



Arms Control Verification Research at AWE

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Arms Control Verification Research

- Support and advise HMG/MOD on nuclear arms control matters
 - Develop the means to verify possible future nuclear-related treaties, in partial fulfillment of UK NPT Article VI commitments, through:
 - Analysis of current nuclear treaties & exploration of credible scenarios
 - Consideration of verification requirements
 - Research into applicable technologies and methodologies
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UK Ministry of Defence (MOD)

**Technical
expertise**

**Arms Control
Verification Research
(ACVR)**

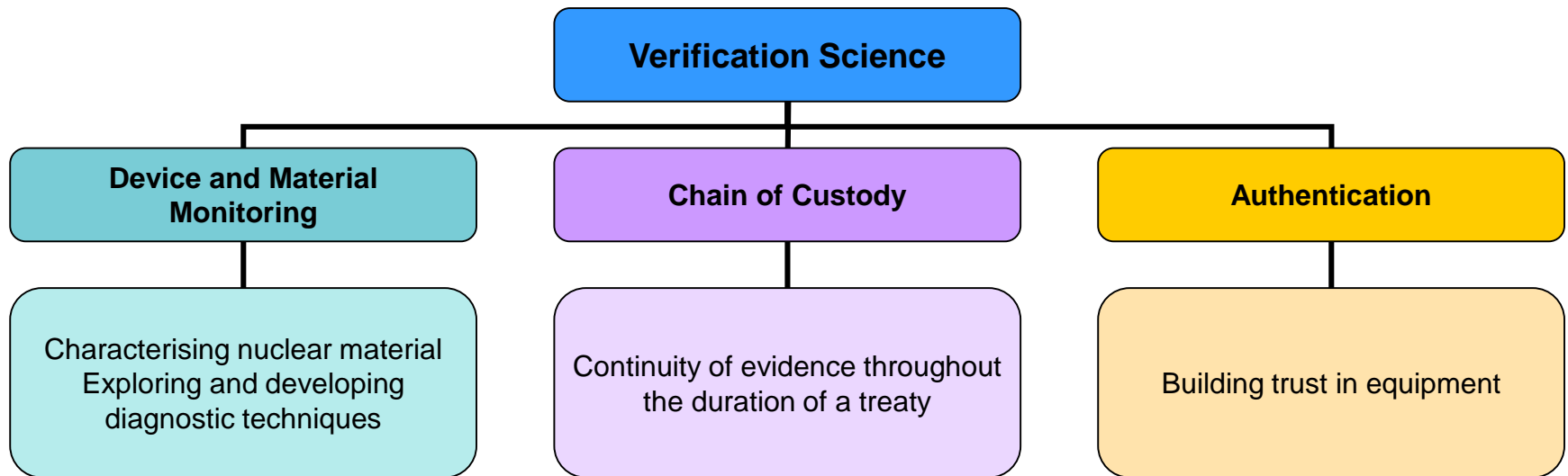
**Support and
Advice**

**Verification
Science**

Inspection Studies



Our research





Device and Material Monitoring

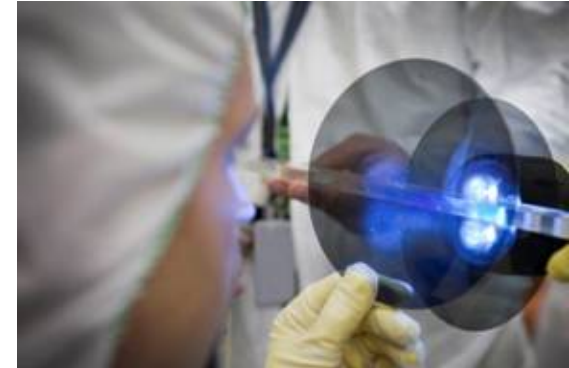
- Understand detection of nuclear material
- Research methods to detect nuclear material
- Assess performance of available technology
- Gather only the information required and nothing else
- Challenges:
 - Develop high confidence results without knowing specifics of the item
 - Develop mutual trust in equipment: authentication & certification





Chain of Custody

- Maintain continuity of knowledge of treaty accountable items
- Developing toolkit of technologies for different scenarios
 - Tags & seals
 - Boundary control
 - Templating techniques for item tracking
- Challenges:
 - Authentication & certification of equipment
 - Data management
 - Assessment of diversion risk



Authentication

- Methods of building trust in equipment
- Developing range of techniques
 - Physical evaluation of electronics
 - Software and digital-design verification
- Challenges :
 - Authentication vs certification of equipment
 - Timeliness of evaluation
 - Rapid increase in electronic complexity

