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FIG WORKING WEEK 2017

Helsinki Finland

29 May - 2 June 2017



Surveying the world of tomorrow -
From digitalisation to augmented reality

Organised by



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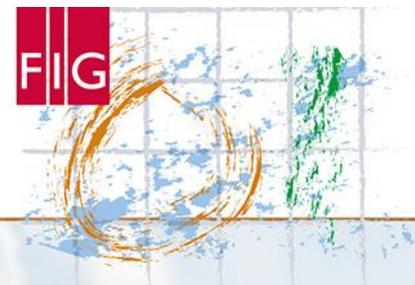


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BIM FOR SURVEYORS

Pre-workshop on Sunday 28 May 2017

Christian Clemen, HTW Dresden,
Germany

BIM workshop was supported by



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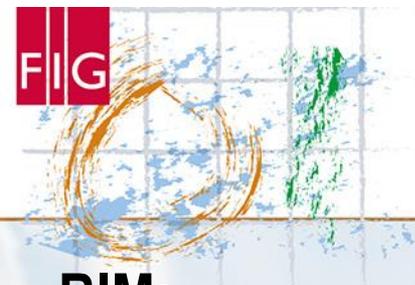


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BIM:

Building Information Modeling (BIM) is changing the way how surveyors work, think, collaborate and earn money. **Creating, using and sharing multidimensional digital representations of buildings** are the driving forces for the digitalization of our work. This affects many tasks surveyors and GIS professionals perform, e. g. cost estimation, GIS analysis, engineering surveying, construction work, land management and facilities management.

Scope of the Workshop:

- Teaching theoretical background of the BIM
- Best practice presentations from large projects and SME
- Presentation of the latest software (surveying with BIM, CAD, GIS)



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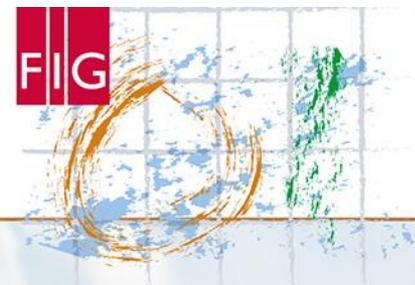


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Audience

55 professional engineers and academics



from 27 countries all over the world



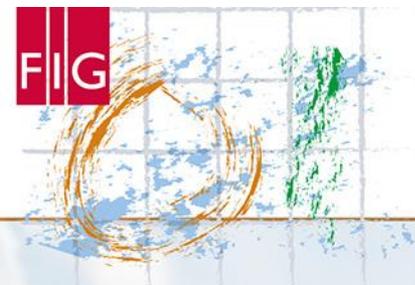


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BIM - Introduction, Motivation, Examples, Strategies, international projects, Craig Hancock, University of Nottingham Ningbo, China



- BIM and Chinese construction industry
- High demand on Engineers understanding BIM
- Interdisciplinary teaching in Ningbo



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esri



Trimble

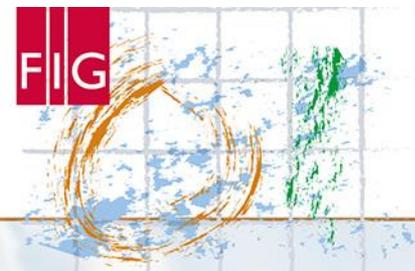


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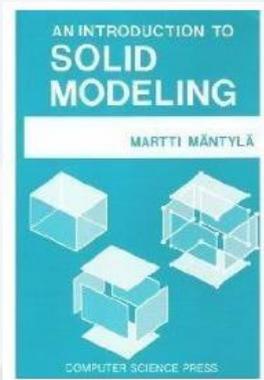
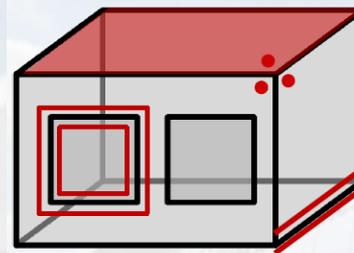
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3D Geometry, Topology and Semantics

Christian Clemen, University of Applied Sciences, Dresden, Germany

- **Fundamentals** on modeling
 - 3D solids
 - topology
 - semantics



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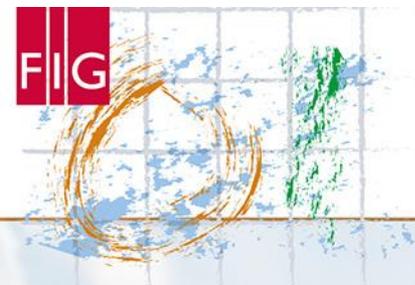


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BIM and GIS

Robert Kaden, University of Applied Sciences Dresden, Dresden, Germany

- Digital Terrain Models, Topographic Information Models, City Models,
- Formats and Standards
- Modeling approaches
- Georeferencing and Scale

	Surveying / GIS					AEC / BIM	
	X3D	COLLADA	KML	Shape	CityGML	DXF	IFC
general purpose / information model	gp	gp	gp	gp	im	gp	im
3D geometry	+	+	•	•	+	•	++
georeferencing	+	•	•	+	++		•
appearance	++	++	•		+		•
3D topology	•	•			+		+
semantics	•	•	•	•	++		++
levels of detail	+	+	•		++		•
links/embedding	+	++	++		++		
extensibility	+	++	+		++		•
fast rendering	++	++	+	+	+	+	•/+

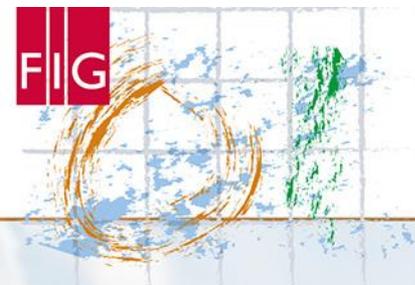
Legend: • = basic, + = sophisticated, ++ = comprehensive; empty = not supported

[Kolbe, Kaden]



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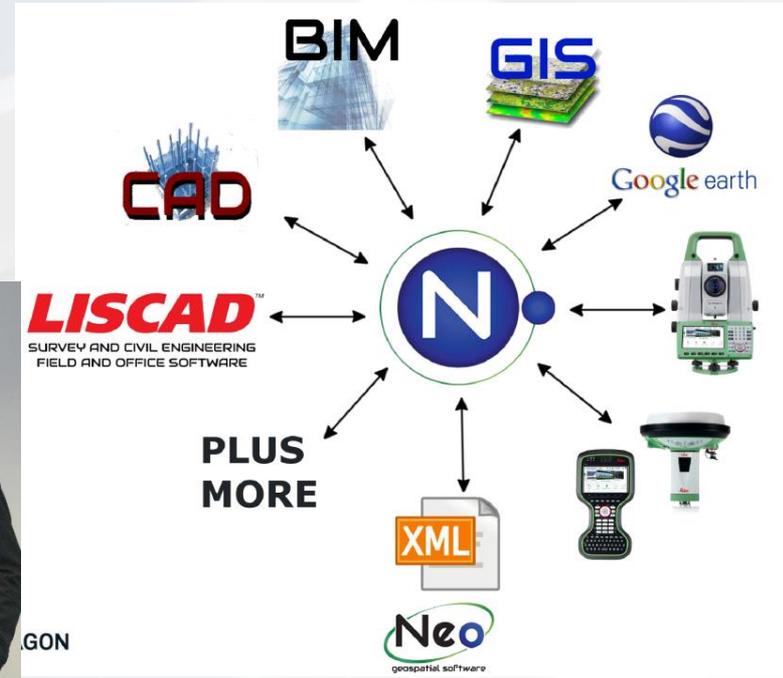


BIM and Surveying I – Total Station

Andrej Mocicka , LISTECH Pty. Ltd., Australia

- Coordinate systems
- measured surveys for BIM
- total station for BIM
- as-built surveys
- setting-out

... with Neo



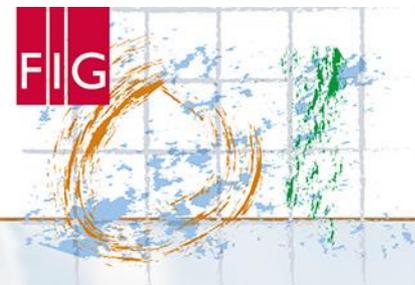


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BIM and Surveying II – Point Clouds

Michael Olsen, Oregon State University, USA

- Efficient point cloud segmentation techniques to support BIM or GIS



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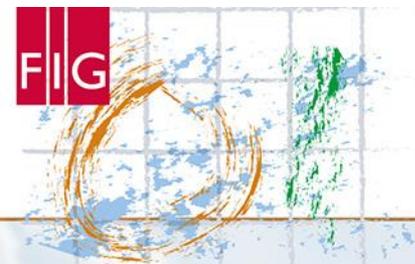


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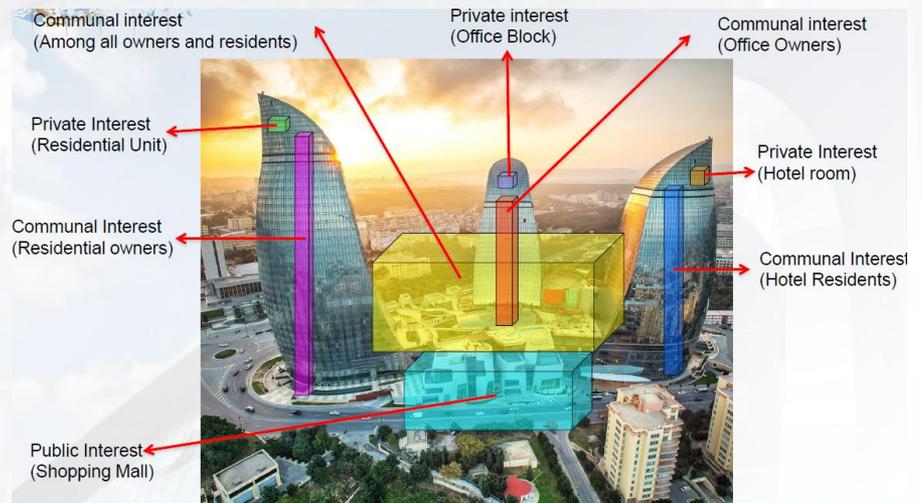
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BIM for Urban Land Administration Mohsen Kalantari, Melbourne School of Engineering, Australia

- 3D-cadaster and BIM, Land and Property Information, Subdivision
- 3D-cadaster using IFC



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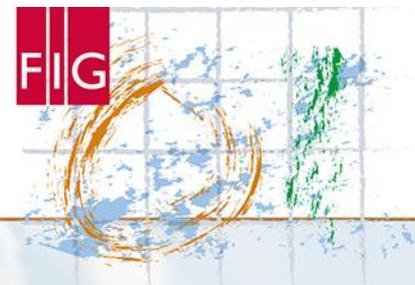


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BIM and Construction Management

SeeLian Ong, FIG Chair Commission 10, Malaysia

- Cost estimation
- International Construction Measurement Standards (ICMS)
- Standards for governmental decisions and project developer

1.03	Structure
1.03.010	Structural removal and alterations
1.03.020	Basement suspended floors (up to top of ground floor slabs): 010 - walls and columns 020 - beams and slabs 030 - staircases
1.03.030	Frames and slabs (above top of ground floor slabs): 010 - structural walls and columns 020 - upper floor beams and slabs 030 - roof beams and slabs 040 - staircases 050 - fireproofing to steel structure
1.03.040	Tanks, pools, sundries
1.04	Architectural works Non-structural works
1.04.010	Non-structural removal and alterations
1.04.020	External elevations: 010 - non-structural external walls and features 020 - external wall finishes except cladding 030 - facade cladding and curtain walls 040 - external windows 050 - external doors 060 - external shop fronts 070 - roller shutters and fire shutters



ICMS

INTERNATIONAL
CONSTRUCTION
MEASUREMENT
STANDARDS



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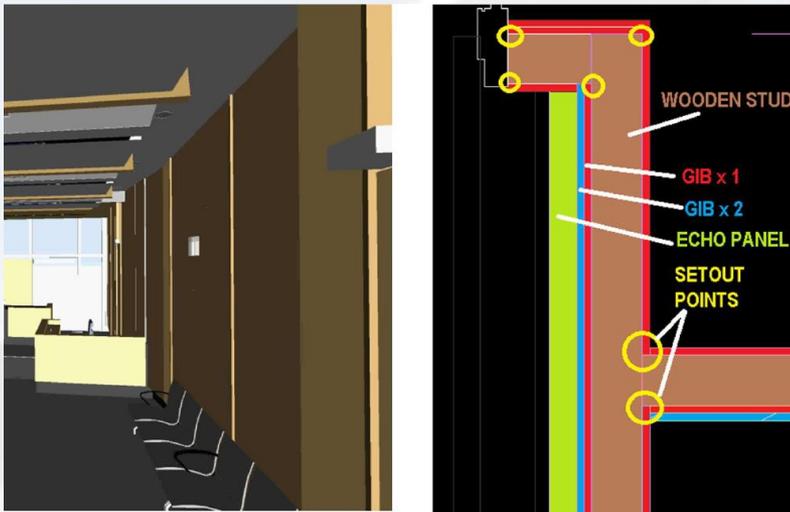
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A Constructive Approach to Surveying in a BIM Environment

Alex Harrington, Beca Infrastructure, New Zealand

- Surveying at BECA
- BIM Project Justice Precinct Christchurch
- Importance of Surveying in BIM projects



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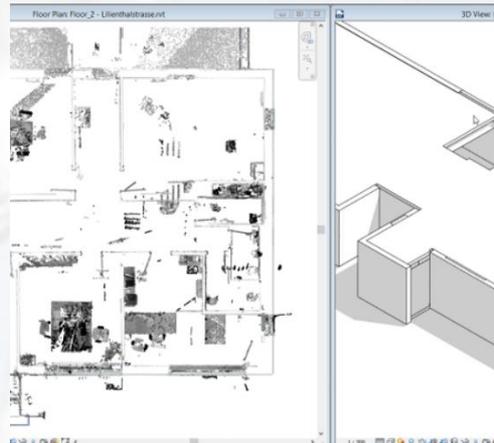
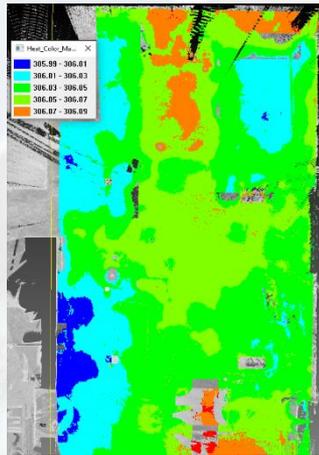
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3D laser scanning along the building lifecycle

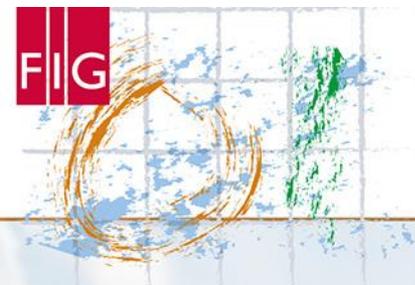
Marc Zschieschang, Faro Technologies Europe, Germany

- Semi-automatic approach
- TLS and BIM, on-site concrete scanning
- FARO workflows



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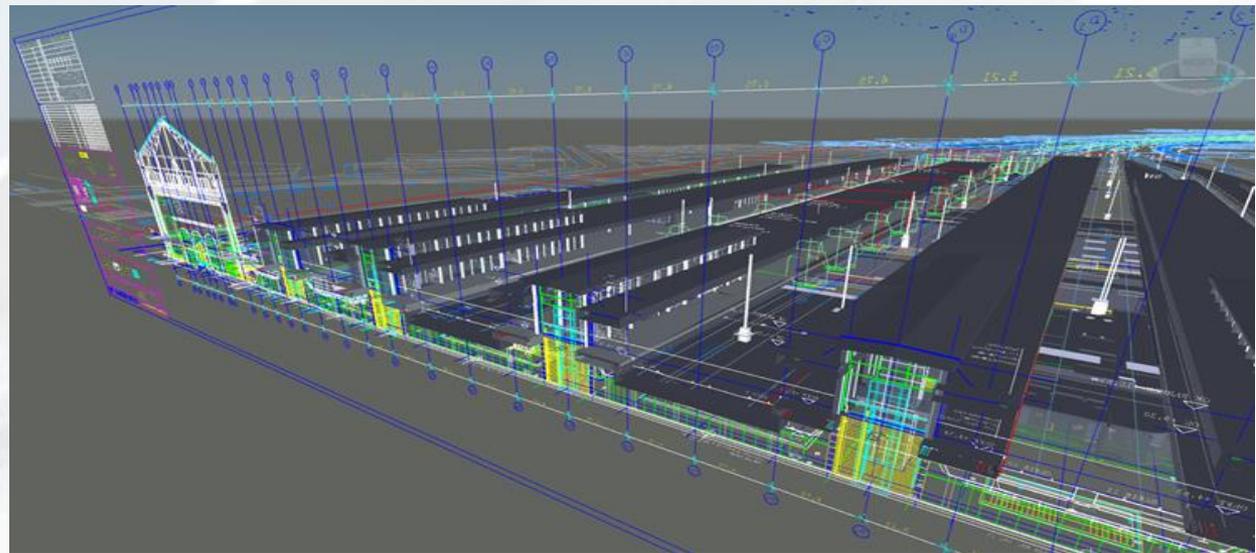


BIM Implementation for the German Railway

Dr. Christian Manthe, DB Engineering & Consulting, Germany



- BIM/GIS for Infrastructure
- Metadata, Informationmanagement for large Construction Projects
- Clash Detection and Integration of Ground Radar to BIM



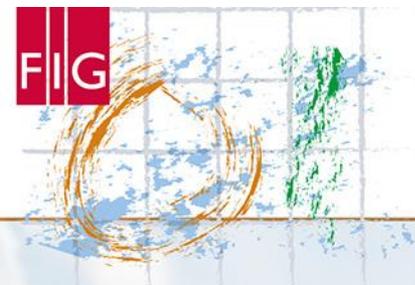


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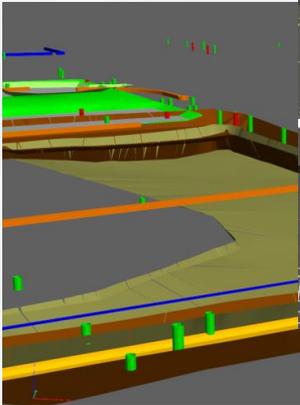
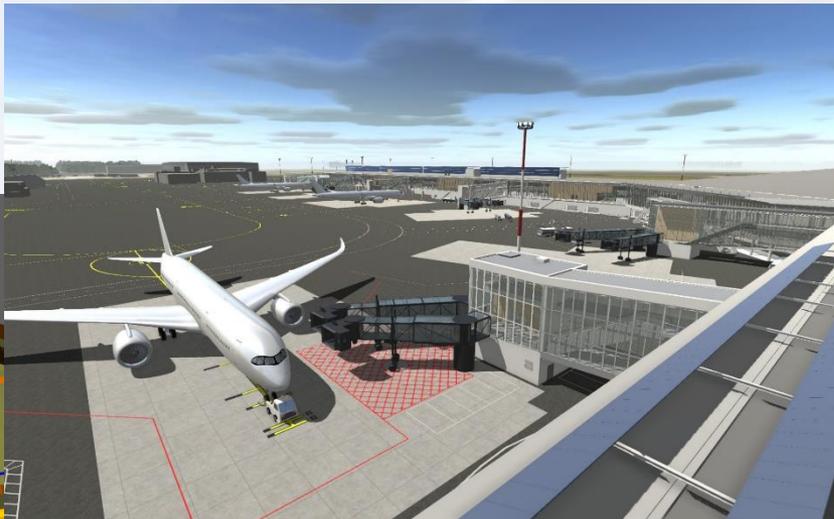
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Helsinki airport BIM project

Liisa Kempainen, Sito Oy, Finland

- BIM/GIS for Helsinki Airport
- Georeferencing and Managing GIS and BIM together



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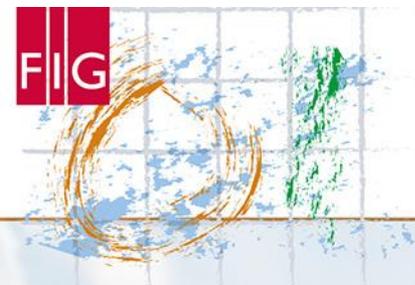


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post preworkshop dinner ☺



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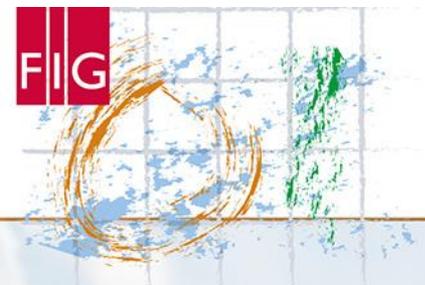


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