



**TECHNISCHE  
UNIVERSITÄT  
DRESDEN**

**INSTITUT FÜR BAUINFORMATIK  
PROF. RAIMAR J. SCHERER  
JAHRESAUSBLICK**

**RESEARCH AND  
LECTURE ACTIVITIES  
IN  
2016**

December 2015

Research at the "Institute of Construction Informatics – Bauinformatik" (CiB) is in two directions:

*Applied Informatics* and *Applied Uncertainty Methods*

The view of the brochure is directed to the future – to the new ideas and plans for 2016. Research topics are: building information modelling, multimodels, interoperability, generic model filters, intelligent construction management, virtual organizations, project risk management, dynamic process modelling, simulation, ICT-supported energy efficient buildings. Most of the topics have been accumulating in our ongoing common development "An intelligent Virtual Engineering Lab (iVEL), which bridges the BIM world with the computational engineering world, smartly providing simulation power to planners, designers and operators. Underlying basic methods and technologies are: object-oriented modelling, process modelling, ontologies, description logic, service-oriented architectures, grid and cloud computing, stochastics and vulnerability.

2015 was a year of consolidation and of successfully exploiting the results of our first two research projects on energy efficiency, HESMOS and ISES, moreover migrating the results to the current EU IP projects eeEmbedded, Design4Energy and HOLISTEEC. The intelligent Virtual Energy Lab yielding from these projects is a great success and has been made available as freeware for non-commercial purposes at <http://openeebim.bau.tu-dresden.de/software/ivel.zip>. Other multimodel BIM tools are already online and can be reached at [http://mefisto-bau.de/resources/resources\\_software.html](http://mefisto-bau.de/resources/resources_software.html), namely the filter toolbox BIMFIT, now also with a mvdXML interface, the multimodel container viewer and manager M2A2, the construction simulation toolkit CST, the multimedia visualizer Billie, and the information access tool BIMcraft. The multimodel container method and the lean IDM interoperability method have been adapted by buildingSMART for recommendation and standardization and the first MMC group of buildingSMART has finalized the first recommendation document on the multimodel container.

The institute strongly promotes ICT in research and industry. Prof. Scherer is chairman of the European Association of Product and Process Modelling, which will hold its 11<sup>th</sup> ECPPM conference in Limassol, Cyprus, on 9<sup>th</sup>-11<sup>th</sup> September 2016 (<http://www.ecppm.org>). The ECPPM started in 1994 and is the oldest BIM conference. The preceding one in Vienna in 2014 was a very successful one with over 150 participants and over 120 papers. In conjunction with the 10<sup>th</sup> ECPPM, the 5<sup>th</sup> Workshop on ee-Building Data models was held, which underpins the importance of BIM methods for energy-efficient design and maintenance of buildings.

Know how transfer to the industry has a high priority for the institute to facilitate practical exploitation of the innovative ICT solutions developed. For the industry CiB is a contact point in BIM and construction ICT. It is active in international and national standardization bodies. In October 2014, the VDI work group for BIM guidelines was founded and meanwhile has 8 working groups (<http://www.vdi.de/technik/fachthemen/bauen-und-gebaeudetechnik/querschnittsthemen-der-vdi-gbg/koordinierungskreis-bim/>). In November 2015, the institute organized the 6<sup>th</sup> conference "Bauinformatik – Baupraxis" (construction informatics – construction practice) in Dresden, supported by the Saxon chamber of architects, the chamber of engineers and the "Dresdner Bauinformatik-Gesprächskreis" (Dresden Construction Informatics Roundtable) on the topics ongoing regulations – guidelines – standardization for BIM, which provided an overview of the VDI work.

E-learning results of the project eWorkBau with focus on the interfaces for BIM access and a domain BIM query language are both available as freeware BIMcraft on the openeebim website and embedded in e-learning courses. The European online Master course "IT in Construction", coordinated by the University of Maribor, Slovenia, is now in its 12<sup>th</sup> academic year and students can enrol at 7 European universities.

In early 2015, Ksenia Roos submitted her PhD thesis and left the institute. In July, Sebastian Fuchs successfully defended his PhD thesis on multimodels. In July and September, Eko Nityantoro and Mario Gürtler left the institute for interesting positions in industry. Helga Tauscher submitted her PhD thesis in late 2015 and will pursue her carrier in industry. In December, Al-Hakam Hamdan and Ngoc Trung Luu defended their diploma theses and join the institute as researchers in January 2016. Alexander Benevolenskiy will have his PhD defence in December and then continue his research carrier at the institute.

All in all, the employees at the institute cover a broad range of expert domains as well as languages with researchers from Bulgaria, France, Iran, Russia, Syria and Turkey.

Collaborative research has successfully been continued in 2015. Dr. Sylvain Robert from the CEA, France, together with two students, Bastien Guillon and Robin Delgado from the Université Paris Sud, had a 2-month stay for in-depth research at our institute in July and August.

Several members of the institute have received awards. Ronny Windisch and Alexander Wülfing have got the second prize in the category construction management and Ken Baumgärtel has got the third prize in the category civil engineering, both for best annual ICT software in construction informatics from the German ministry of construction and infrastructures at the annual construction fair.

Some further information can be found at our web pages <http://tu-dresden.de/biw/cib>

Dresden, in December 2015

Raimar J. Scherer

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