Department for Transport

# National Security Science and Research (NSSR) – Capability Indicators

June 2025

Department for Transport

# NSSR – Capability Indicators

The DfT are sharing the below indicators across the Themes of the upcoming NSSR Programme procurement competition. These are intended to help suppliers prepare in advance by providing an overview of the potential expertise and capabilities required.

# Theme 1 – Programme Management Office (PMO)

### Benefits and Outcomes

Developing the DfT's Benefits Assessment Framework and Tool to incorporate DfT's Capability Assessment Tool for Security (CAT-S). The tool provides DfT with a qualitative risk-based methodology for assessing the value of projects and programmes, helping to shape requirements and realising benefits.

### Key capabilities required:

- Benefits Analysis
- Risk Assessment / Management
- Programme Management and Delivery

### Aviation Security Trials

DfT regularly undertakes work to enhance security detection capability at key locations, including passenger checkpoints, hold baggage and cargo screening areas. This requirement is to support trials focused on enhancing these security measures, which may include but not be limited to:

- evaluating novel detection software
- exploring system architecture solutions
- analysing applications of synthetic data
- assessing human factors and integration of third-party technology.

### Key capabilities required:

- Project Management
- Security Detection & Threat Analysis
- X-ray Image Interpretation
- Software & Systems Evaluation
- Data Science & AI Applications
- Human Factors & Integration
- Regulatory Compliance
- Research and development Expertise and Experience

# Theme 2 – Cyber Security

### Cyber Security Risks to Transport

Conduct risk assessments and exploratory research projects to increase DfT's understanding of potential cyber security threats and risks. This could include assessment of new technology, future transport, legacy operational technology, cyber vulnerabilities and supply chains.

Developing products for the transport industry to help them improve their cyber maturity. This could include guidance documentation, bespoke risk assessment methodologies and recommendations of appropriate standards to use.

### Key capabilities required:

- Cyber Security – Information Technology and Operational Technology
- Cyber Security Accreditation e.g. Cyber Essential Plus
- Data Analysis
- Trend Analysis
- Risk Assessment / Management

# Theme 3 – Standards and Characterisation

### Shoe Explosive Detection

Production of several simulant explosives to be used in support of European Civil Aviation Conference (ECAC) and Technology Alignment Group (TAG) testing for shoe explosive detection systems used in airports in Europe.

### Key capabilities required:

- Chemical Analysis
- Data Analysis
- Explosive Detection Knowledge
- Risk Assessment / Management

# Theme 4 – Canine Detection

### Canine Detection of Knives

Robustly review and research the use of detection dogs to detect knives, the outcome of which will inform future policy, improve and enhance existing capabilities, and generate data to validate new deployment options. The project will allow DfT to understand whether there is a unique vapour given off by knives and if so, can detection dogs detect it.

### Key capabilities required:

- Chemical Analysis
- Data / Statistical Analysis
- Canine Detection
- Threat Analysis
- Trials Delivery
- Risk Assessment / Management

# Theme 5 – Behavioural Science

### Bus and Coach Station Security Review

The overall objective of this project is to understand the current security measures that are in place at bus and coach stations and the public's understanding and perceptions of these. The focus will be on the identification of improvements which can be applied to existing security screening approaches at bus and coach stations to protect against the general security threats. These threats might involve the use of a variety of physical threat types such as knives, firearms, explosives, and will include the whole journey from station entry through to exit at the destination; therefore, concerned with both departures and arrivals at bus and coach stations. The focus is limited to journeys that both start and finish within the United Kingdom.

### Key capabilities required:

- Behavioural Science
- Human Factors
- Applied Psychology
- Conducting Surveys
- Data Analysis

# Theme 6 – Resilience

### The Resilience of Transport to Flooding

Summarise existing evidence and information about the impacts of fluvial flooding on the UK transport system, in order to give DfT a better understanding of the risks to transport and the range of impacts that fluvial flooding could have.

### Key capabilities required:

- Data Analysis
- Flood Modelling
- Trend Analysis
- Transport Knowledge
- Risk Assessment / Management

### Transport Resilience Futures

Investigate how the resilience of the transport system in England and Wales is likely to change in the future. Resilience is defined as the transport network's ability to anticipate, assess, prevent, mitigate, respond to, and recover from known, unknown, direct, indirect and emerging civil contingency risks.

### Key capabilities required:

- Data Analysis
- Trend Analysis
- Transport Knowledge
- Workshop Facilitation
- Risk Assessment / Management

### Guidance on Nature-based Solutions (NbS) for Transport Resilience

This project should focus on NbS solutions whose aim is to increase the resilience of the transport network and can be applied in a UK context. For this requirement, the term "transport network" means the infrastructure associated with all modes of transport (roads, rail, maritime and aviation). It does not include the vehicles that travel along the infrastructure. This requirement consists of two work packages whose overall aims are to:

- Review NbS that have been implemented for transport, from stakeholder interviews and written sources.
- Create a guidance document for implementation of NbS across the UK transport network.

### Key capabilities required:

- Data Analysis
- Trend Analysis
- Transport Knowledge
- Risk Assessment / Management