

National Centre for Nuclear Security and Nonproliferation

NADM Update
September 2023

National Centre for Nuclear Security and Non-proliferation

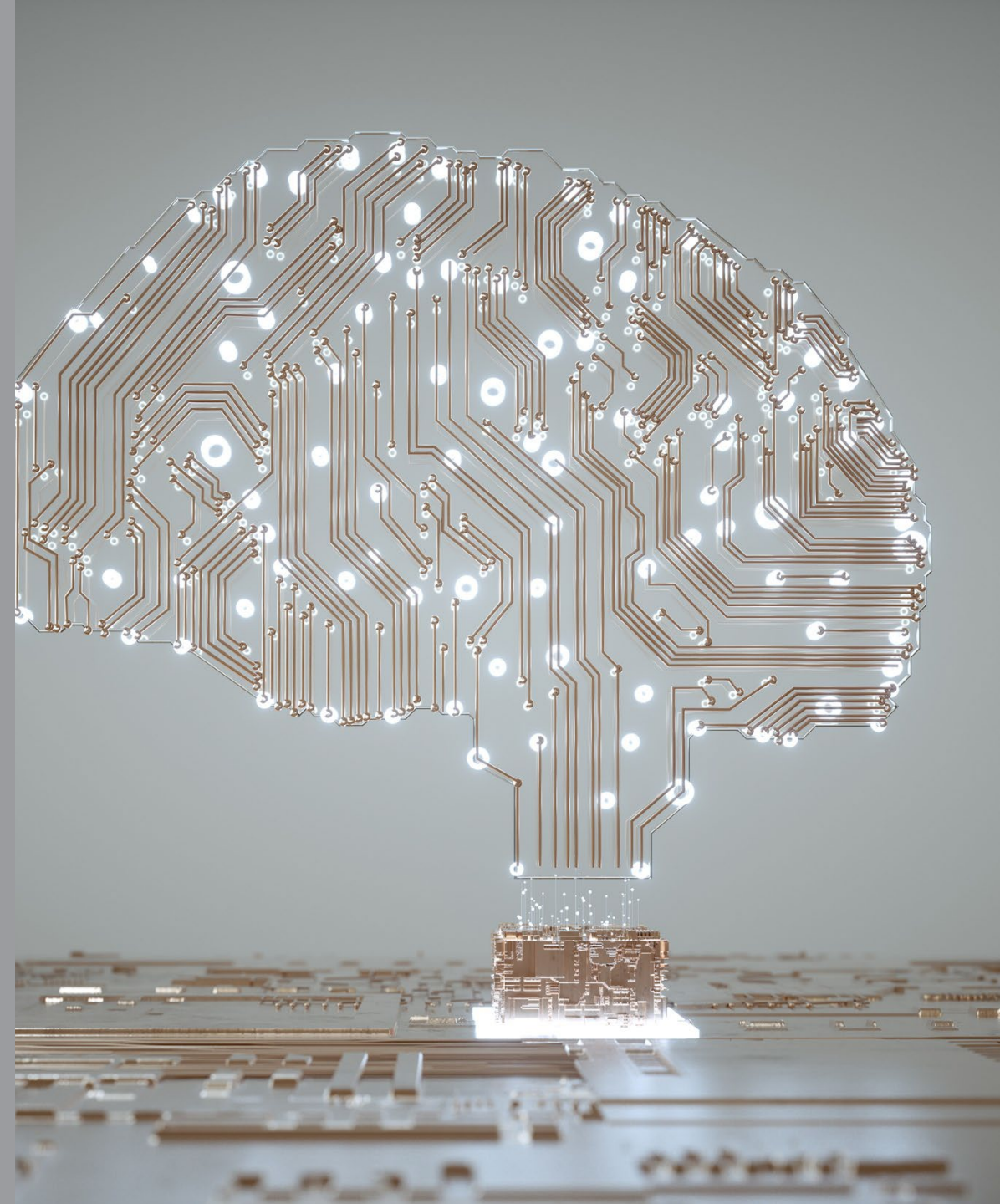
“Nuclear security and nonproliferation, enabled by science and technology”

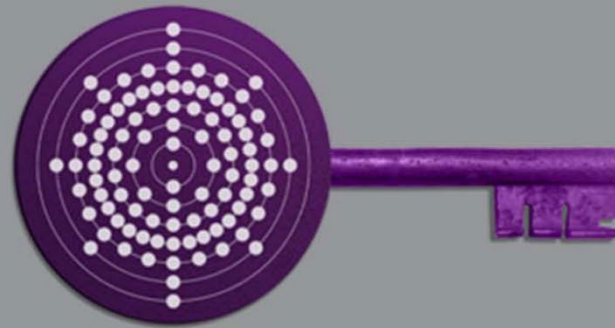
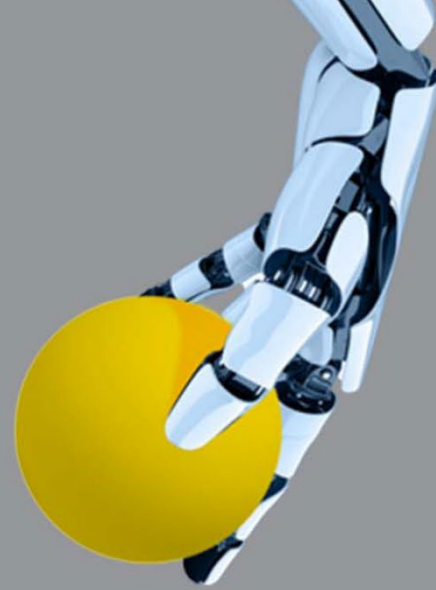
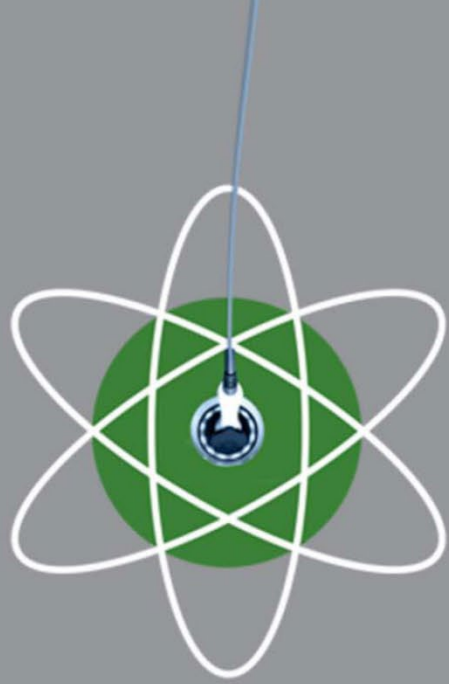
What is its purpose?

To deliver national and international HMG objectives and priorities relating to civil nuclear security, safeguards and non-proliferation.

What will it do?

A focal point to access security and non-proliferation expertise in the UK, ensuring an integrated, national research and development programme enhances sovereign capability in essential and specialist technical areas required to underpin UK nuclear ambitions

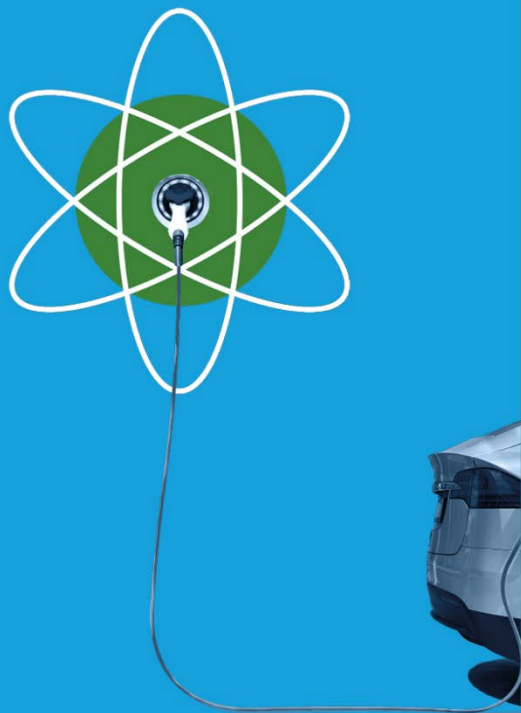




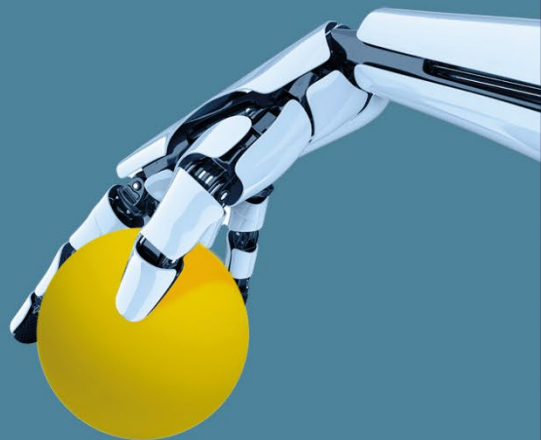
Nuclear science to benefit society

Four Focus Areas

Clean Energy



Environmental
Restoration



Health and
Nuclear Medicine



Security and
Non-Proliferation



Nuclear Security

Definition

- *The prevention and detection of and response to, theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear materials other radioactive substances or their associated facilities*

Threat actor

- Non-host state

Threat actions

- Sabotage, theft, IND, RDD, information

Mitigation

- Domestic nuclear security regulation - ONR



Nuclear Nonproliferation

Definition

- *Efforts to eliminate the spread of nuclear weapons, fissionable material, weapons-applicable nuclear technology and information*

Threat actor

- Host state

Threat action

- Production and diversion of material
- Information/technology transfer

Mitigation

- International treaties
- IAEA Safeguards



An aerial night view of a city, likely London, with numerous skyscrapers and buildings illuminated. Overlaid on the city are glowing orange and yellow light trails from traffic and a network of glowing white lines connecting various points across the city, suggesting a digital or energy network. The sky is dark with some clouds.

Great opportunity ahead

- Net Zero
- Energy Security
- Global leadership
- Peaceful uses (wider applications of nuclear technology)

Deployment of nuclear technology must be done the right way

- Secure
- Compliant
- Low proliferation risk
- Safeguards



Why now ?

New approaches

- Rapid developments in technology. Novel reactors. New deployment scenarios. Evolving threat

Urgency

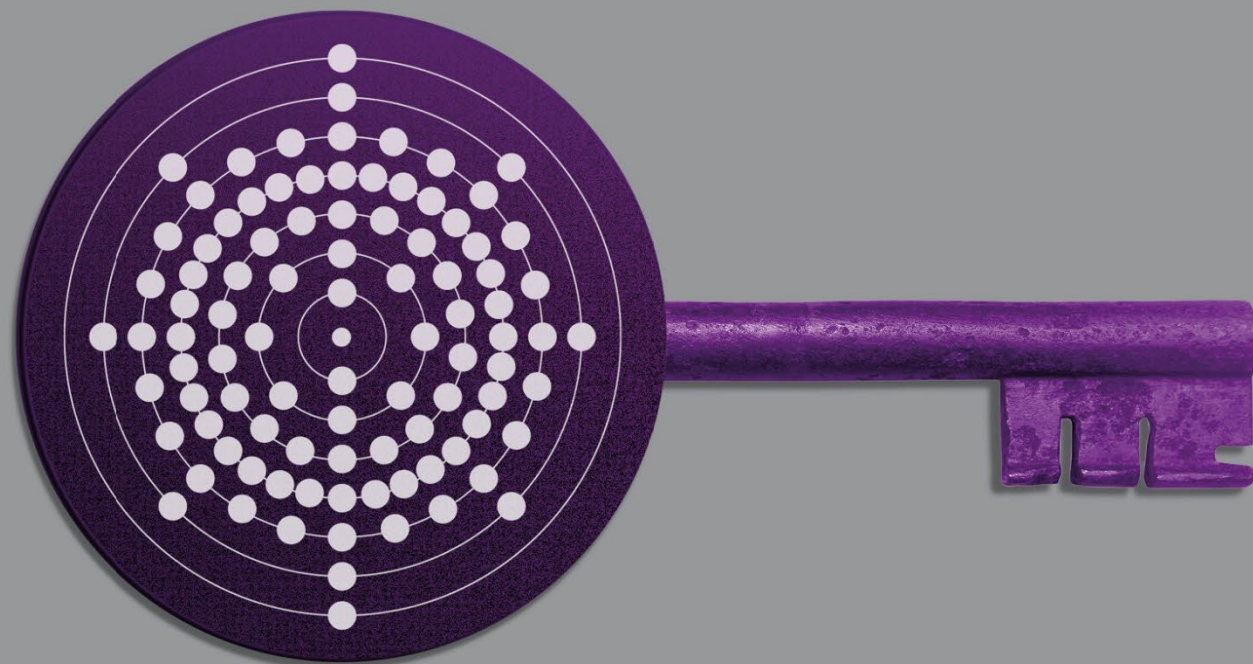
- Strong 'pull' but we have to keep up with innovation in the sector, or risk delay

Effectiveness and efficiency

- No centrally coordinated approach to civil nuclear security and nonpro R&D



Security and Non-Proliferation



Facilitating the global deployment of **vital nuclear technologies** by protecting nuclear materials, sites and technology.



In November '22...



Department for
Business, Energy
& Industrial Strategy



Foreign, Commonwea
& Development Office



Consulted

CPNI

Centre for the Protection
of National Infrastructure



Defence Nuclear
Organisation



Counter Proliferation
& Arms Control Centre



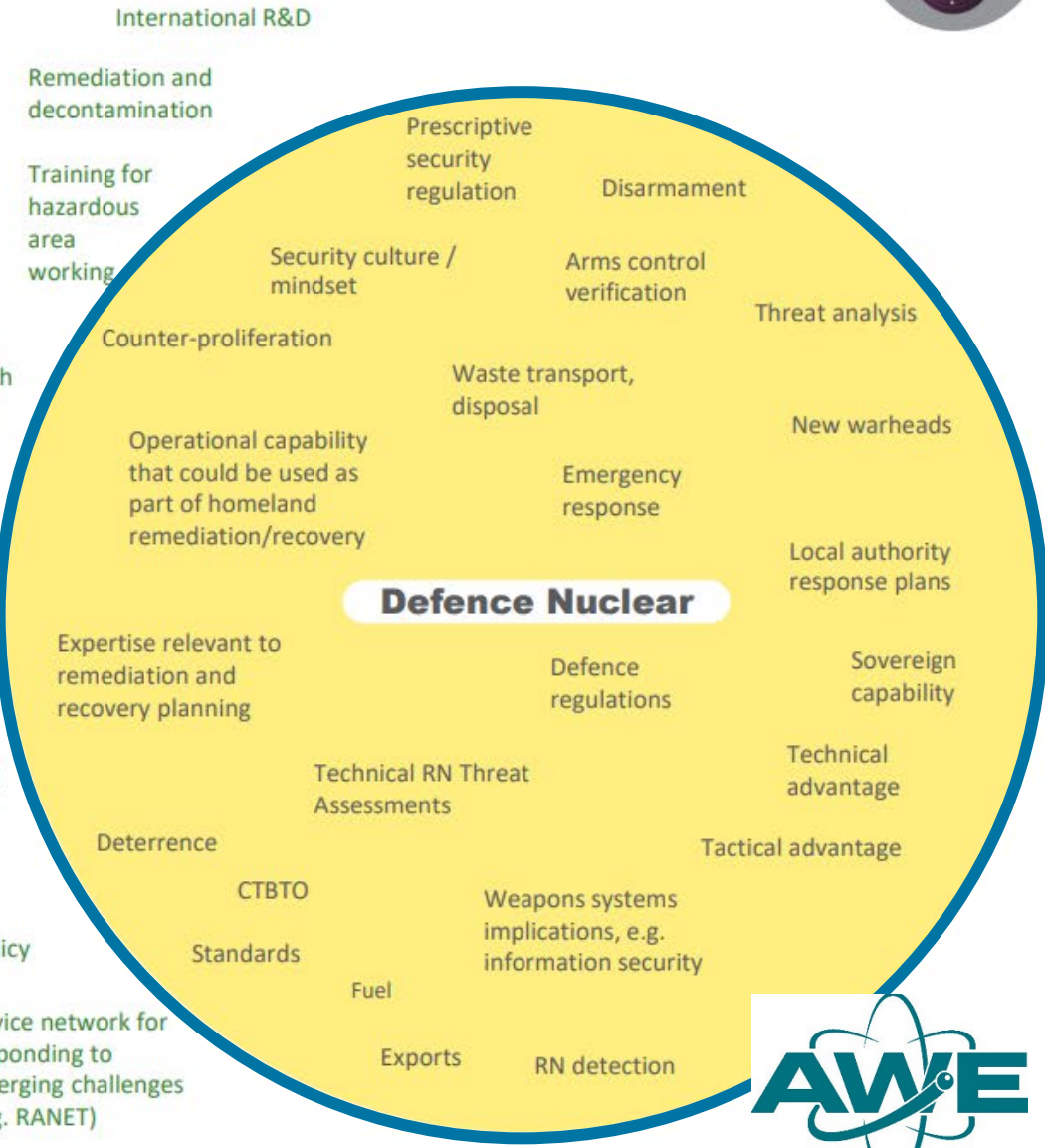
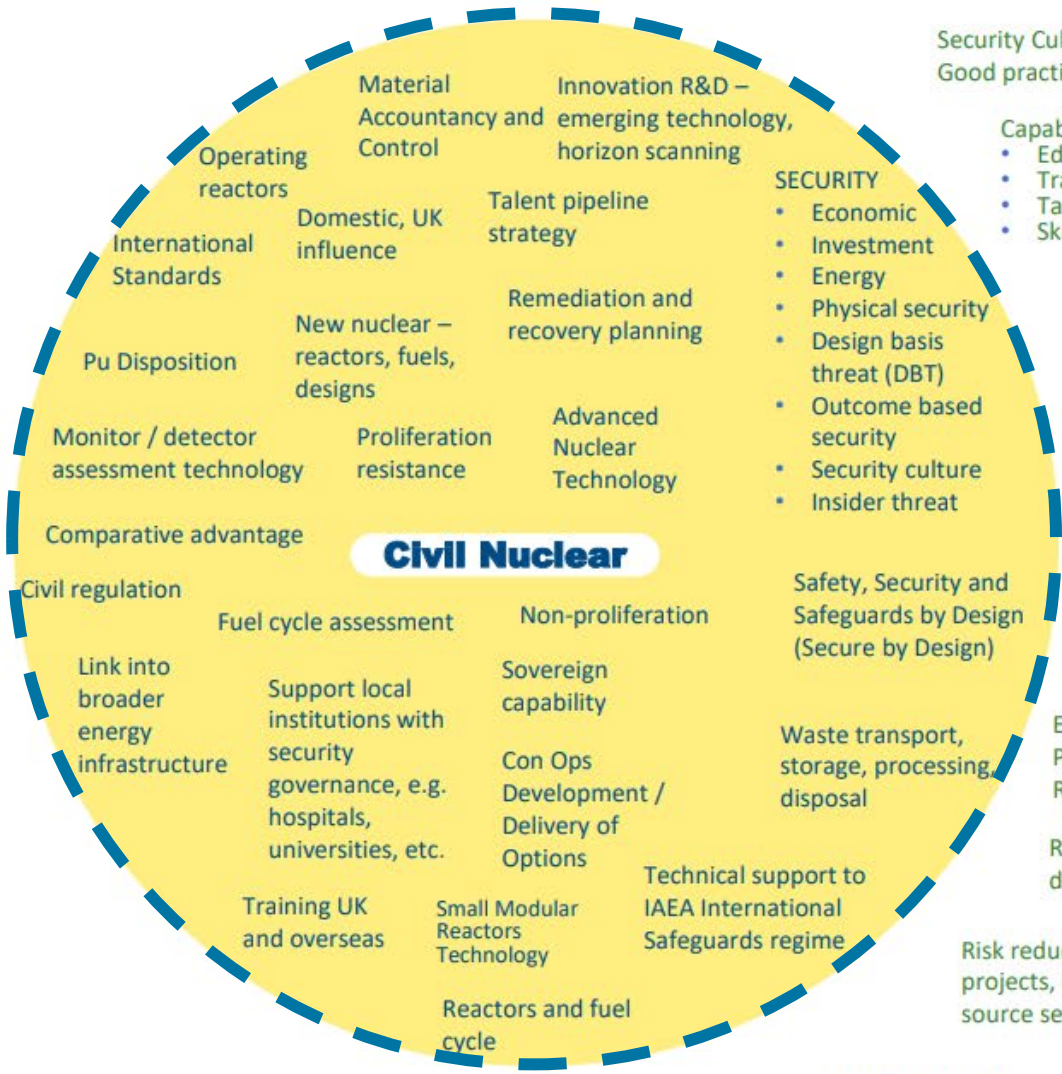
Home Office



Office for
Nuclear Regulation



Nuclear Security, Safeguards, Non-Proliferation and Emergency Preparedness





How will it add value? 1 of 2

The National Centre will undertake and promote a wide range of activities aligned with four key activity **workstreams** which reflect stakeholder priorities:

Safeguards and Non-proliferation

- Proliferation resistance
- Safeguards support
- Fuel cycle simulation

Nuclear Forensics

- Measurement and Analysis
- Provenance Methods

Nuclear Security

- Threats and Vulnerabilities
- Theft and Sabotage Protection
- Modelling and simulation

Emergency preparedness

- Source term
- Detection and Characterisation
- Hazards and Consequences
- Recovery

The National Centre will also deliver a number of Strategic Objectives within its first two years, including a landscape review & needs analysis, development of an R&D programme, and establishment of key relationships and frameworks to support its successful operation.

How will it add value? 2 of 2

- **Policy:** Providing independent, authoritative advice required to enable the development of current and future nuclear power programmes designed to meet the UK's commitment to achieving net zero and strengthening energy security.
- **Capability:** Maximising the value and impact of skills, culture, and capabilities residing in both the civil and defence nuclear enterprises through enhanced integration and cooperation, as envisaged in the Integrated Review of Foreign Policy and Defence.
- **Foresight:** Understanding the implications of developments in global nuclear power programmes, including new and novel reactor systems, associated fuel cycles and deployment scenarios, on UK national security and other foreign policy interests.
- **Research & Innovation:** Stimulating world-leading research required to deliver nuclear programmes, and understand and address threat posed by new and emerging technologies



Discussion
