



**December 2011**

**Around the Commissions**

**W078 - Information Technology for Construction**

**W102 - Information and Knowledge Management in Building**

**Conference Report from the 28<sup>th</sup> International Conference**



The 28th International Conference of CIB W078 "Computer Integrated Construction" jointly organised with the 7th CIB W102 "Information and Knowledge management in Building" took place between 25 and 28 October 2011 on the French Riviera, France. It was hosted by the Centre Scientifique et Technique du Bâtiment (CSTB), with the support of CIB W078, W102, TG83 and IDDS, and chaired by Dr Alain ZARLI, with the support of Bruno FIES as local coordinator.

**Theme**

This International Conference was dedicated to the latest broad achievements in research, development, standardisation and industrial implementation of advanced Computing, Information and Communication Technology (ICT) and Knowledge Management (KM) in the Construction sector and the Built environment. The

key role of ICT and KM in the facilitation of information and knowledge delivery in collaborative projects and distributed teams is nowadays widely acknowledged, and the Construction sector has now fully jumped into the adoption of models, standards and ICT solutions, with the ambition to better manage and assimilate an increasing amount of information and embedded services, throughout the building lifecycle. The objective is also to enhance the potential for productivity and reduce overall life-cycle product costs, and to further support services designed to facilitate management of life cycle performance and to meet changing end user needs, with a clear customer orientation.



*Participants at the Plenary Session*

## Papers

The conference reflected the current up-to-date developments and future exploration of the leverage expected from ICT deployment in a very active and moving Construction sector, based on a selection of high quality papers, as well as fruitful and living sessions and dedicated workshops that provided with detailed information on the achievements and trends in research, development, standardisation and industrial implementation of ICT and KM in this industry sector. The 2011 CIB W078 & W102 joint conference received 179 abstracts, and reviewed 147 full papers: The papers that were submitted to the conference went through a full double-blind review process prior to acceptance and the scientific committee contributed significantly to the selection and improvement of papers in the refereeing process.

Eventually, 127 scientific and technical papers were accepted, covering numerous research topics in the fields of Construction ICT and KM, including 21 papers dedicated to the eeBDM Workshop organized with the support from the European Commission (EC). Overall, 190 people registered to the conference, with 170 attending, from 36 countries.

## Proceedings

The proceeding of the 2011 CIB W078 & W102 joint conference (with abstracts distributed at the conference and full papers available online through SciX and ICONDA) consisted of papers covering topics that included:

- Managing ICT Strategies;
- Standards and Interoperability policies in a web based organisation;
- Integral Design and knowledge development;
- Sensor and automation of Construction follow-up;
- Management of Knowledge along the Building Life cycle;
- Product/Process Modelling based on Building Information Modelling (BIM);
- nD Modeling, Visualization and Simulation
- Virtual Reality and Augmented Reality;
- Building Information Modelling (BIM) and Knowledge Management;
- eGovernment and Regulation regarding the Building & Construction
- Knowledge Management stories in Building and Construction covering the following areas:
  - Energy efficiency management;
  - Performance based & client driven solutions;
  - Communities of Practice;
  - Collaborative workspaces and virtual teams for Construction Projects;
- ICT for Energy Efficient / Low Carbon Buildings;
- ICT for facilities management and risk management;

- ICT supporting Smart Buildings – with application to AAL, health in buildings, etc.;
- Intelligent appliances and intelligent homes;
- ICT for sustainable and smart districts and cities;
- Artificial intelligence and decision support systems in design;
- Human computer interaction and socio-organizational issues;
- Assisted Living and building design.

Besides topics and sessions related to the W078 & W102 conference tracks, various thematic workshops have been organised too:

A separate News article on the proceedings will follow shortly.

## Conference Workshops

Special Workshops were organised focussing on respectively:

- IDDS
- BIM Research
- Energy Efficiency
- Value Driven Procurement
- PhD Skills

The IDDS Workshop addressing CIB's pro-active theme on Integrated Design & Delivery Solutions, together with FIATECH recent outcomes and roadmaps – and along with a an IDDS/FIATECH keynote in plenary session. Neill Pawsey, European Project Manager for FIATECH, and Bob Owen, CIB IDDS Priority Theme Coordinator agreed that there are some interesting synergies between the two FIATECH and IDDS programmes and their research agendas. The IDDS workshop held to help develop the IDDS research trajectories was provided with context by Eric Piccuezzi, General Manager, Construction Industry, Dassault Systemes, who described advances in parallel industrial sectors and also revealed new use of PLM concepts by companies often considered to be the world's leading construction innovators, such as Skanska.



*IDDS Keynote by Robert Owen*

The workshop was then run by Bob Owen, Neill Pawsey and Prof Robin Drogemuller of Brisbane University. As well as moderating some interesting papers, progress was made with developing the IDDS strategy, and attendees agreed to continue the work afterwards. The FIATECH and IDDS synergies will be further explored, particularly at the event to be held in conjunction with the CIB Board meeting in Washington DC on 18th April 2012. FIATECH was delighted to have been invited and to actively participate in the CIB IDDS workshop in Sophia Antipolis (France). Many common themes, opportunities and challenges have been identified and the members of FIATECH look forward to developing these further in close collaboration with CIB over the coming months and at the CIB Board Meeting and IDDS workshop in Washington DC next year.



Alain Zarli

The 2nd CIB W078 Workshop on Accelerating BIM Research Workshop, with presentation of advanced research on BIM, from international research leaders in the areas of BIM and IFC. The Workshop, organised by Bill EAST, was held 27 October 2011 in conjunction with the annual CIB W078 conference. The objective of this workshop series is to accelerate research that requires the use of building information by providing access to open standard tools and techniques created by CIB W078 researchers. Access to these tools and techniques can assist researchers to bootstrap their efforts more efficiently and simultaneously support the need for experimental repeatability. The workshop featured five (5) extended technical demonstrations of the latest research results and tools, the public release of three BIM models with associated contract drawings and analysis files, demonstrations of the open source bimserver.org, and an update on the Industry Foundation Class model. The workshop was well attended by approximately forty conference attendees.

The eeBDM Workshop (chaired by the EC – Rogelio Segovia, and held 27 October 2011), with an overview of the latest progress about Energy-Efficiency models and standards, through selected presentation of recent EC research projects. The eeBDM Workshop integrated a total of 21 paper that have been presented during this workshop along 8 different sessions – and with a number of participants to the Workshop of ~40 persons – with following sessions:

- Session 1. Ontological Engineering State of the Art
- Session 2. Green Building Information Modelling
- Session 3. Energy and Behavioural Modelling and Simulation at Facility Management
- Session 4. BEMS Integration Platforms & Ontology's
- Session 5. Ontology's for Heterogeneous Physical Devices
- Session 6. Middleware for EupP (Energy using or producing Products), White goods, HVAC, Storage and Micro Renewables
- Session 7. Prosumers Micro Energy Trade Semantics
- Session 8. eeB Data Models collaboration space

The elaborations on the eeBDM allowed for the design of a preliminary roadmap for the development of such data model, along with next steps towards a common eeBDM. One of the main identified outcome is the need for a specific consensus in the community to helpful in order to agree on priorities and approach, with topics randomly introduced below:

- Create an overview of the available ontologies and assess if the current models suffice for the eeBDM functional scope;
- Define the requirements for the ontologies and tools that will be used to design and maintain the eeBDM ontology framework;
- Elaborate a multi layer map (on the basis of the picture presented in chapter 4) displaying:
  - What are the "touch points" between the two sectors;
  - What are the most promising technologies and methodologies related to Grid/Construction/Devices that will enable to setup gateways among these fields and made possible a unification of these heterogeneous models under a common platform;
  - What are the standards behind these technologies.

This elaboration will be made step by step with exchange and validation from the Revisite community experts (by exchange of emails, Skype conferences and eventually physical meetings). This started with the REViSITE Worskop, which was held the day after (28 October 2011), with a round table welcoming Construction and Grid experts about common R&D topics regarding Interoperability & Standardisation

Another workshop was dedicated to the Eracobuild project Valpro (Value Driven Procurement in Building and Real Estate) having 11 research & industry partners, plus 12 supporting industry & client affiliates. Valpro focus is procurement, particularly concepts, methods and tools having potential to leverage value in the building lifecycle and the industry delivery chain. The workshop sought industry views on "what is

value?”, in the light of both complementary and conflicting actor, lifecycle, business and contractual viewpoints. Discussion was lively with a key thread emerging concerning different actors’ qualitative “soft” expectations as well as quantitative “hard” requirements. Establishing project goals and monitoring right from the start is critical.

Eventually, a PhD workshop (session) was organized, where experienced academics had the opportunity to provide advice to PhD students about how to progress and develop their academic skills. Professor Raymond Issa made a presentation on Intellectual Property rights to the Ph.D. students and young faculty. A variety of topics including copyright law, patent law, student property rights in their academic work, disclosure procedures and plagiarism were covered during the presentation. Professor Chimay Anumba addressed the issue of ‘How to Succeed in Academia’ with the PhD students and young faculty. He tackled several important issues in a light-hearted manner, which drove the points home. Starting with the definitions of ‘Success’ and ‘Academic’, he questioned whether the concept of ‘Success in Academia’ was an oxymoron. He then went on to present three case studies of academics who could be considered successful and asked the audience to decide who was the most successful. Drawing on his experience and that of other colleagues, he then provided tips on how academics, both young and old, can be successful in academia. One of the most important of these involved finding a senior colleague (not necessarily at one’s own institution) to act as a mentor.

## Industry

In addition, the conference included, for the first time, an Industry Challenge, organised by Farzad “FAZ” Khosrowshahi (USAL) and to be a dedicated session where the practical benefits of two selected research proposals are to be challenged by a panel of industry members and practitioners. The intention is to invite a number of Construction specialists, practitioners and industrialists, to face the presentation of the results (new product or service) of selected different practical research works and seek their view as to why shouldn’t the industry use these works. So the Industry Challenge was this year a novel combat in which two R&D projects aimed their “sales pitch” of project industrial potential to a panel of industry judges in the presence of a mixed industry and research audience. Exchanges were frank and sometimes amusing, but a clear lesson that emerged from both presentations was that content and presentation to industry needs to stress how industry can exploit the project outcomes in contrast to the “exciting” underlying technology usually presented to peer researchers. Another suggestion was using a language that is relevant and conducive to industry, hence the potential need to for a middle skill (profession) that can translate the language of the

supply side to the language of the demand side. Presentation needs to include demonstration too, addressing realistic problem scenarios. It is a matter of adjusting to a different presentational mind-set. This should certainly feature in future conference programmes, probably with a modified organisational approach.

## Paper Award

The conference also has invited applications from PhD students (with paper selected for the conference) for the W078 Charles M. Eastman Top PhD Paper Award. This award celebrates Prof Eastman and his incredible contribution to our discipline. This 2nd ‘Charles M. Eastman Top PhD Paper Award’ was determined during the conference from the ten papers, which were nominated. Dr Jakob Beetz (TU Eindhoven) chaired the panel for the award and announced Ole Berard from the Department for Civil Engineering, Technical University of Denmark as the winner for the paper titled: Information Delivery Manuals to Integrate Building Product Information into Design. A certificate and cheque of 500€ were handed over during the conference dinner.



*The award was nominated to Ole Berard, by Jakob Beetz & Robert Amor*

## Additional Information

For additional information about CIB W078 contact the Coordinator: Robert Amor [trebor@cs.auckland.ac.nz](mailto:trebor@cs.auckland.ac.nz).



You can find more information on the activities of CIB W078 in the CIB online Database “Commissions”: see [here](#). In the shown search engine type “W078” in the field “Commission number” and press “Find records”.

For additional information about CIB W102 contact the Coordinators: Malik Khalfan [malik.khalfan@rmit.edu.au](mailto:malik.khalfan@rmit.edu.au) and Charles Egbu [c.o.egbu@salford.ac.uk](mailto:c.o.egbu@salford.ac.uk).



You can find more information on the activities of CIB W102 in the CIB online Database “Commissions”: see [here](#). In the shown search engine type “W102” in the field “Commission number” and press “Find records”.