industry’s existing open exchange model ‘Industry Foundation Classes’ which has been in existence since the 1980’s, but for the authors to re-engineer an existing Simplified Markup Language ‘BIM XML’ into subsets via XML Style Sheet Transition. The technology designed by the authors can be presented on two immediate platforms, namely a framework for multi-disciplinary collaboration models using the developed subset XML schemas of BIM XML to exchange data and XML to become the universal technology for representing data passed between Web apps: demonstrate that Web service architecture is advancing the development of a computer-oriented web.

The paper by Tabrizi and Sanguinetti *“Case Study: Evaluation of Renewable Energy Strategies Using Building Information Modeling and Energy Simulation”* This case study focuses on the operational performance of a LEED-rated building with the application of Building Information Modeling (BIM) to evaluate its capacity to achieve Zero Net Energy (ZNE). In this study, two different BIM processes have been conducted for the energy modeling: object-oriented geometric information modeling (e.g., envelope, doors, windows, walls, zones, etc.)

with a BIM tool and energy modeling (e.g., materials, heat resistance, location, weather data, renewables, etc.) with an energy simulation tool. The simulation model is compared to the real building performance and alternative renewable energy scenarios are evaluated. The results are used to make recommendations for the optimization of building performance and consideration of energy-efficient strategies for building performance enhancement. The research points to the revision of the current LEED rating system, so as to improve the potential for LEED rated buildings to achieve Net-Zero Energy status and certainly increase the return on investment. The research further points to discontinuities between photovoltaic panel degradation over time and the LEED credit.

The paper by McAuley et al. *“Establishing Key Performance Indicators to measure the benefit of introducing the Facilities Manager at an early stage in the Building Information Modelling Process”* sets about demonstrating the business case for the adoption of BIM and, in particular, the adoption of particular of KPIs by Facility Managers leading to a more robust Lean FM practice. This paper outlines how the Facilities Manager can play a pivotal role in the BIM process and establishes the basis for a number of KPI’s that can be used for further study to help measure the benefits of earlier FM involvement. The data collation methodology included the use of a BIM pilot project that is been used to demonstrate the advantages of BIM to the Irish AEC Sector.

The paper by Serginson et al. *“A Theoretical Comparison of Traditional and Integrated Project Delivery Design Processes on International Competitions”* focuses on two 48 hour international openBIM competition projects: Build London Live; and Build Qatar Live. The authors uses a traditional design process on one case study and an integrated project delivery on another, in order to provide evidence to AEC professionals on a number of issues raised in the current BIM and IPD processes. In overall the paper suggests a number of recommendations, including how a collaborative design process appears to reduce a more comprehensive

conceptual design at an early stage in comparison to a traditional process, and how more information and documentation is produced through an IPD process.

The paper by Kinnane and West “*BIM education for engineers via a self-directed, creative design education*” outlines the introduction of BIM into the curriculum of Civil and Structural Engineering students that did not require curriculum restructuring or require module refocus. The authors describe how two project-based modules, with inherent ‘design thinking’ objectives, were adapted to enable

BIM tools to be used as design, analysis and communication tools.

There is a wide spectrum of issues addressed in these papers, all of which were commended by the conference scientific committee at the CITABIM Gathering. My heartiest congratulations to the authors in the production of these high quality papers.

*Alan V. Hore*  
*Barry McAuley*  
*Guest Editors*  
*IJ3DIM*