

The “Conseil International du Bâtiment’s” (CIB’s) work group 78 (CIB W78) is one of the largest and most active working commissions of CIB. Its goal is to pro-actively encourage the use of IT in construction through the demonstration capabilities developed in collaborative research projects and to organize international cooperation, as well as, to promote the communication of such activities. To this end, the CIB W78 organizes yearly conferences, maintains a website, and fosters social interaction through a LinkedIn group.

The latest CIB W78 conference in Eindhoven from October 27 to 29, 2015 aimed at fostering, encouraging, and promoting research and development in the application of integrated IT throughout the life-cycle of the design, construction, and occupancy of buildings and related facilities. The conference was organized by the Eindhoven University of Technology, the TNO research center, and the University of Twente. It brought together 122 scholars from 25 countries that presented 89 papers. As such, the conference was one of the largest gatherings of scholars in the area of IT in the field of engineering, construction, and architectural Management in 2015. The papers presented at the conference are a formidable reflection of the state-of-the-art in the field.

Because of these reasons, we asked a number of selected authors to extend their conference contributions for publication within this special section in Engineering, Construction, and Architectural management. All in all, seven authors followed our invitation and after a thorough review process we selected five papers for inclusion in the special section. Together these five contributions show how innovative IT solutions are changing managerial practices in our field. The first paper in the special section sets the stage. Titled their paper “Life-cycle information management using open-standard BIM,” Hans Hoerber and Daan Alsem, two engineers at one of the largest Dutch consultancy engineering firms, describe a best-of-its-kind IT implementation effort on an engineering project in the Netherlands. The paper shows how, in today’s practice, building information technologies allow for the advanced management of project information throughout a project’s life-cycle. Being able to manage information, in turn, helps to achieve the integration between the architectural, engineering, and construction disciplines.

The next three papers in this special section are then examples of how computing technologies in relation with better managed information can support managerial practices at different stages of a project’s life-cycle. The paper “Multi agent systems-based contractor pre-qualification model” by Faikcan Kog and Hakan Yaman shows how the selection of contractors for a specific project can be supported by an explicit model of the pre-qualification process. The introduced method presents an innovative step toward a more transparent and objective selection of contractors, one of the most difficult tasks in today’s construction management practice. The next paper “Developing a tailored RBS linking to BIM for risk management of bridge projects” by Yang Zou, Arto Kiviniemi, and Stephen W. Jones then presents a new computer supported method to develop breakdown structures for project risk items with the purpose of explicitly representing possible project risks within existing building information models. Such representation allows project managers to quickly identify

and locate risks throughout the life-cycle of a project. “Bridging the gap: bringing BIM to construction workers” by Ketil Brathen and Anita Moum then introduces a method of how advanced IT can support construction workers on site, so to speak, an IT application to support the final phase of each construction project.

The special section closes with the paper “Using augmented reality video in enhancing masonry and roof component comprehension for construction management students” by R. Raymond Issa, Hamzah Shanbari, and Nathan Blinn. Other than the previous papers in the special issue this paper does not focus on an innovative computational method to support practical managerial tasks. The paper rather introduces an augmented reality method for supporting educational activities. As such, it presents a great example of how new IT methods can change and improve managerial education in the field of engineering, construction, and architectural management.

We close this final issue of 2016 with two regular papers by Ibrahim Bakry, Osama Moselhi, and Tarek Zayed, as well as, by Regina Maria Cunha Leite and colleagues that were not part of the CIB W78 2015 workshop. Nevertheless, both papers also present advanced computational methods and complement the contributions of the special section with their focus on optimization and gamification. All in all, we hope that we can offer the interested reader a good overview, but also in depth insights, in the state-of-the-art of IT practices and possibilities, one of the fastest emerging fields in the area of engineering, construction, and architectural management.

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