PLEIADES PROJECT: THE USE OF DIGITAL MODELS

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A considerable number of nuclear reactors around the world arrive today at the end of their life cycle, or will arrive within the next few years. As the dismantling and decommissioning (D&D) of nuclear facilities was not foreseen at the time that they were designed and built, this is a complex and hazardous task. Each D&D process is handled differently, which may result in lost time and higher costs in order to avoid major problems. Therefore, especially at a European level, standardisation will allow better coordination and transfer of experience and knowledge between countries, resulting in sharing best practices and adapting the process on each site specificities.

PLEIADES (PLatform based on Emerging and Interoperable Applications for enhanced Decommissioning processES) is a European project where representatives of industry, research, safety organization and technological SMEs join forces to demonstrate a modular software ecosystem based on interconnection of front-line support tools through a decommissioning specific ontology using the BIM (Building Information Modelling) methodology. The ontology is the basis of PLEIADES and provides a common understanding of the concept with specific decommissioning terminology. The developed platform provides the integration of the different data and tools.

In order to demonstrate the PLEIADES concept, 3 use cases are used in different European countries: France, Norway and Spain. 6 user stories have been defined on these use cases, addressing application areas such as cost and planning, radiation exposure estimation, scenario studies and waste assessment.

3 user stories (each one linked to one use case) focus on comparison of alternative scenarios to decommissioning activities such as radiological characterization, dismantling and decontamination of building surfaces. The 3 others depend on 3D models developed for the previous ones and focus on risk management, uncertainties, regulatory aspects and waste management strategies.

In order to success in the tests and validation, the following steps are mandatory: data collection and integration, data security assurance and data completeness verification. This has already started in the ongoing implementation of PLEIADES platform on real use cases: most relevant data has been collected, the completeness of the models started to be checked and the BIM models are being developed. These steps are not linear, but the whole process is iterative.