PREDIS-EURAD Webinar: Digital Twins in support of Dismantling Projects

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Digital Twins in support of Dismantling Projects

BIM & Digital Twin

Dismantling Digital Twin

Digital Twins in the Nuclear Industry

Future Development Trends

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« BIM » & « Digital Twin »

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Virtual Reality, Augmented Reality

Digital Twin

BIM

+ Design & Build phases

+ Static data

- Design & As-Built
- Project: cost, schedule

+ Design calculations and simulations

Digital Model

Collaboration / Integration / CDE / Interoperability

2D, 3D geometries

+ Data (properties and quantities)

Calculations and Simulations

Document Management

+ Relational interaction with physical world

+ Asset management, O&M phase, full lifecycle

+ Dynamic / real-time data, monitoring

+ Analytics for predictions and optimizations incl. AI, Machine learning

System Engineering

Brownfield:
Legacy data, Scan to BIM

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« Dismantling Digital Twin »

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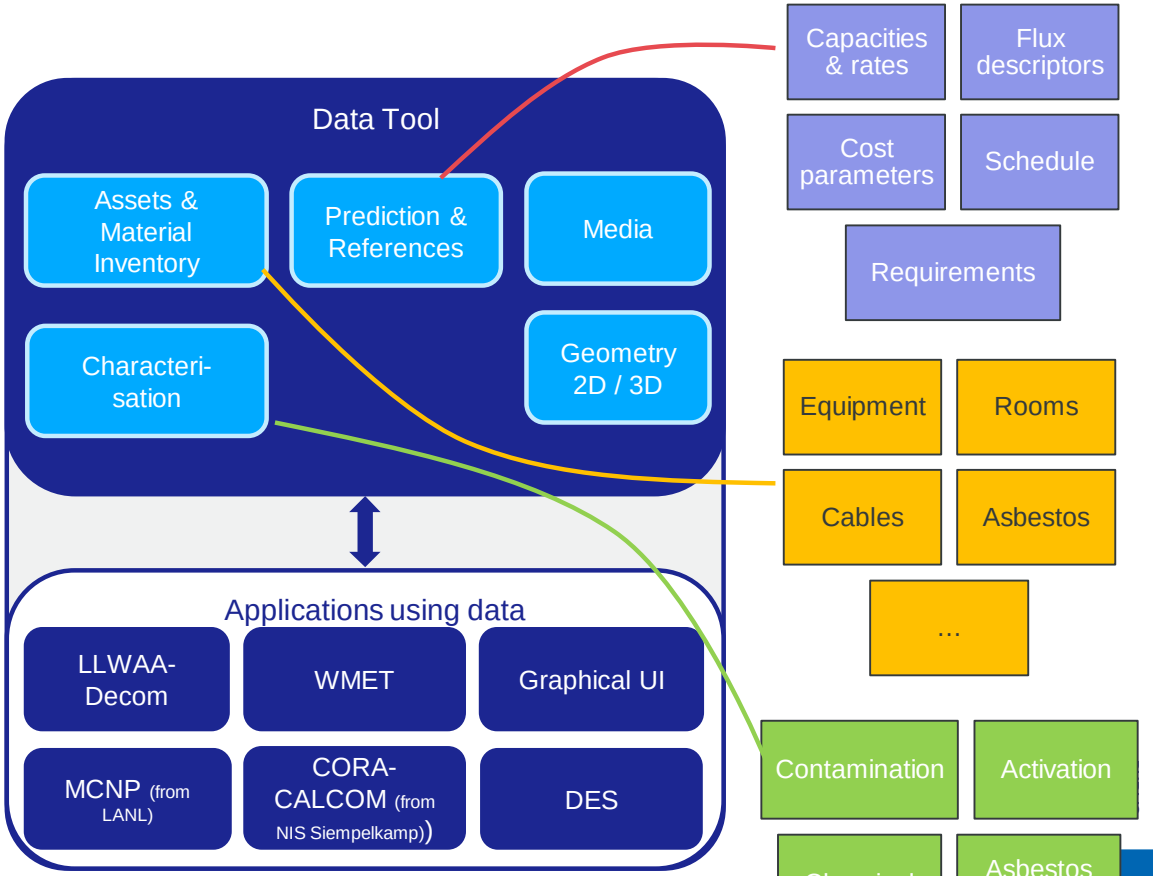
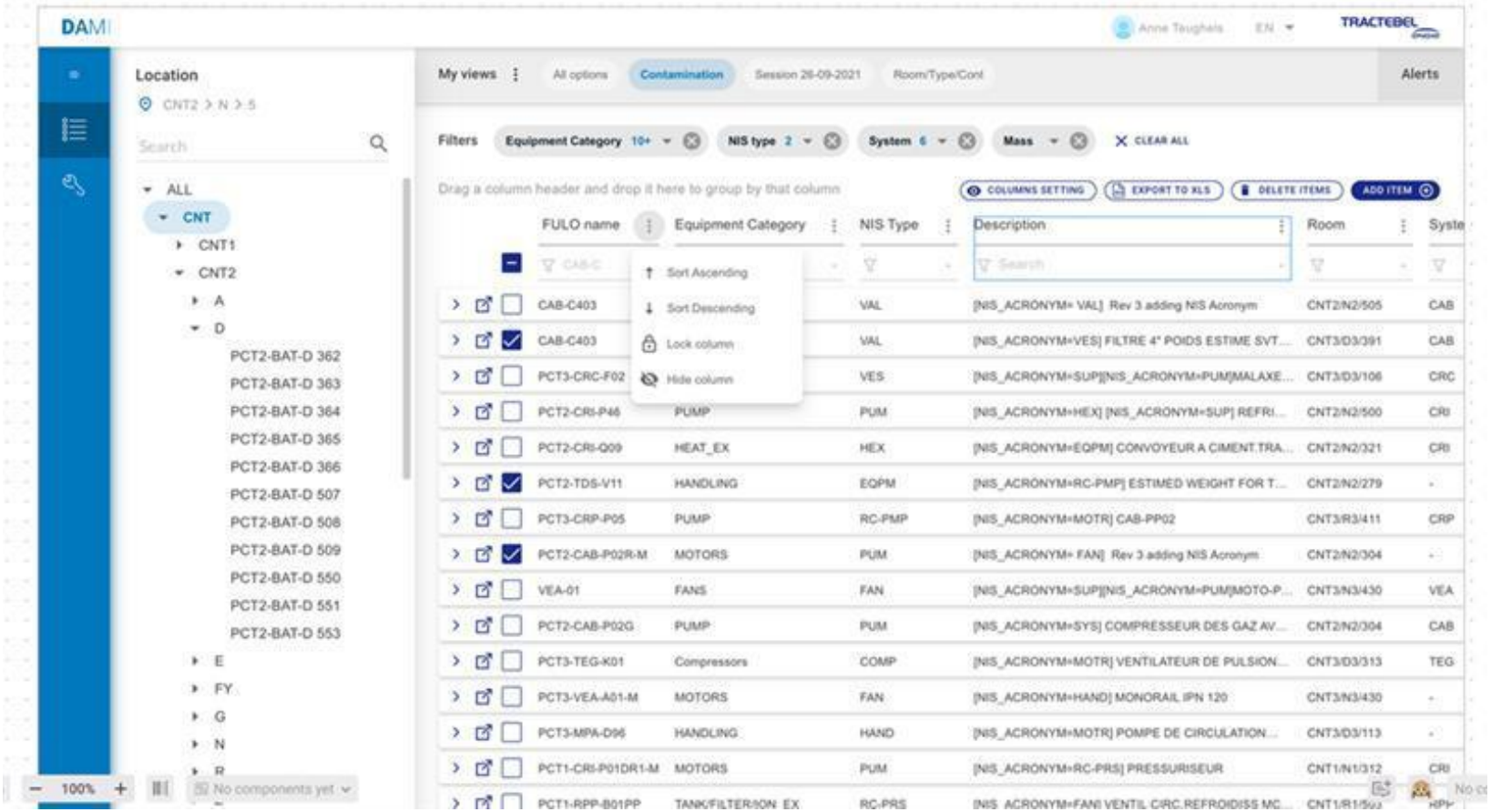
Dismantling Digital Twin Objectives

- Consolidated Plant **Inventory** and Digital model
- **Predictions and optimisations**: Waste quantities, Dismantling schedule, cost and resources
- **Simulation** & characterisation of contamination and activation
- **Design** of new waste management facilities + modification of existing installations
- **System engineering**

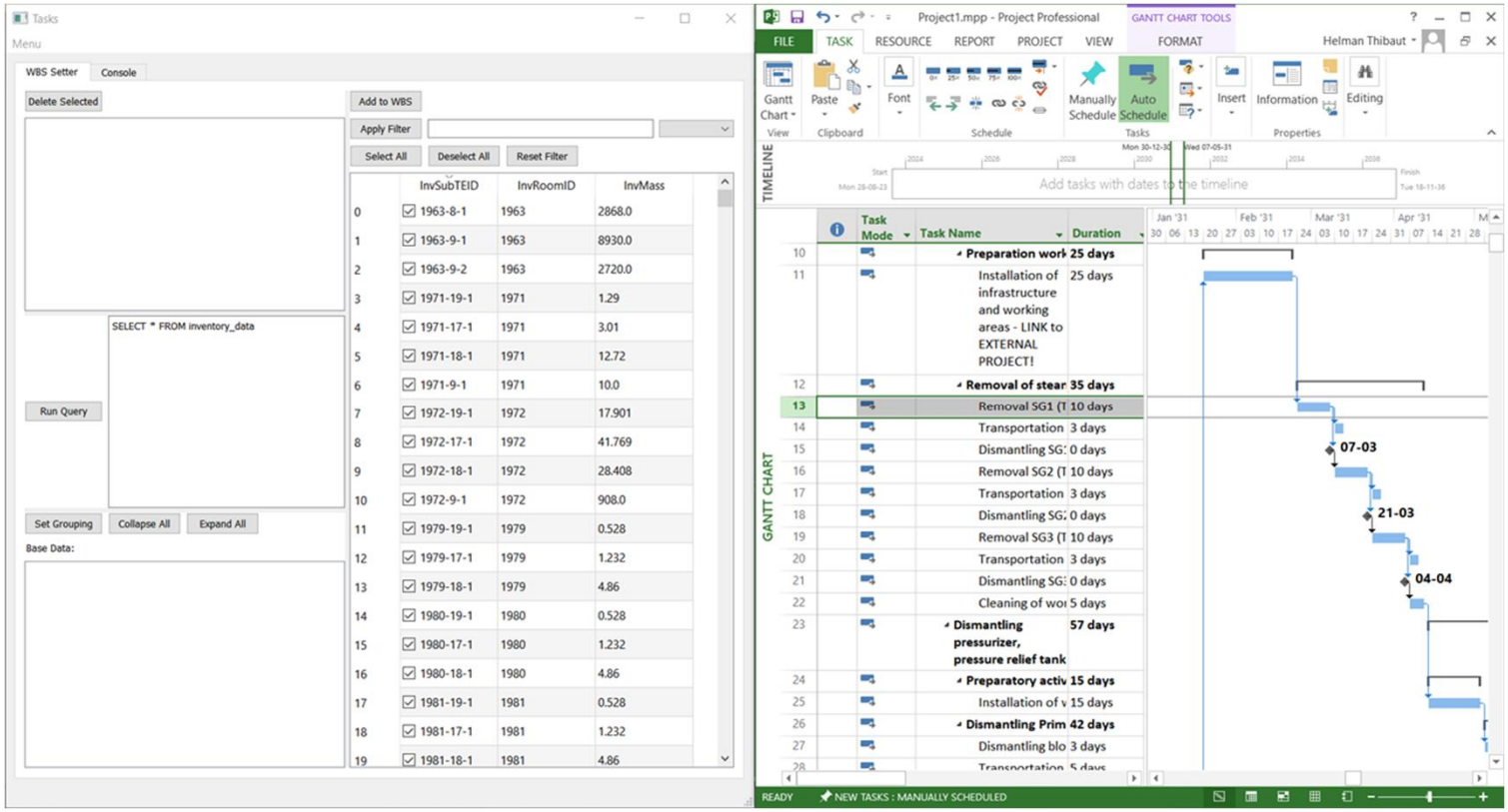


Interoperability and integration of data, models, functionalities

Consolidated Plant Inventory



Integration of Inventory & schedule



Inventory Digital Model Simulations

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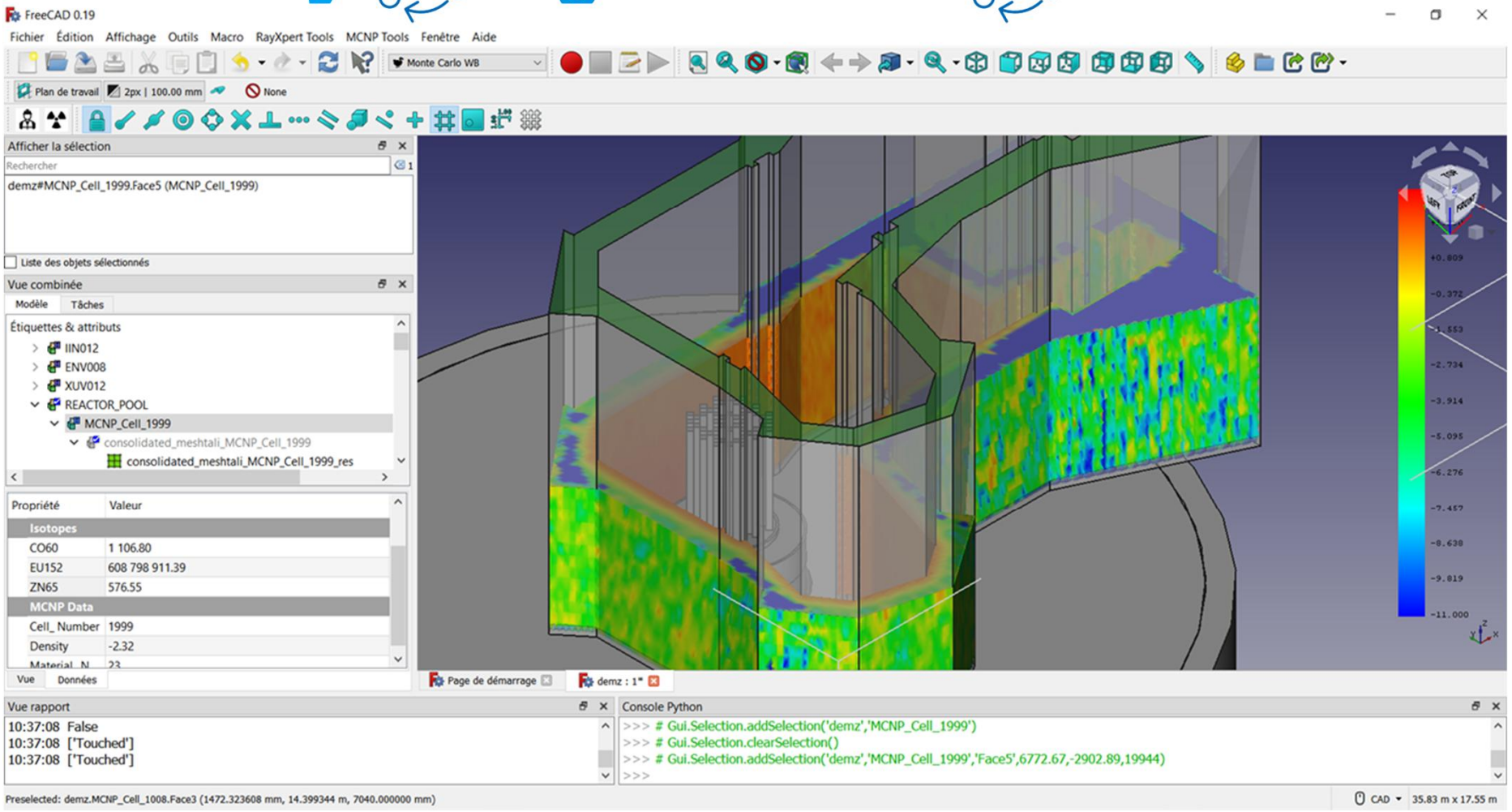

Digital twins in the Nuclear Industry

Fuzzy definition of Digital Twin

- Importance of user story, **definition of the needs** and requirements

Digital Twin is all about **data**

- Importance of CDE, integration, interoperability

There is no off-the-shelf “one size fits all” technological solution

Nuclear specificities

- Need complex **simulations**
- **Extended** use of data (static… dynamic)
- Existing assets: challenge of **legacy data** (decentralized, unstructured,…)
- (Huge) Limitations from **confidentiality** and **accessibility** rules

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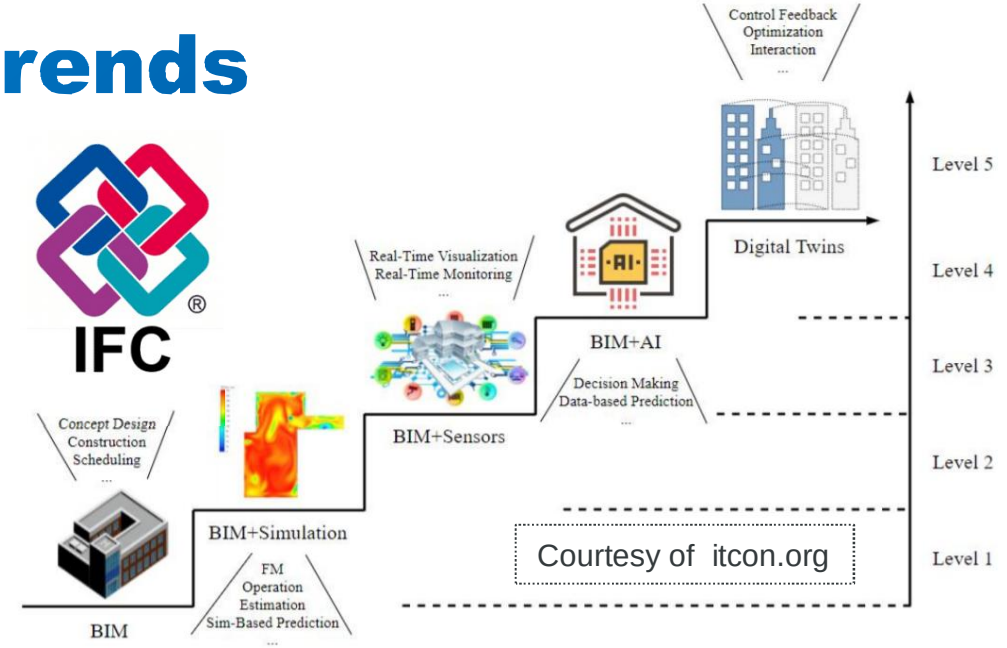
Future development trends

Improvement of Data quality, **Interoperability**, **Standardisation** and openness

- Increased integration of models & functionalities, stronger **ecosystem**
- More complex and transverse Multiphysics **simulations**

Integrating data from **sensing** and **real-time** monitoring (IoT)

AI/ Machine learning for real-time simulations and predictions



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System Engineering		***Brownfield:*** ***Legacy data, Scan to BIM***

https://digitaltractebel.lademo.be/solutions/digitwin/


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