

PLEIADES

Smarter Plant Decommissioning



DigiDecom 2021 – DIGITAL

Online international workshop focusing on digital transformation, robotics and other game changing trends in nuclear decommissioning



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Platform based on Emerging and Interoperable Applications for enhanced Decommissioning processES

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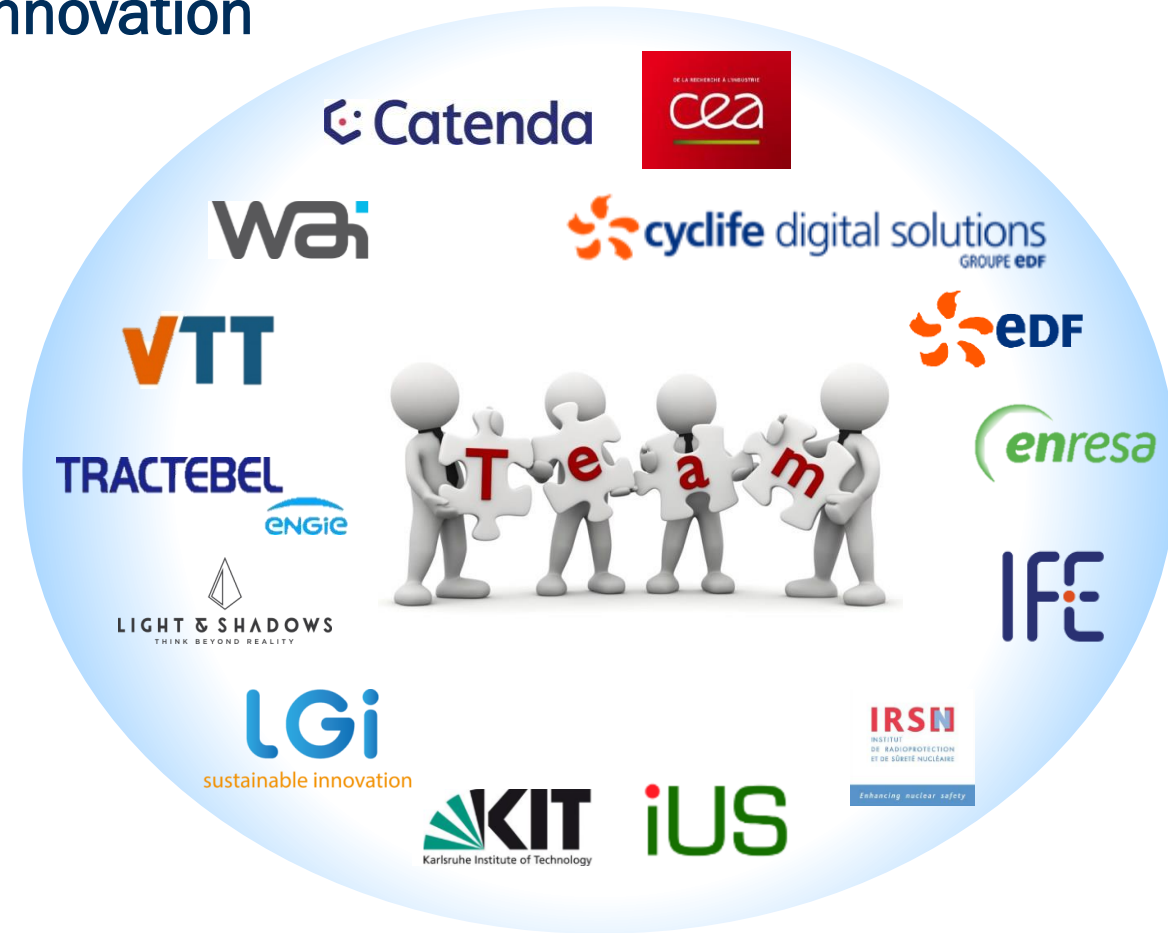
PLEIADES

Smarter Plant Decommissioning



PLEIADES Facts

- **Call:** H2020 NFRP-2019-09 – “Fostering innovation in decommissioning of nuclear facilities”
- **Duration:** 3 years (1/10/2020 - 30/09/2023)
- **Consortium:** 14 partners
 - 7 countries: FR (6), DE (2), NO (2), ES (1), FI (1), BE (1), SK (1)
 - 4 academic/research organisations, 1 TSO, 4 industrial companies, 5 SMEs

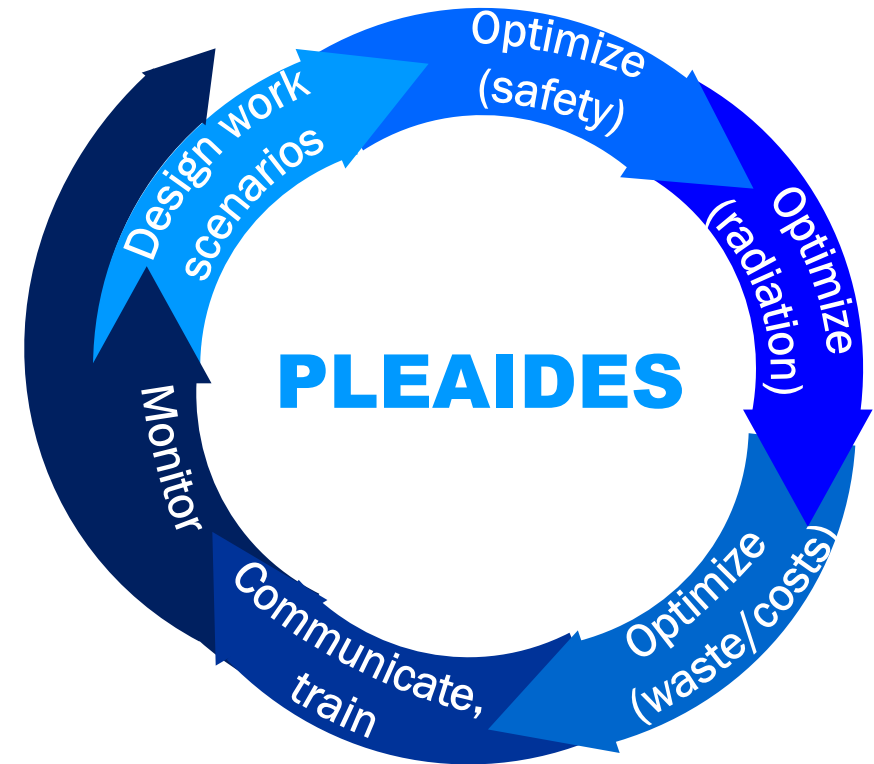


PLEIADES Objectives

- ✓ Demonstrate a *modular* software *ecosystem* based on interconnection of front-line support tools through a decommissioning specific *ontology* building upon *open BIM**.

Some foreseen application areas:

- **Improve safety**
 - Radiobiological protection
 - Communication and training
- **Reduce costs**
 - Better and more standardized costing
 - Optimization of waste management



PLEIADES Modules

Data/info
acquisition and
management

Characterization
and Job planning

Decisions, Costing,
Waste management

Demonstration
and Training

1. **3DScanPF (KIT)**: Robotic platform for 3D scans and imaging
2. **DIM (EDF)**: Dismantling Info Modelling system for storing all facility data
3. **Bimsync (CATENDA)**: IFC¹ compatible BIM platform used in construction
4. **iUS IMS (iUS)**: Semantic wiki based nuclear info system
5. **RadPIM (IFE)**: Radiological characterisation tool (part of VRdose family)
6. **VRdose (IFE)**: Detailed job planning tool with a radiological model library
7. **DEMplus (CYCLIFE DS)**: Decision-support tool combined with 3D simulation
8. **Aquila costing (WAI)**: ISDC² compatible client-server based costing tool
9. **iDROP (CEA)**: VR dismantling simulation with collision & radiological modelling
10. **LLWAA-DECOM (Tractebel)**: Low Level Waste Activity Assessment tool
11. **ALVAR (VTT)**: AR³ training platform with advanced tracking capabilities
12. **INTERACT (LS)**: XR⁴ platform with physics engine

¹ IFC: Industry Foundation Classes

² ISDC: International Stricture for Decommissioning Costing

³ AR: Augmented Reality

⁴ XR: Mixed Reality



PLEIADES Implementation strategy

- ✓ Elucidate user/industry needs + requirements for system design and tests

- **Survey** – input from partners, questionnaire, group discussion (DigiDecom 2021), interviews
- Define **requirements** according to needs for the validation tests (input data, system req., KPIs, ...)
- Propose an **ontology** that supports the tests and can be adopted as an international standard

- ✓ Develop prototype system

- ✓ Pilot test the prototype and evaluate

- ✓ Propose the ontology for an international standard

- ✓ Prepare the exploitation strategy for PLEAIDES

- assess the **market**
- define **business** plan
- **promote** the application of PLEIADES in nuclear decommissioning

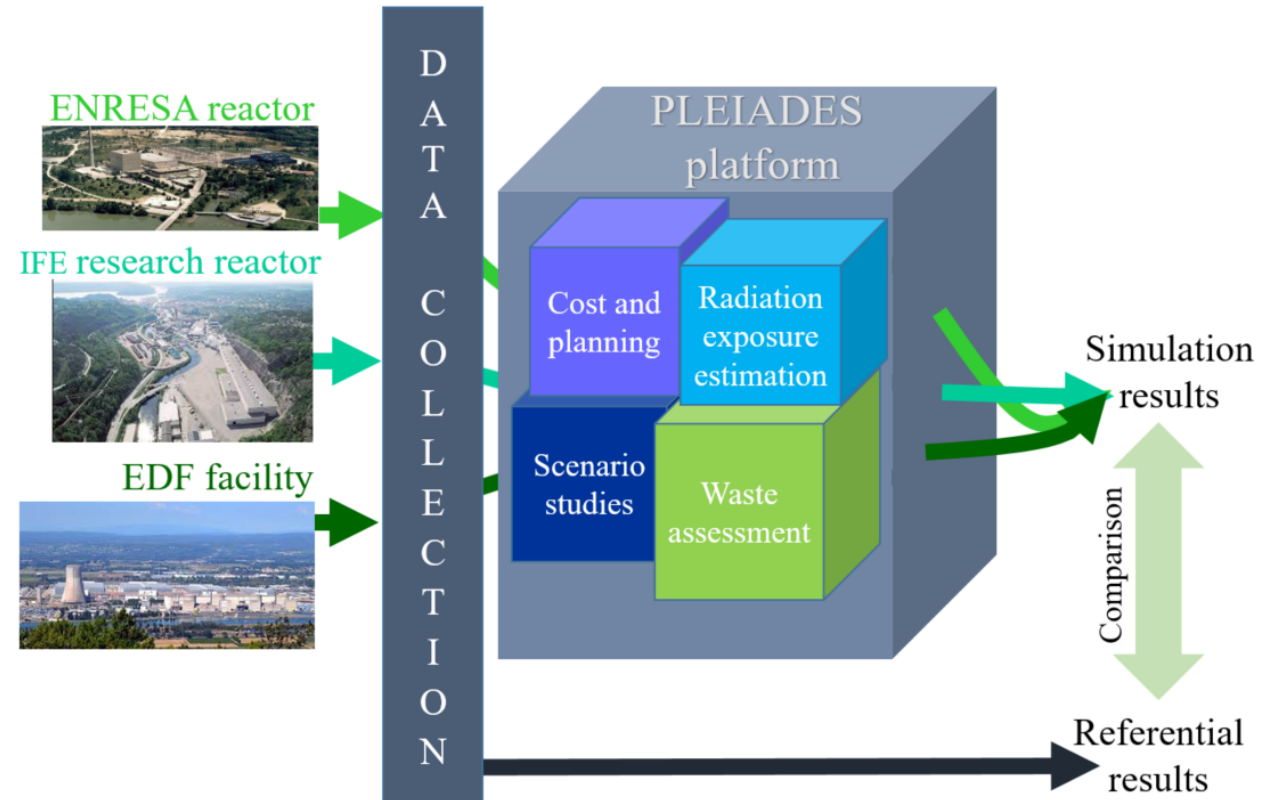


PLEIADES Demonstrations

✓ Key general benefits

- **Support for holistic approach:** *integration* of information management, costing, planning, communication, ...
- **Higher independence from vendors:** systems from various other vendors can integrate if following the proposed *standard ontology*
- **Advanced tech support:** integration of state-of-the-art purpose-built tools. Use each module independently or in parallel as required by the goal / discipline of the user.

✓ Key application areas



PLEIADES Work-plan

| Leader | | | Oct-20 | Nov-20 | Dec-20 | Jan-21 | Feb-21 | Mar-21 | Apr-21 | May-21 | Jun-21 | Jul-21 | Aug-21 | Sep-21 | Oct-21 | Nov-21 | Dec-21 | Jan-22 | Feb-22 | Mar-22 | Apr-22 | May-22 | Jun-22 | Jul-22 | Aug-22 | Sep-22 | Oct-22 | Nov-22 | Dec-22 | Jan-23 | Feb-23 | Mar-23 | Apr-23 | May-23 | Jun-23 | Jul-23 | Aug-23 | | |
|--------|--------------------------------------------------------------|--|--------|--------|--------|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----------------------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------------|--------|---------------|--------|--------|------------------------------|--|--|
| IFE | WP1 - Requirement analysis, specification and test design | | | | MS1.1 | D1.1 D1.2 | MS1.2 | MS1.3 | D1.4 | | | | D1.3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CEA | WP2 - PLEIADES platform development | | | | | | | | | | D2.1 | | | | | | | | MS2.1 | | MS2.2 D2.2 D2.3 | MS2.3 D2.4 | | | | | | | | | | | | | | | | | |
| CDS | WP3 - Implementation of PLEIADES platform on real use cases | | | | | | | | | | | | | | | | D3.1 | | | | D3.2 | | | | | | | | MS3.1 | | | MS3.2 D3.3 | | | | | | | |
| VTT | WP4 - Modelling and results evaluation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | D4.1 MS4.1 | D4.2 | | | | |
| IUS | WP5 - Standardisation efforts, Exploitation & Training | | | | | | | | | | | | | | | | | D5.1 | | | | | | | | MS5.1 | | | | | MS5.2 | | | D5.6 | | | D5.2 D5.3 D5.4 D5.5 | | |
| LGI | WP6 – Dissemination, Communication & Stakeholders engagement | | | D6.2 | MS6.1 | D6.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MS6.2 | | |
| CEA | WP7 - Project coordination and management | | | D7.1 | | D7.1 | | | | | | | | | | | | | | | | | | | | D7.3 | | | | | | | | | | | | | |
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Project meeting & related event



PLEIADES website



<http://pleiades-platform.eu/>



[ABOUT](#) [PLATFORM TESTING](#) [LATEST UPDATES](#) [RESOURCES](#) [RESULTS](#) [PARTNER AREA](#)

**CONNECTING DIGITAL TOOLS
FOR SMARTER NUCLEAR DECOMMISSIONING AND DISMANTLING**



Partners



Countries



Months



Use Cases

CONTEXT

When a nuclear facility has reached the end of its lifetime, or policy no longer supports nuclear power, the facility must be shut down as safely as possible. This is a challenge due to the radioactive waste and many moving parts of the facility.



WHAT WILL PLEIADES DO?

To help tackle this, PLEIADES will connect the latest online tools on one platform to ensure the safety and wellbeing of the people involved and the environment around an old facility. The PLEIADES platform will be the first, unique platform to gather a set of mature, digital technologies to be implemented on dismantling sites.



PLEIADES Survey

CONTRIBUTE YOUR EXPERTISE!

<http://pleiades-platform.eu/2021/01/13/pleiades-survey/>



News | 13 January 2021

PLEIADES is looking for experts to help us with our survey!

The main goal of PLEIADES is to demonstrate a modular decommissioning support ecosystem based on interconnection of tools provided by the partners through a decommissioning specific ontology building upon open BIM (see more information in the slides further down). We kindly ask you to spend some of your valuable time for providing input so that the project outcomes meet the requirements of practitioners.

[Take our survey here](http://pleiades-platform.eu/2021/01/13/pleiades-survey/)

