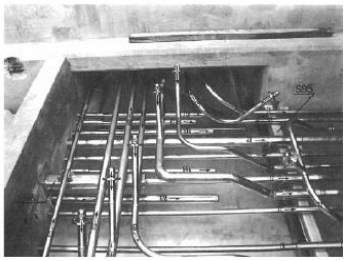
# Challenge
# Open Innovation # 70

## Inspection in spatially and radiologically and constrained environments

**Nuclear Industry**



Example of active ducts (1) and active galleries (2)

### Timeline

**Opening :** April, 2024
**Closing :** July, 2024

## Purpose of the challenge

Orano is looking for innovative solutions to inspect hard-to-reach areas such as active ducts and galleries that are currently inaccessible using our conventional inspection methods. The aim of this challenge is to identify robust technologies that will enable us to transform our approach to inspections in hostile environments, while ensuring safety and efficiency.

## Description and expectations

To ensure the safe and efficient operation of our plants, particularly at our La Hague industrial site, we need to carry out inspections to monitor the condition of our facilities. These inspections are crucial to maintaining high safety standards and anticipating maintenance needs.

To achieve this, we are looking for innovative inspection methods, adapted to the specific conditions of our plants. These methods must enable detailed investigation of active galleries and channels. The inspection system will have to be capable of operating in constrained and hostile environments and will incorporate navigation and precise image or data acquisition capabilities.

**Key constraints :**

- Inspection range: Able to carry out inspections over a minimum distance of 20 meters, with remote control in a cold zone and insertion via a 100 mm diameter sleeve.
- Types of mission :
  - ✓ Visual inspection: Integration of a camera and lighting system for detailed visual inspections.
  - ✓ Non-destructive testing (NDT): Ability to adapt our ultrasonic measurement instruments.
  - ✓ Radiological measurement: Ability to adapt our dosimetry instruments.
- Radiation resistance: The solution will be evaluated in a highly irradiating environment (order of magnitude: 500 mGy/h).
- Adaptability: Given the size of inspection zones, conventional solutions such as rolling systems may prove unsuitable (pipe supports, equipment, etc.).

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