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THE 7th BALTIC SURVEYORS FORUM

Overview of BIM in Estonia & adding value to BIM-projects with reality capture

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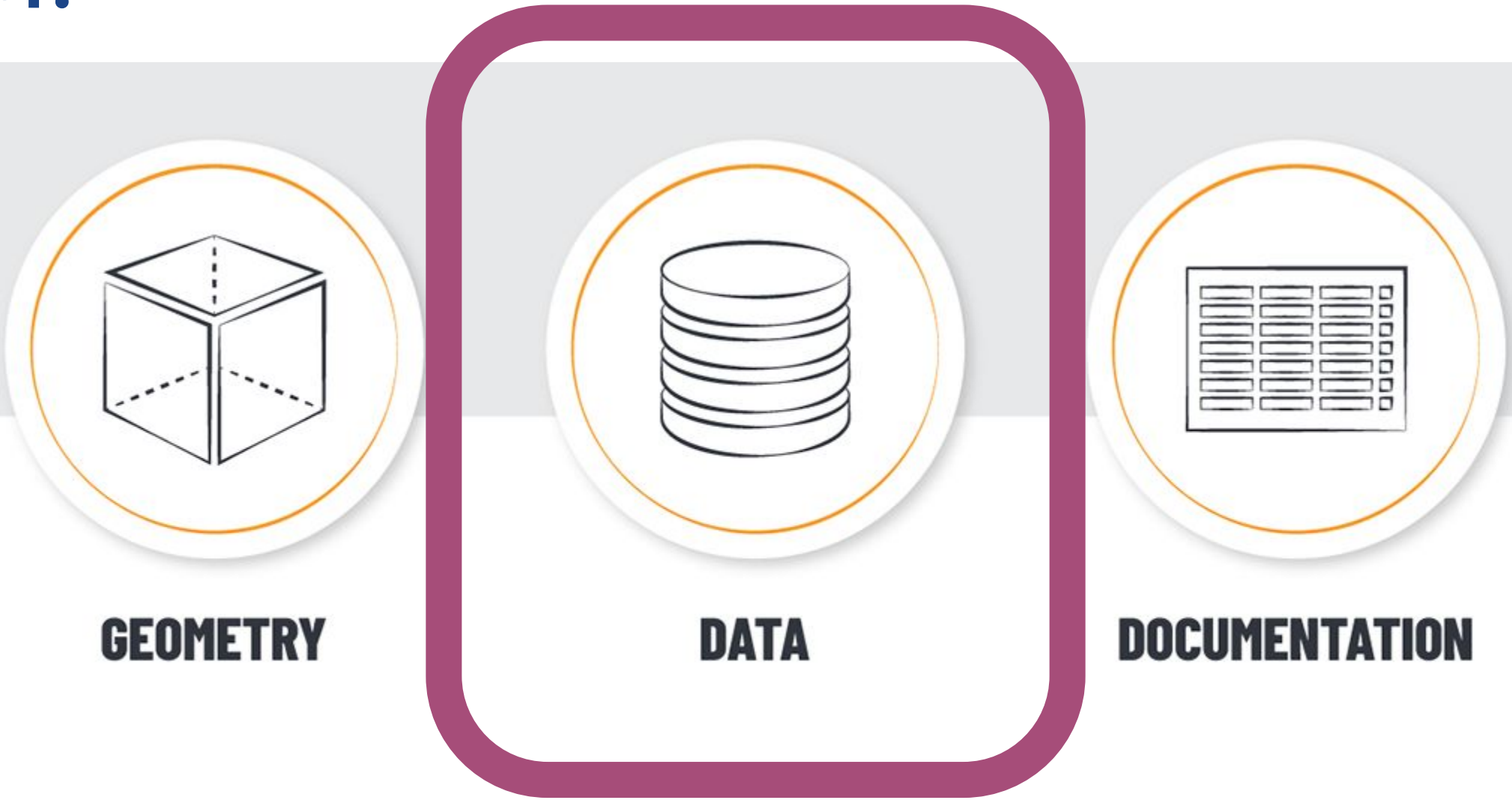
Chairman of BIM standardisation committee (EVS TK50)

7th of June, 2019

Riga, Latvia

BIM?



Source: cobuilder blog (2017)

BIM development level in Estonia

- BIM use in **design** and **construction** is common practice for more experienced companies
- **As-built** models are still on their way to common practice

  State Real Estate, Port of Tallinn, Tallinn Airport and Road Administration have started with as-built BIM pilots

History of BIM in Estonia

2008 - 2009 State Real Estate (RKAS) implemented Finnish COBIM guidelines

2010 - First public design BIM pilot by RKAS (in Narva)

2013 - COBIM 2012 was translated into Estonian

2015 - Estonian Digital Construction Cluster started

History of BIM

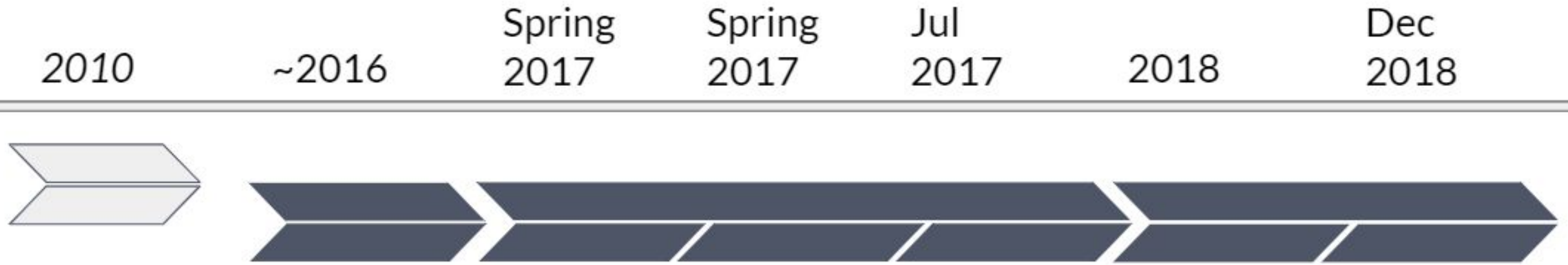
2016 - First BIM standard - BIM terminology EVS 928:2016

2017 - **BIM Declaration of Intent** signed by Public Clients

2018 - RKAS published new BIM requirements, which covers as-built stage and request for additional information

InfraBIM in Estonia

InfraBIM timeline



R.Vahenurm 2018

BIM Declaration of Intent

July 5 2017

1. Ministry of Economic Affairs and Communications
2. State Real Estate (Riigi Kinnisvara AS)
3. Port of Tallinn (Tallinna Sadam AS)
4. Road Administration (Maanteeamet)
5. City of Tallinn

aripaev.ee/uudised/2017/07/05/riik-seab-sisse-uut-ehitussusteemi

State Real Estate BIM requirements (April 2018)

Levels of data needs

Osa 16 - Üldnõuded

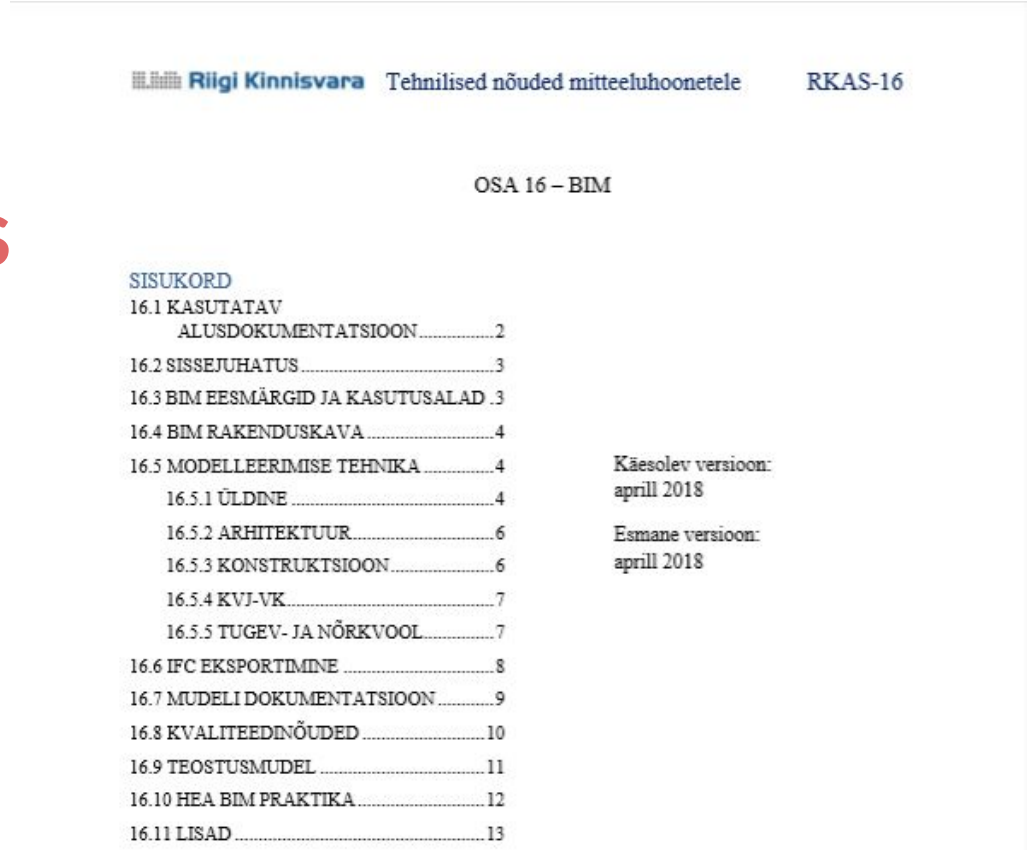
Lisa 1. BIM andmesisu nõuded

Lisa 2. BIM Rakenduskava näidis

Lisa 3. Mudeli kaaskirja mall

Lisa 4. Mudeli kaaskirja näidis

rkas.ee/kasulik-info/bim



Riigi Kinnisvara Tehnilised nõuded mitteeluhoonetele RKAS-16

OSA 16 – BIM

SISUKORD

Käesolev versioon: aprill 2018

Esmane versioon: aprill 2018

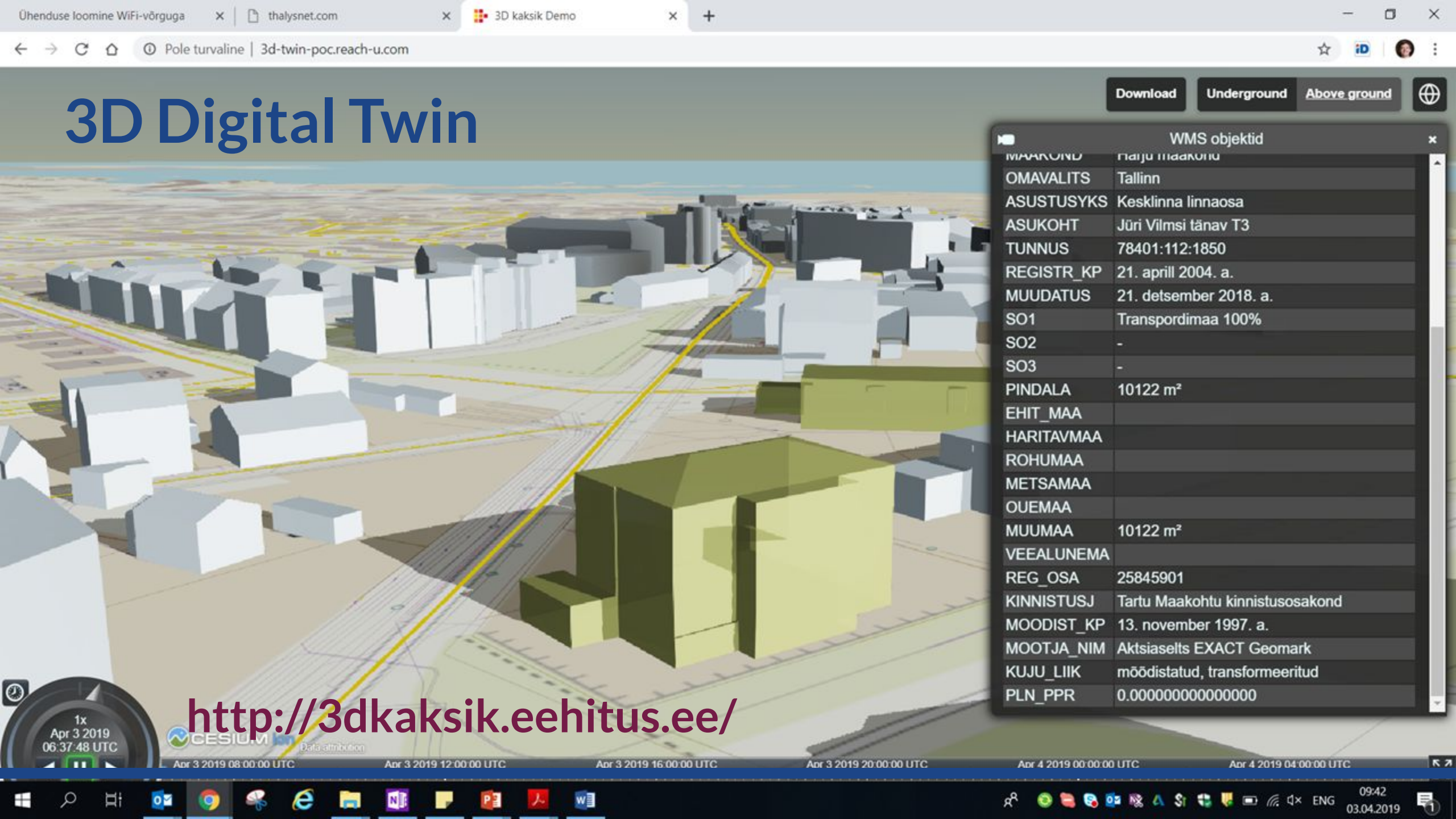
Source: rkas.ee/kasulik-info/bim

Public sector and BIM

Ministry of Economic Affairs and Communications will invest into digital construction development

1,5 million € in 2018 -2020

- Vision - e-construction platform
- Classification system development
- Construction registry upgrades


Ühenduse loomine WiFi-võrguga
thalysnet.com
3D kaksik Demo
Pole turvaline | 3d-twin-poc.reach-u.com
3D Digital Twin
Download
Underground
Above ground
WMS objektid
OMAVALITS Tallinn
ASUSTUSYKS Kesklinna linnaosa
ASUKOHT Jüri Vilmsi tänav T3
TUNNUS 78401:112:1850
REGISTR_KP 21. aprill 2004. a.
MUUDATUS 21. detsember 2018. a.
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SO2 -
SO3 -
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HARITAVMAA
ROHUMAA
METSAMAA
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MUUMAA 10122 m²
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REG_OSA 25845901
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Apr 4 2019 04:00:00 UTC
http://3dkaksik.eehitus.ee/
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03.04.2019

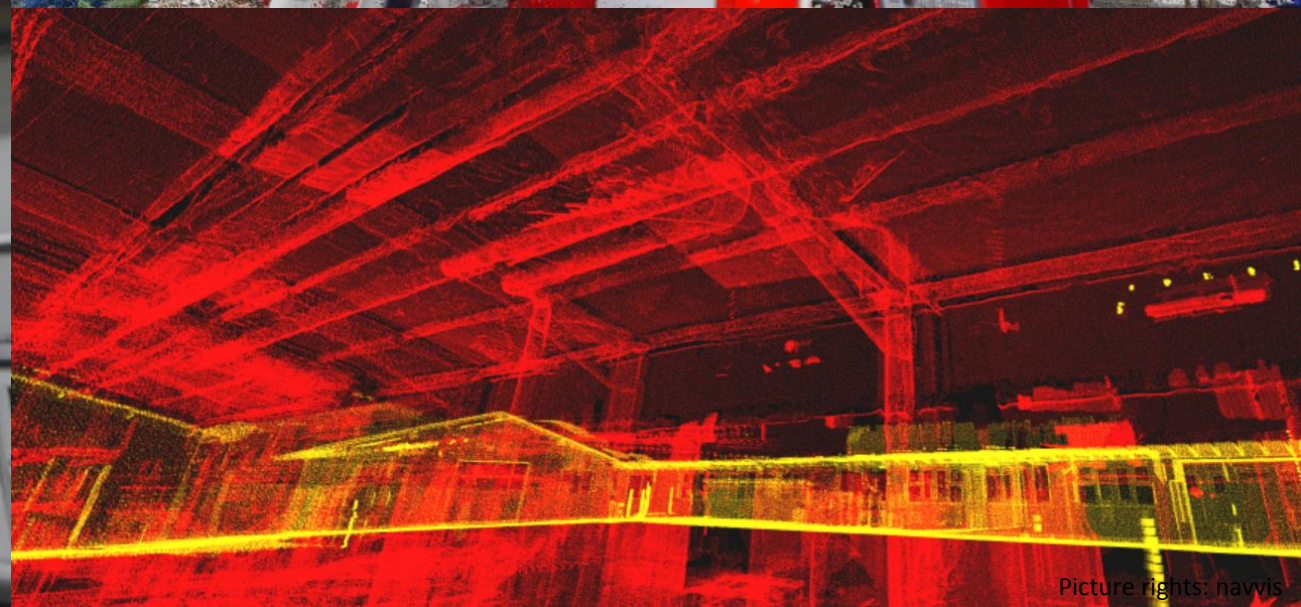
Collaboration and activities

- Digital Construction Cluster
  - Public sector clients, universities & private sector
  - 35+ members (Jan 2019)
  - e-difice.com
- BIM standardisation - EVS TK50 (CEN 442)
- Estonian BIMsummit - bimsummit.ee (since 2016)

Trending in 2019

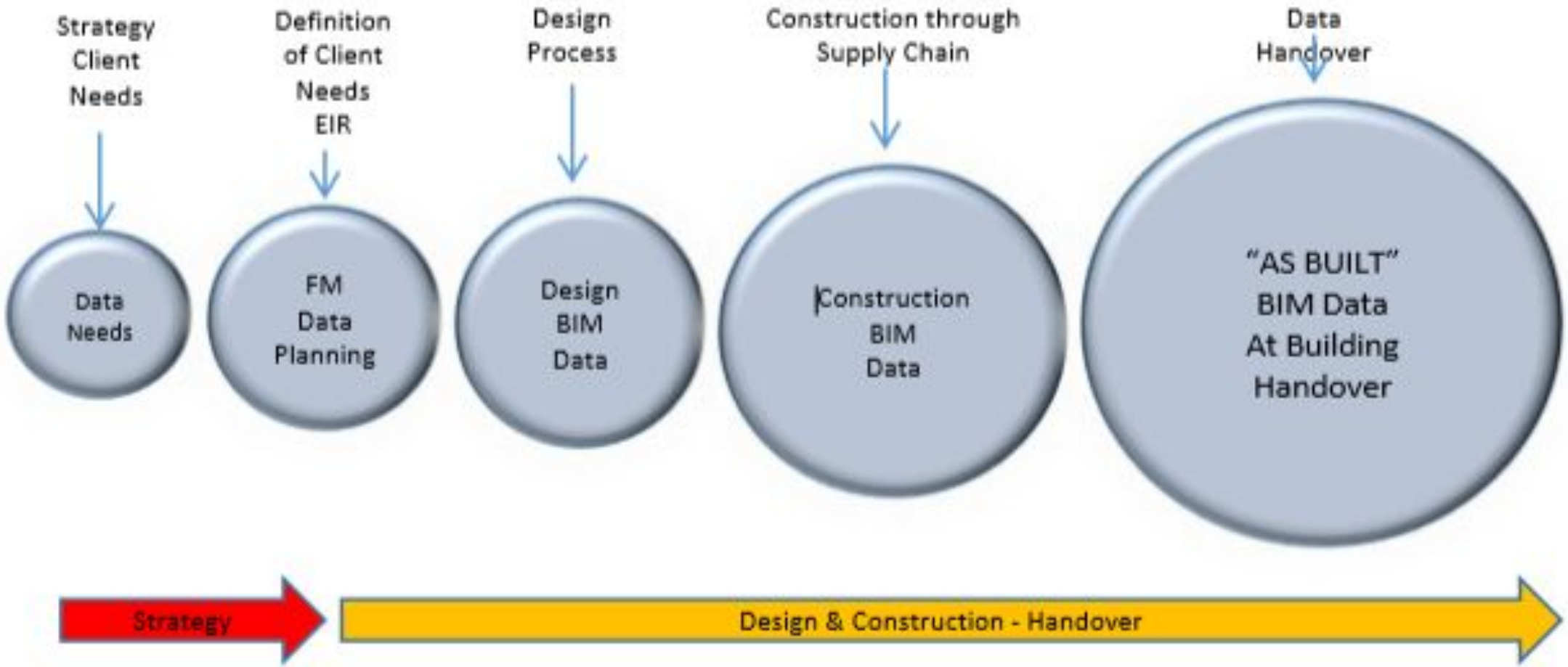
- **InfraBIM**
- Life-cycle BIM concept
- **As-built BIM**
- Facility owner **BIM requirements**
- Manufacturers and manufacturing

Adding value to BIM-projects with reality capture



Picture rights: navvis

Amount of Data increases as project evolves



Source: Ashworth, adapted from Arup, Scuderi (2013)

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Information management

Managing reality and virtual data streams

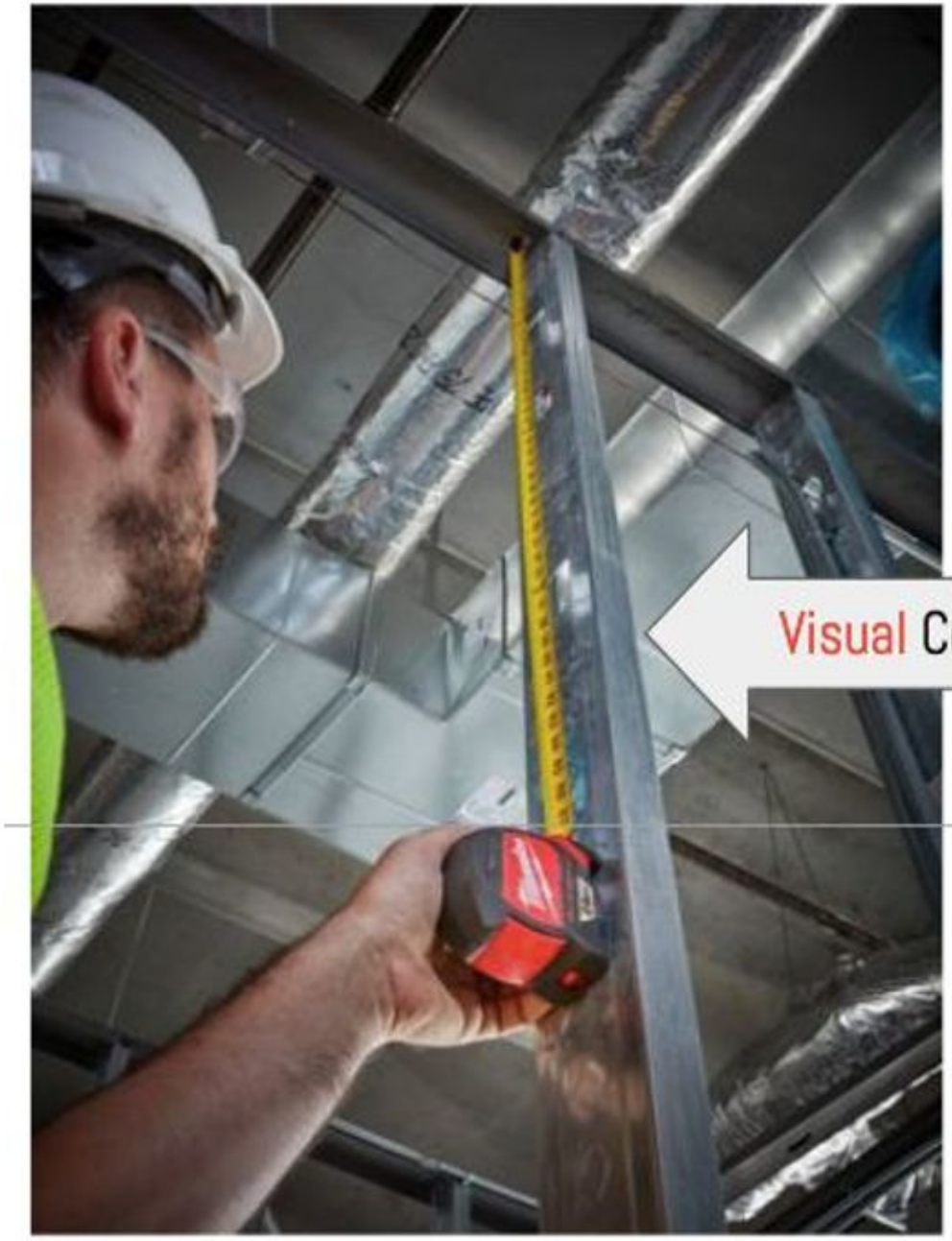
Comparison Analysis of

Reality vs Virtual

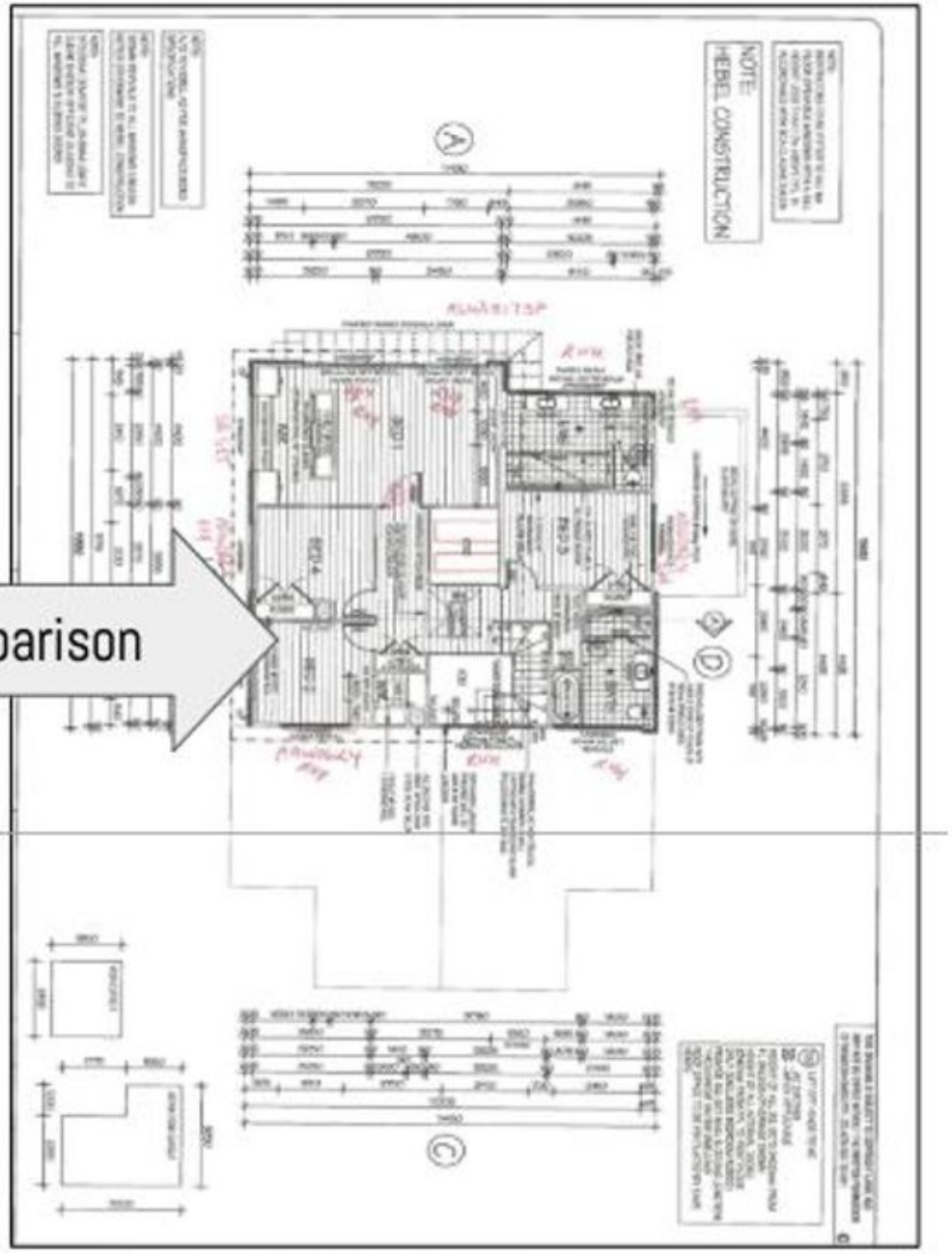
3D scans vs 3D models

Areas for analysis

- **Construction process tracking and verification**
- As-built and FM BIM vs reality (accurate digital twin)
- Check of 3D model before redesign / renovations



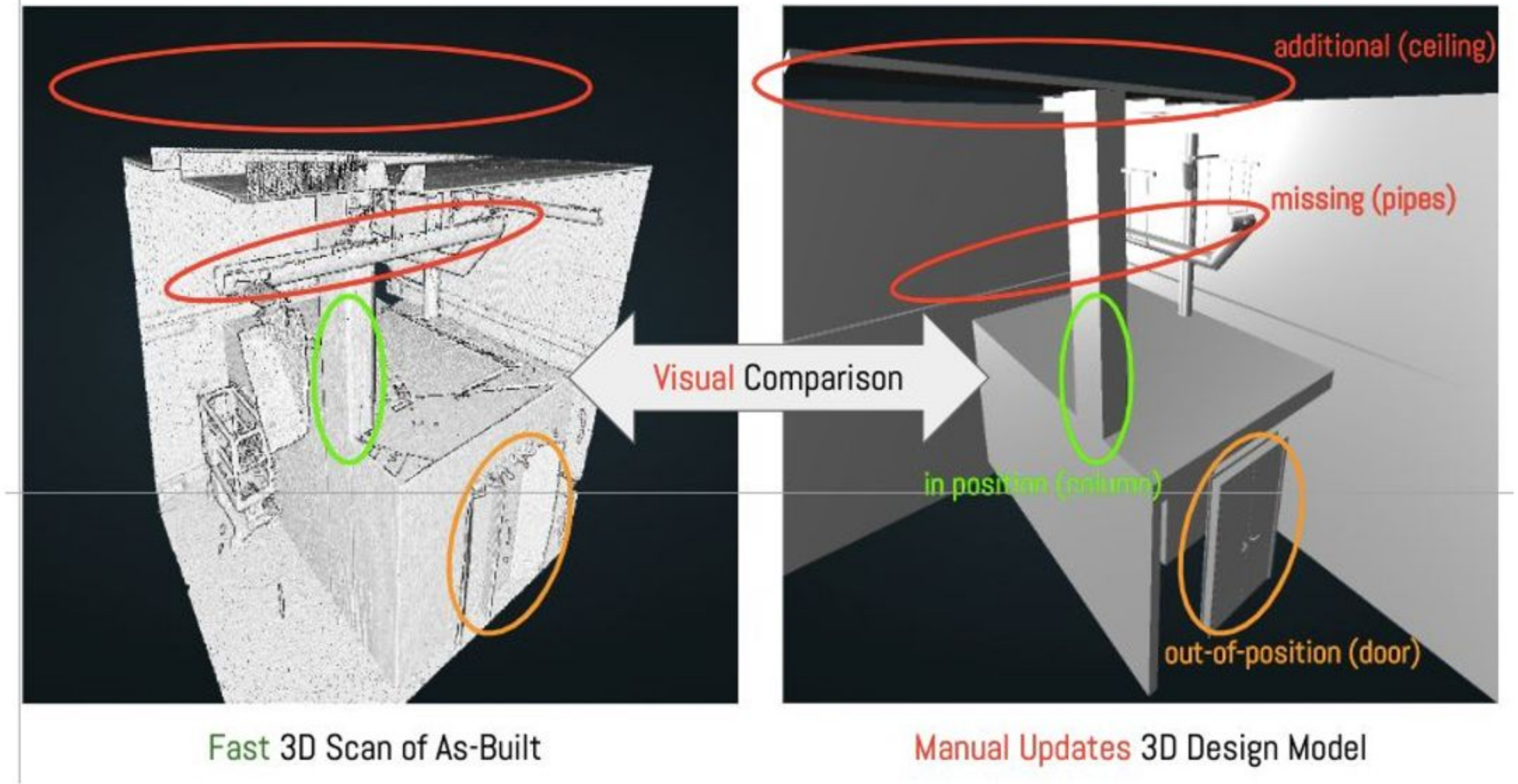
Visual Comparison



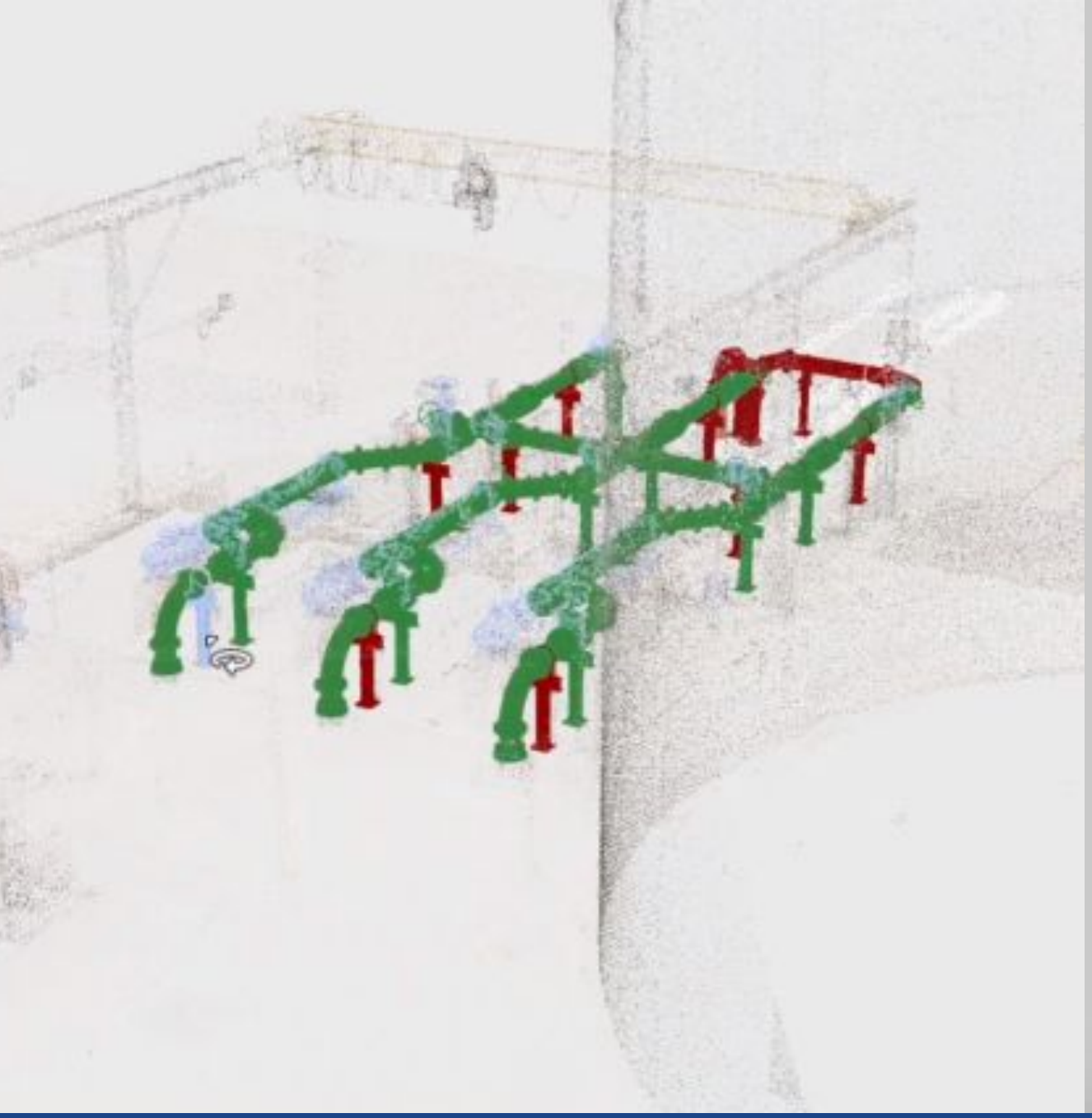
Manual Traditional Survey Methods

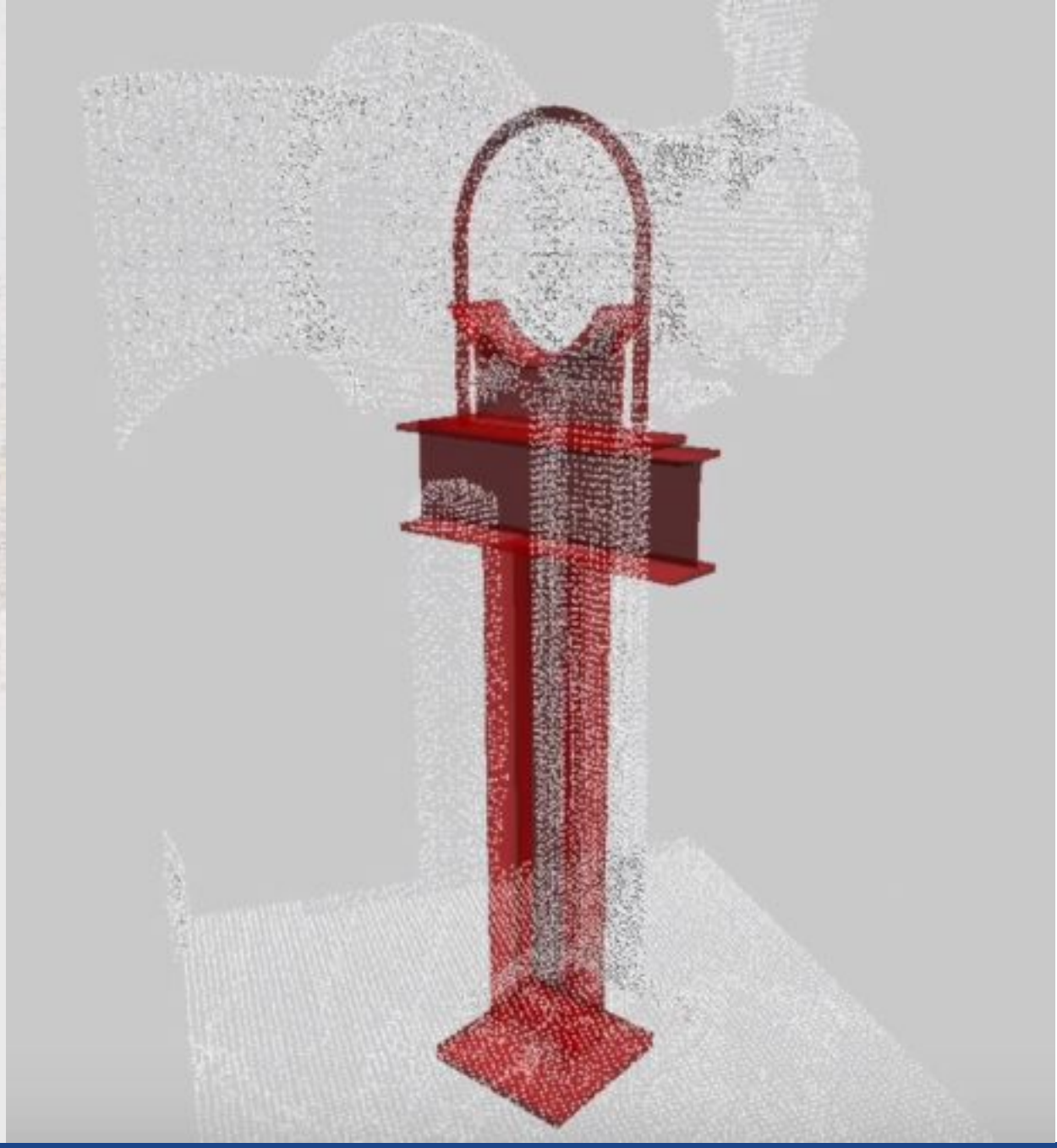
Manual Redline Markups

Picture rights: Airsquire



Picture rights: Airsquire





Picture rights: Airsquire & MWH

Remarks and lessons learned

- Trust and collaboration - incentives
- Existence and quality of scan requirements
- Purpose and quality of generated datasets
- Tolerance range in requirements for reality checks
- Purpose of analysis - detail level depends on use

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Thank you!

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