Smart solution for nuclear decommissioning (EcoDeco)

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dECmm
Ecosystem for New International Decommissioning Services

WHAT

- EcoDeco Project- Smart Solution for Nuclear Decommissioning: Development of a new digital solution and service for nuclear decommissioning.

- Semi-automated creation of digital twins, utilizing e.g. artificial intelligence and creation of related information content that is important for the decommissioning, forms the basis for Swecon's new solutions and services.
- The aim is to create a digital twin platform business for the decommissioning of nuclear power plants to maximize recycling of deconstruction waste, visualize current situation and what-if scenarios as well as optimize planning and execution using intelligent models.

- New business requires researching, testing and combining existing and "up and coming" technologies and exploring future opportunities. The goal is to achieve market leadership in digitalization of nuclear decommissioning.

Goals

Sweco has a central role in the decommissioning process as a provider of the tools used for modeling, design, planning and execution of the decommissioning project.

The platform will be used not only by Sweco but also by the customer, contractors, subcontractors and regulators.

The goal of the project is to provide an integrated set of tools and methods (a platform) that enables planning and execution of an efficient and safe decommissioning project that is commercially competitive.

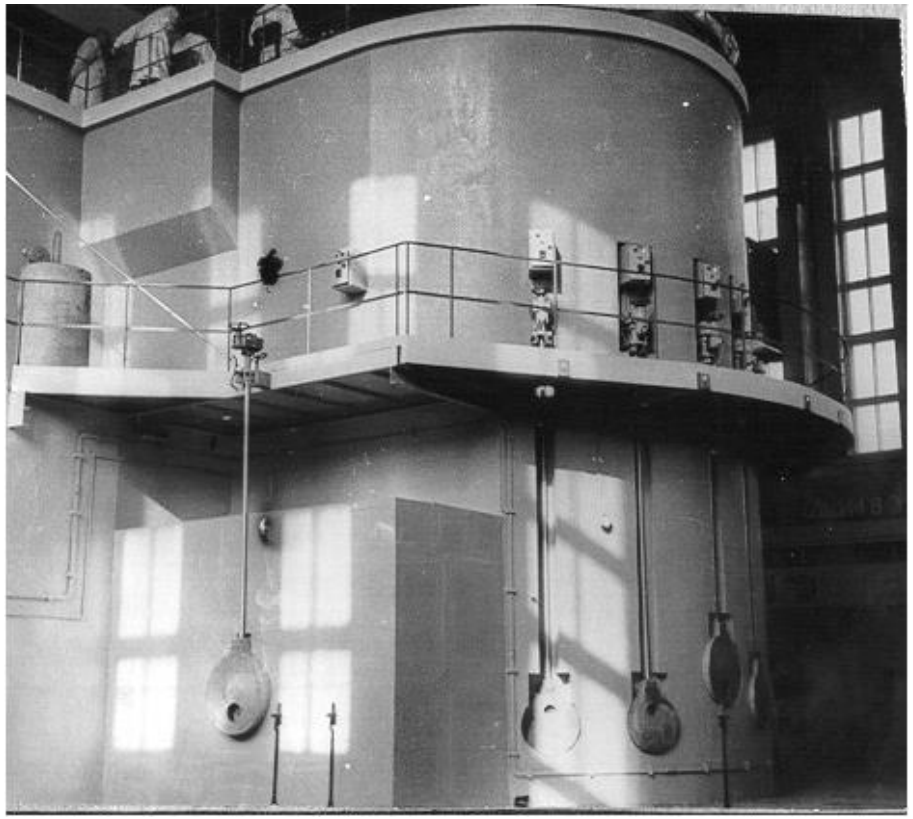
The platform will provide support for NPP specific issues like communication, safety, reporting, control and inspections.

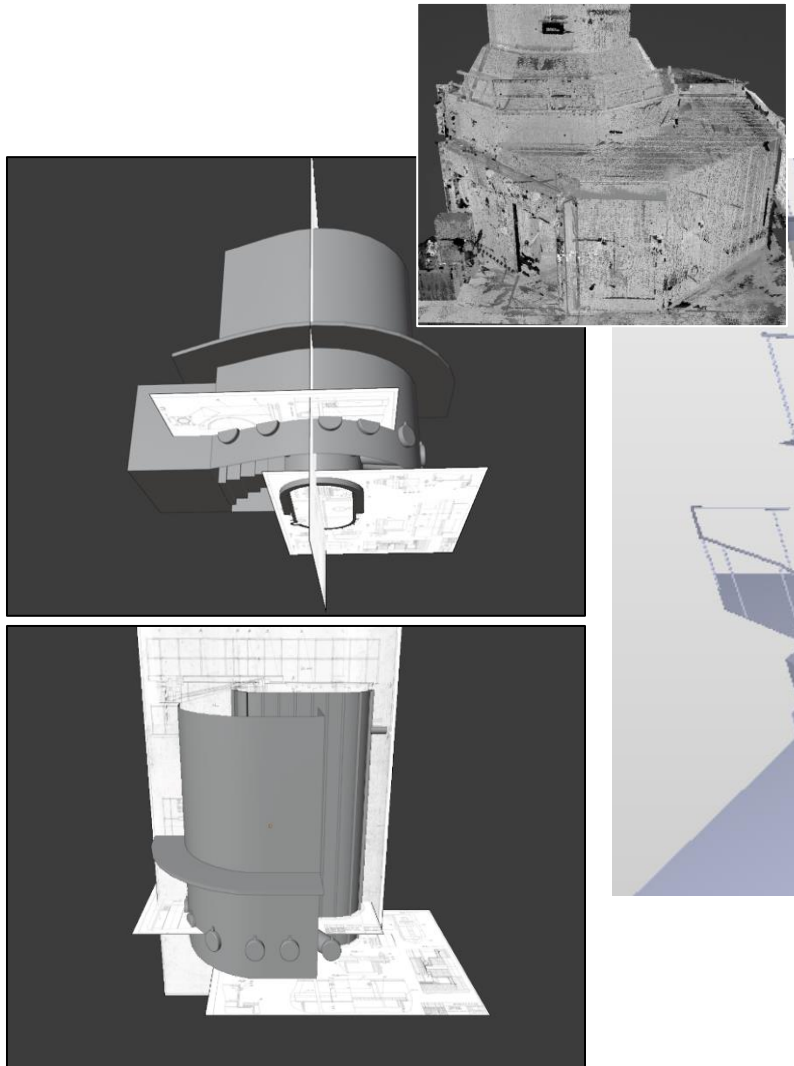
The platform integrates not only tools developed by Sweco but also other external tools used in the decommissioning process.

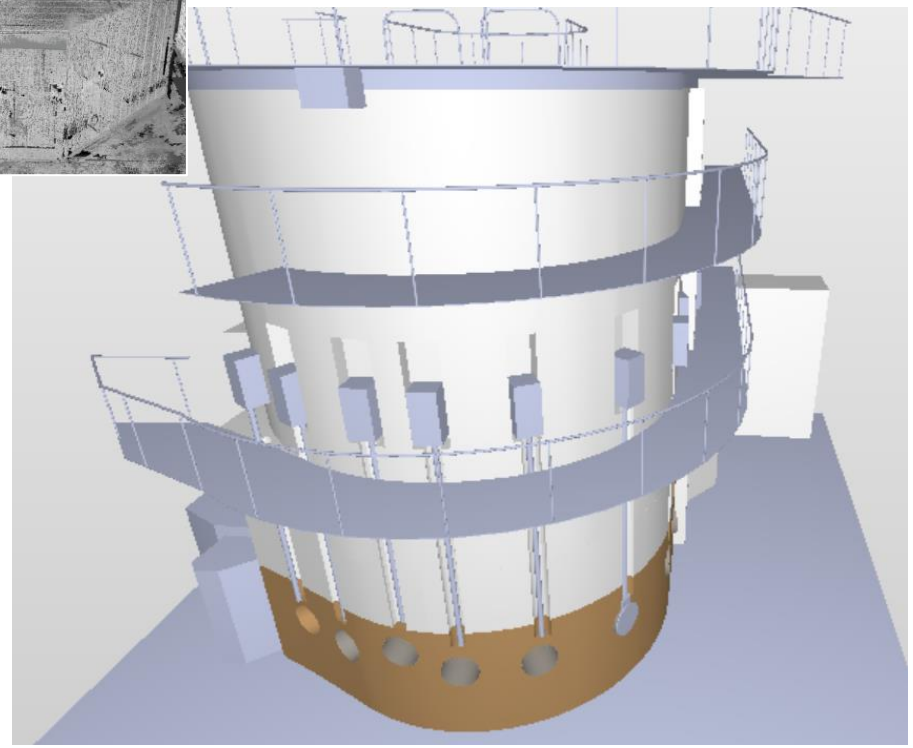
The platform will make it possible for Sweco, customers and authorities to use these tools from one location and to exchange data between the tools.

Sweco will be the “system administrator” that provides this as a Product-Service System / Toolbox that meets the customer needs.

GOAL 1:
The starting point and the core of the platform is a visual 3D model of the decommissioned plant







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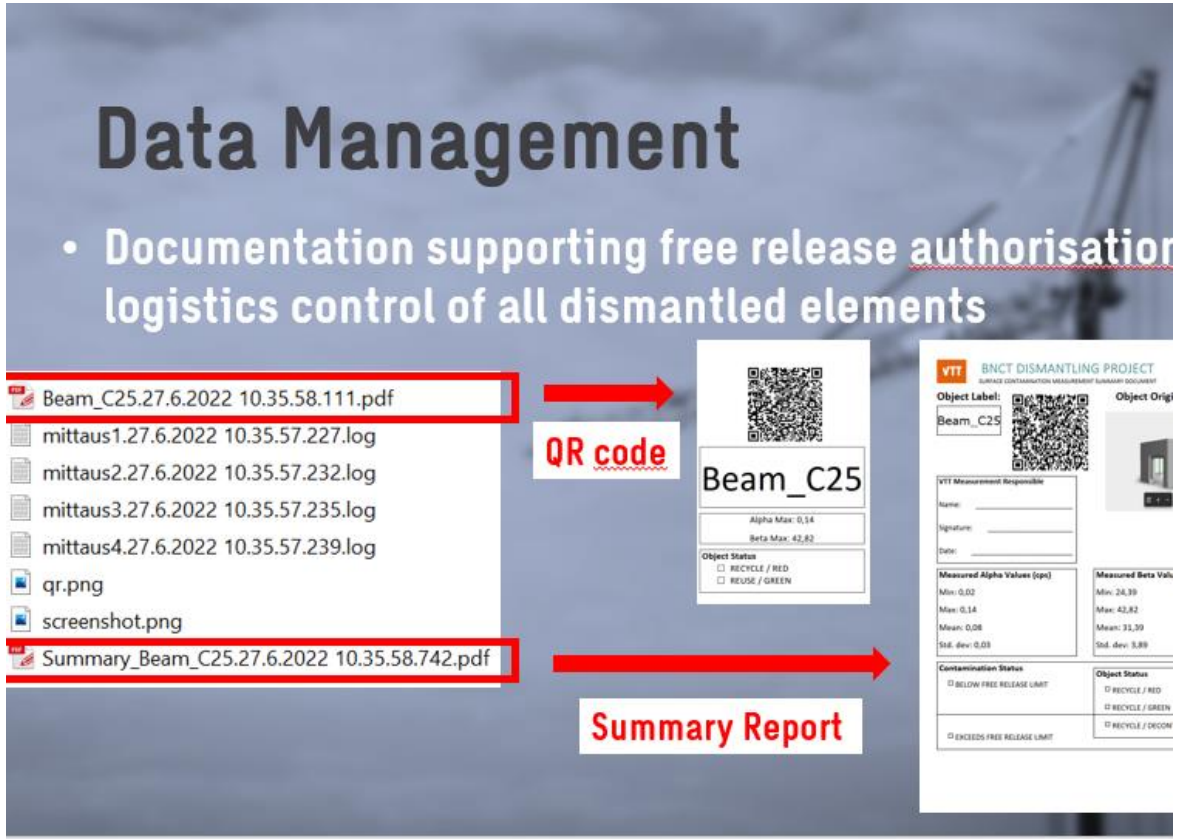
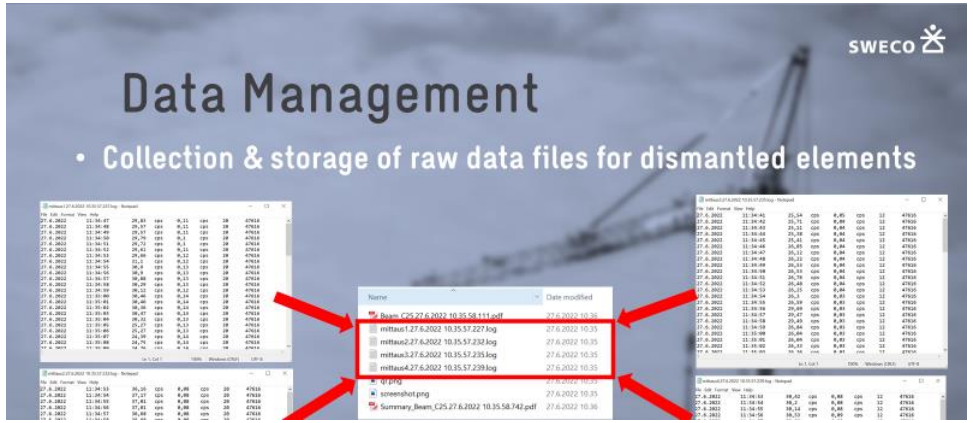
GOAL 2:
At the end of the project, we will have a conceptual framework of how sweco's platform can support risk management of decommissioning projects both from a regulatory and a project management point of view





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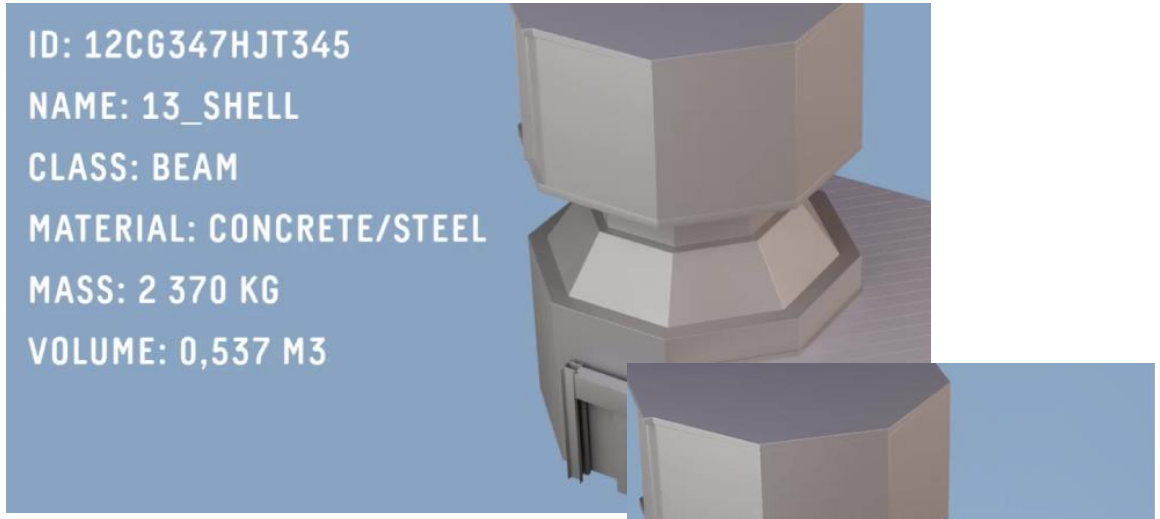
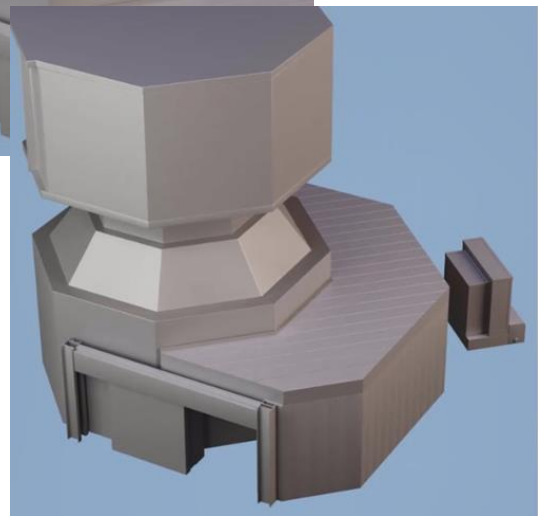
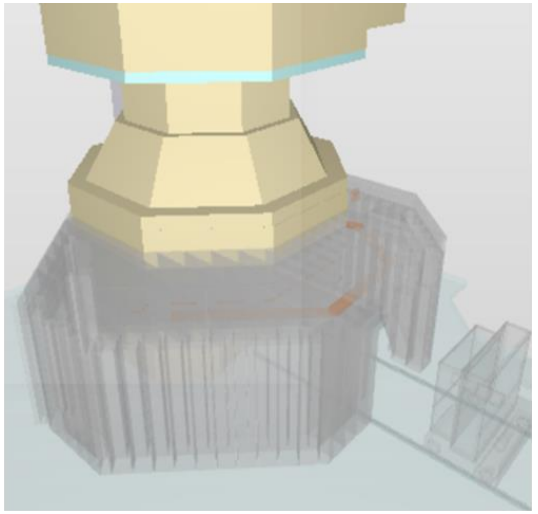
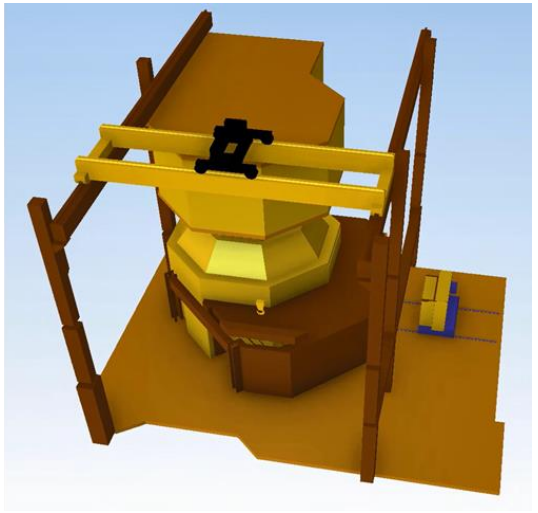
GOAL 3:
The goal is a flexible constantly up-to-date virtual model – the digital twin of the decommissioning









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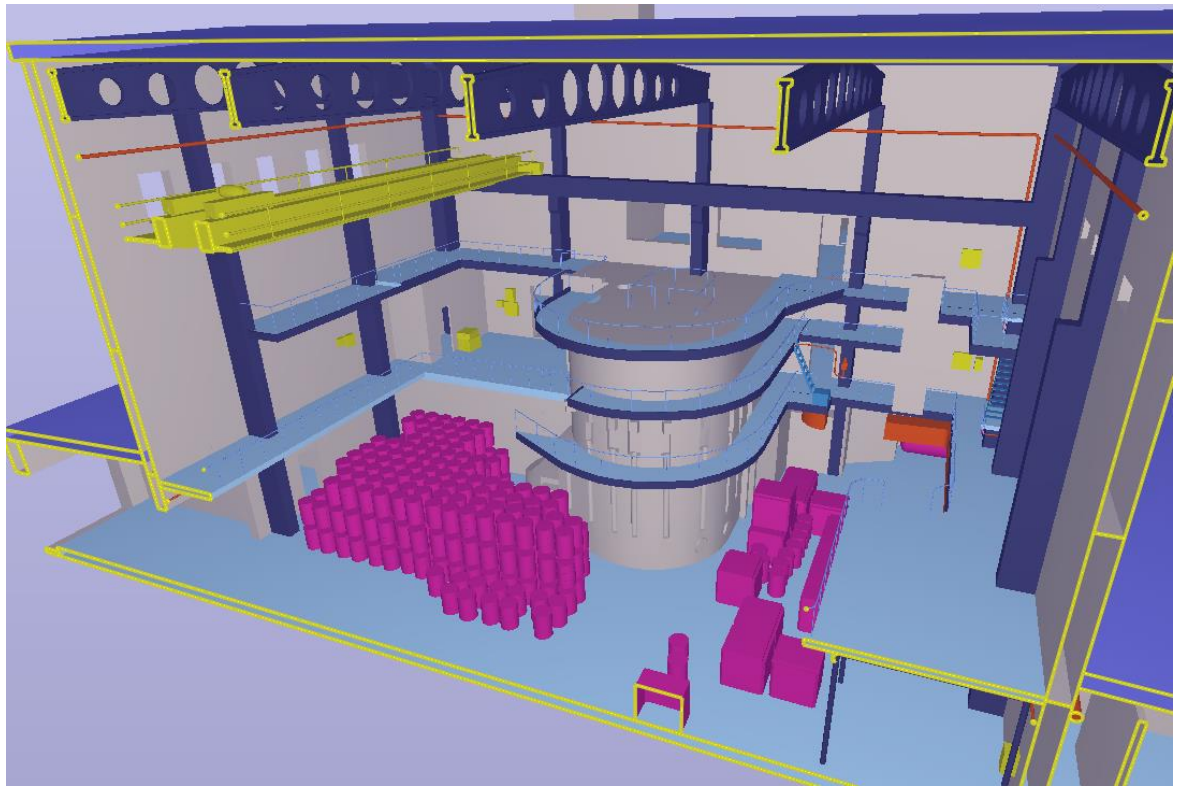
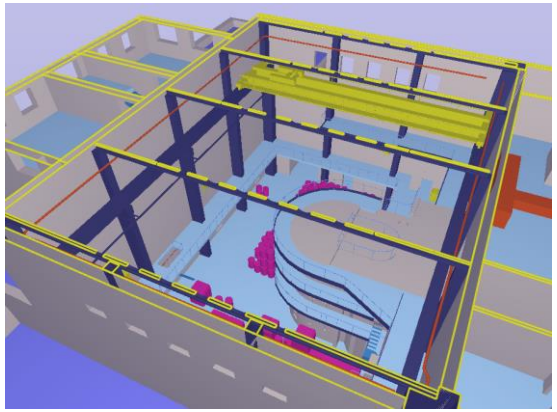
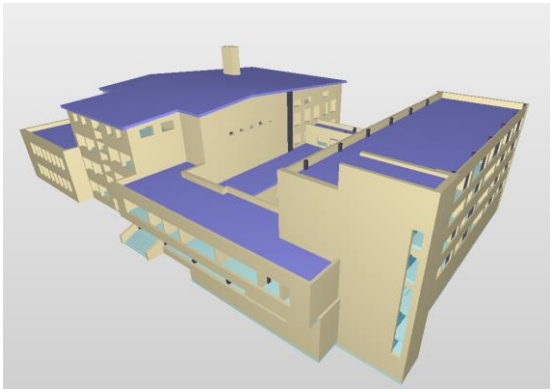
GOAL 4:
The goal is a flexible constantly up-to-date virtual model – the digital twin of the decommissioning







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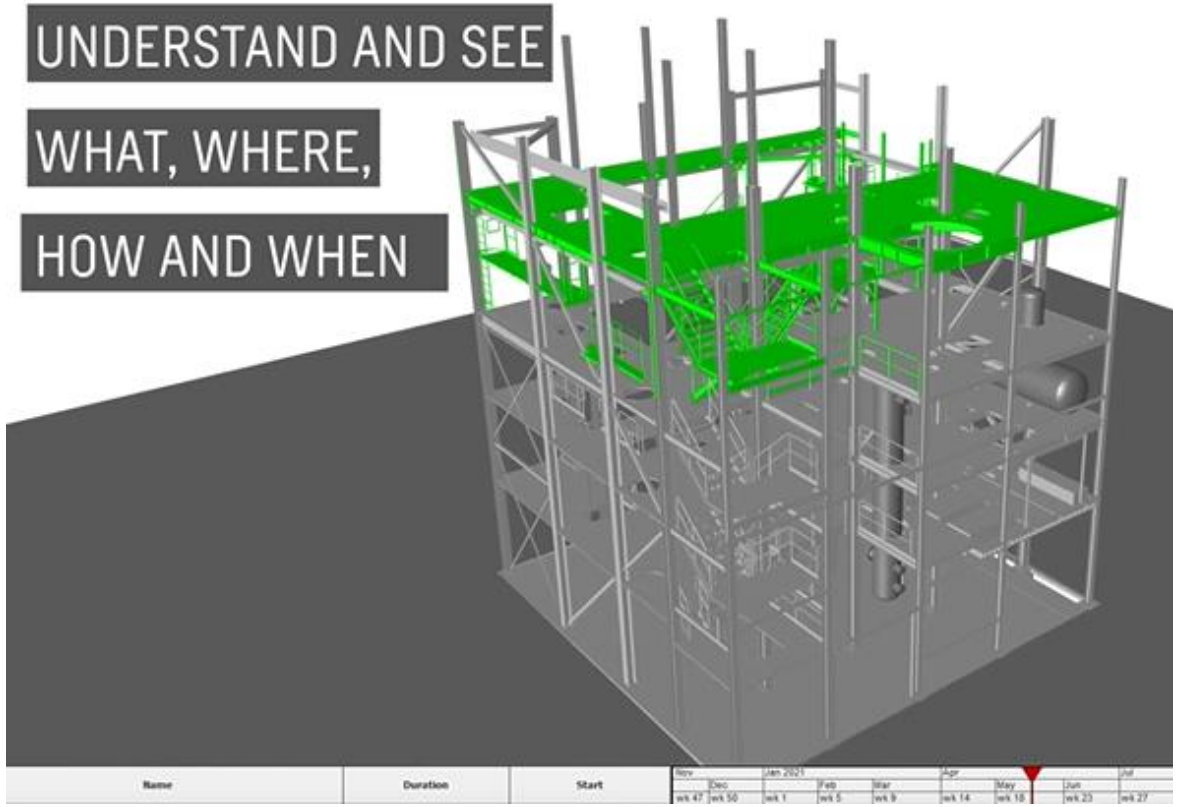
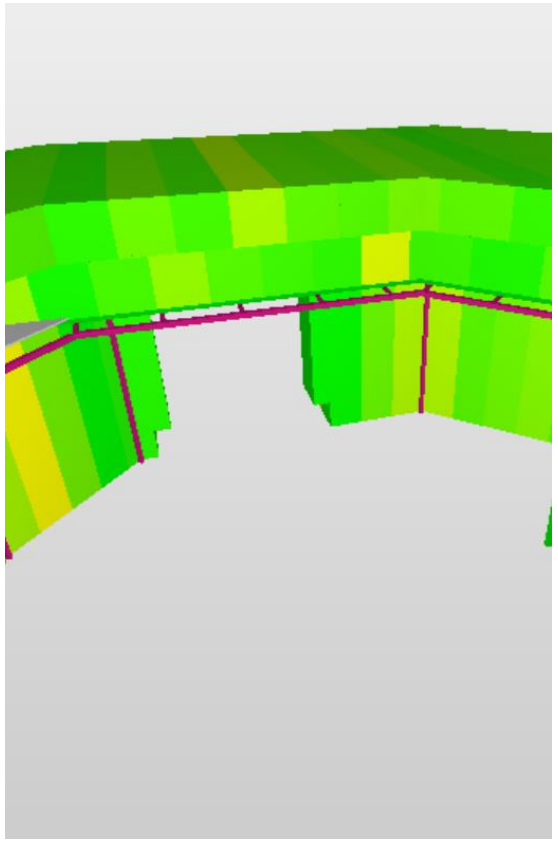
GOAL 5:
The project combines BIM models and augmented/virtual/extended reality with information on activated materials and radiation fields. The goal is to provide a powerful visual tool for the planning of decommissioning work, incl 4D-7D





Findings so far

1. Outlook for exploiting outcomes: We feel that many of the technologies, software and services can be valuable in other industries as well, not just nuclear decommissioning. **This project has increased our internal collaboration as well and is helping us share and learn from each other other well. We also have found also other companies that we can potentially collaborate with.** There is some more actual testing needed and we are ready to do more of it now that we have done a lot of reseach.

2. New knowledge: understanding of the market and players in the field; Scanning, inventory modeling, data security, contracting; data movement, how to utilize models in scheduling, circular economy, safety, etc. Getting to know the international market. Use resources from small businesses in Finland.

3. Indirect: Most of the research work can be applied in other industries as well, not just nuclear decommissioning. For example demolition, modernization and new build of industrial projects. This also has improved sharing of information within Sweco and collaboration.

Thank you

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