[Over £700k in contracts awarded to fund innovations that remotely monitor legacy nuclear sites](#)

- Over £700k in funding has been allocated between 10 innovative organisations to develop remote site sensing and monitoring technologies
- [Remote Monitoring of Sensitive Sites](#) competition, run on behalf of the Nuclear Decommissioning Authority (NDA)
- [Remote Monitoring of Sensitive Sites](#) sought innovations to enable the collection of data remotely on assets, infrastructure and the surrounding environment/ecosystem answering to the 3 challenge areas

The [Defence and Security Accelerator](#) (DASA) and the [Nuclear Decommissioning Authority](#) (NDA) are pleased to announce that 10 organisations have won a share of over £700k in funding to develop innovations that help to monitor sensitive sites without the physical presence of humans.

The NDA is charged with cleaning up the UK's 17 earliest nuclear sites safely, securely and cost-effectively. It is vital that monitoring, inspection and security capabilities remain fit for purpose, and, where appropriate, are continuously improved or enhanced in order to maintain safe, secure and more efficient operations and to inform future decommissioning efforts across the UK.

The funded technologies from this competition may help promote more proactive decision making in managing these sites, while also reducing the risk associated with undertaking potentially hazardous operations compared to current methods. For this competition, innovators were asked to submit their technologies and solutions to help address the following challenge areas:

Challenge 1: Built environment and infrastructure

This challenge area sought innovative solutions that enhance the detection, identification, and monitoring of complex and high-value physical assets, including equipment and civil structures. For example:

- changes in colour
- water collecting
- physical anomalies i.e. cracks, texture change
- organic growth
- thermal changes over time

Challenge 2: Environmental monitoring and land use

This challenge area sought innovative solutions which enable users to remotely monitor and effectively report on the use of land and environmental aspects of the NDA estate. For example:

- early warning of water effects

- monitoring air quality
- change in vegetation around a site
- monitoring site/non-site interface e.g. traffic surveys
- environmental impact on and around sites e.g. coastal erosion, monitoring sub-surface infrastructure.

Challenge 3: Security and resilience

This challenge area sought innovations to deliver proportionate security in line with the site risk reduction curve during the decommissioning process. For example:

- perimeter monitoring
- resilient and real time hazard, risk and threat identification
- autonomous interception and prevention capabilities
- intelligence-based alerting system

Andrew Gray, Innovation Delivery Manager, Nuclear Decommissioning Authority said:

"We are excited to be working with DASA on this competition which has generated a huge amount of interest across many different sectors.

"The competition will support the development of new technologies for remote sensing and application of novel approaches, which will enable us to monitor our large and geographically distributed estate.

"This will help us deliver our decommissioning mission in different ways, reduce risk and provide additional insights for improving how we manage our infrastructure, and inform decision-making processes. We are eager to see how the creative solutions being put forward by the supply chain will evolve."

10 projects have been awarded Remote Monitoring of Sensitive Sites funding to fast-track their novel ideas. They will present their concept solutions to a range of government stakeholders in summer 2023.

The winners are:

Earth-i Limited

Earth-i Limited's project seeks to demonstrate an asset mapping and monitoring system that uses high resolution satellite Earth Observation data combined with airborne and terrestrial data sources to provide a rich set of information layers for NDA decision makers.

ANRA Technologies

ANRA Technologies seeks to develop an Uncrewed X System (UxS) Mission Manager with an Integrated and Distributed Common Operating Picture (IDCOP) for remote monitoring of sensitive sites across the NDA estate.

Archangel Imaging

Archangel Imaging's ATOM project aims to create a mobile, autonomous surveillance system which can be augmented with a range of third-party solutions or updated with specific algorithms to maintain a technological edge in remote site monitoring.

Lynkeos Technology Ltd

This project utilises the passive non-destructive testing field of muography, which uses natural radiation to monitor integrity of complex structural challenges. This project seeks to develop a portable capability for monitoring subterranean and ageing reinforced concrete infrastructure.

Durham University

The project proposes an autonomous wide-area surveillance capability for remote perimeter monitoring of sensitive sites through the use of Artificial Intelligence (AI) enabled persistent, all-condition sensing coupled with world-leading real-time anomaly detection algorithms.

ISS Aerospace

This innovation seeks to utilise an autonomous unmanned aerial system (UAS) with on-board real time AI processing, in combination with specially developed intelligent detectors capable of learning their environment. The UAS will respond to changes detected by unattended ground based sensors which collect data for temperature, humidity, noise, motion, and air quality.

National Physical Laboratory

National Physical Laboratory, in collaboration with Metrosol Limited and the University of Manchester, seeks to develop a novel thermometer to replace conventional sensors in harsh environments up to 600 °C. The thermometer will use non-invasive electronic Johnson noise to measure temperature, eliminating drift and leading directly to improved reliability and reduced calibration costs.

Autonomous Devices Limited

This project seeks to develop Theia, an aerial robotic system for collecting close-range and contact-based sensor data from inaccessible parts of an asset, bridging the gap between wide-area, stand-off, remote inspection, and detailed, close-up, manual investigation

Telespazio UK Ltd

This project focuses on utilising non-intrusive satellite based technology to monitor the environment, providing early insight into potentially risky areas, reducing the need for on-site investigations and supporting informed and timely decision-making.

Decision Lab Ltd

Decision Lab Ltd seeks to develop an advanced set of competitively trained reinforcement learning AI agents, AUDI can improve site security and resilience through remote sensing.

[Learn more about the Remote Monitoring of Sensitive Sites competition](#).