BIG DATA FOR SMART OPERATIONS AND MAINTENANCE OF BUILDINGS

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This presentation:

1. Introduction
2. Digital transformation in the construction industry
3. Data handling for smart building operations
4. System Modules
5. Case study
6. Conclusions
Introduction:

DIGITAL TRANSFORMATION
Digitization in the construction industry – Building Europe’s road to “Construction 4.0”, Roland Berger GMBH (2016)
Introduction:

Digital transformation in the construction industry

Industry 4.0, intelligent assets and the circular economy

Digital transformation in the construction industry

Industry 4.0

Industry 4.0: Building the digital enterprise (Engineering and construction) (2016 PwC)

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Digital transformation in the construction industry

Expected benefits from digitisation over the next five years

- Additional revenue: 2.7% per annum
- Cost reduction: 3.4% per annum

Only 19% of engineering and construction companies have advanced data analytics capabilities

Industry 4.0 and Data Analytics

*Industry 4.0: Building the digital enterprise (Engineering and construction)* (2016 PwC)

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Data handling for smart building operations

“Physical space is supplanted by cyberspace, and our perceived reality becomes more augmented and digitized.”

BIG DATA

Structured data

BIM

Web 2.0

Web 3.0

People participation

Internet of Things

Unstructured data

Analytics using Knowledge systems

Building Knowledge Modelling

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Big Data and BIM

BIM for ‘x’ Abilities

Transportation_BIM
Infrastructure_BIM
Disaster Resilience_BIM
Labour Training_BIM
User Behaviour_BIM
Heritage_BIM
H/S_BIM
Big Data and BIM

BIM-based Analytics tools for better creativity

Knowledge-based BIM
Agent-based BIM
AI-based BIM
Socio-Tech BIM
Crowdsourcing BIM
Semantic interoperability BIM
Big Data and BIM (application)

- Actual Energy usage
- Environmental conditions
- Economic conditions
- Occupants characteristics
- Policy issues


Big Data and BIM (application)
System Modules:

Spoken Dialogue System

SDS module

XML protocol

BIM module

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Big Data and BIM (application)

Case study:

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Thank you ……