



**UK Research  
and Innovation**

# **Building a Secure and Resilient World**

## **UKRI Strategic Theme**

# Building A Secure and Resilient World: our vision

Acute and Chronic Shock  
Rapidly changing threats

*Research and Innovation positioned to address the impact of repeated systemic shocks from the financial crisis to pandemic to climate emergency to conventional armed conflicts; helping improve anticipation of, preparedness to, management of and recovery from a crisis through systemic approach that is human-centred*

Requires  
Preparedness, a  
Robust  
Response via  
Good Decision  
Making



To Recover  
Quickly



Creating a  
Robust  
Environment



To support  
sustainable  
growth



# Building a Secure and Resilient World: Theme objectives

**Objectives:** Building a Secure and Resilient World Theme will build on our core R&I investments to catalyse, convene and conduct research and innovation, through taking a systemic approach that is human-centred, aimed at strengthening societal and economic resilience, and enhancing security across virtual and physical environments, by improving awareness of risks and threats, preparedness, informed decision-making and response, and allowing change to be understood as a force for good.

**Building Secure and Resilient Societies will:**

**Provide a robust response to the complex challenges facing the UK** in defence, security and resilience in order to support economic growth, crisis preparedness and response, maintaining a responsible cyberpower status, be on the frontline of science diplomacy.

**Develop and deliver solution-based systemic approaches that are human-centred** to help protect key industries, services and ways of life and to foster a culture, supported by critical infrastructure and robust systems and technologies, which embraces a creative and innovative approach to contemporary problems in order to transform the system for better outcomes

Through an agile programme of activity to help **develop tailored approaches to security and resilience challenges through multidisciplinary research** with the focus on human-centred approaches and knowledge exchange collaborations across five sub-themes.

**This theme has reached a new level of urgency and will enable UKRI provide an improved, more integrated and robust response via multidisciplinary research.**

# Sub-themes

Each of five sub-themes views risks and vulnerabilities through a human-centred prism, from designing technologies and developing policies to preparing for and mitigating risks to making decisions in the aftermaths of a disaster.

## Sub-Themes

### **Global order in a time of change**

Help strengthen UK role in shaping an international order that is secure, resilient and just

### **Technologies for resilience security and defence**

Advance the capacity of state defence and security, economy and society to reduce vulnerabilities, to respond to and recover from shocks through innovation and technological advancement

### **Resilient and Secure Supply Chains**

Increase the resilience of supply chains (food, critical materials, manufacturing, complex systems) to a wide variety to potentially interacting shocks

### **Behavioural and Cultural Resilience**

Reduce the impact of shocks on individuals and communities through adaptation and embracing change, deployment of resources for personal resilience that is fair and just

### **Strengthening Resilience in Natural and Built Environment**

Mitigate impact of natural and anthropogenic hazards and risks on wider societal processes and operations being responsive to particular requirements of place

# Sub-themes and planned initial investments

## Global order in a time of change

- **A global risk and resilience ‘observatory’:** policy and evidence centre with the focus on international security, risks and resilience with the initial focus on Russia and China/East Asia. The centre will provide inter-disciplinary insights into social, political, economic, cultural, environmental and technological changes in these into countries and regions to support UK policymakers.

## Technologies for resilience, security and defence

- **Digital Twins:** research programme to build multidisciplinary digital twinning R&I community for security and resilience, e.g. to improve resilience of the UK energy supply grid.
- **Data and analytics facility for national infrastructure (DAFNI):** platform to support modelling and connectivity of system’s inter-dependencies for cross-sectoral approach to resilience to reduce vulnerabilities, respond and recover from shocks.
- **Quantum Technologies Position, navigating and timing (PTN):** research programme to exploit quantum PTN technologies to underpin the resilience, assurance and coordination of PTN solutions and deliver advantage for the UK.
- **National centre for space situational awareness (NCSSA):** improving UK civil capabilities for Space Surveillance and Tracking to provide enhanced capabilities in the radar detection and facilitate cross-connections in hazard mitigation areas.

## Resilient and secure supply chains

- **Strengthening resilience across UK food system:** providing a human-centred approach to drive economic, social and cultural change in addressing key vulnerabilities and interdependencies in food system; amplifying planned investments on business-led interventions to improve the resilience of the UK food supply chain.
- **Supply chains as complex systems:** improving resilience by modelling supply chains as complex systems, considering connectedness, between actors, activities and outcomes, their interdependencies and vulnerabilities; developing interventions with broad applicability to all supply chains.

## Behavioural and cultural resilience

- **Building behavioural science capability for defence and security research:** understanding how behaviours and attitudes contribute to, or undermine, security in crises; the ways in which UK/allied defence and security stakeholders, and their adversaries, are adapting to rapidly changing societal and technological context.
- **Mobilising community assets to tackle health inequalities:** improving health outcomes through prevention and targeted interventions using community assets, feeding into integrated health and social care provision. Through input into health systems design, to help address key issues of how, through systems change, we can increase resilience, scaling up from hyper-local to national level.

## Strengthening resilience in natural and built environment

- **Nature based solutions for equitable resilience:** research programme to bring together understanding of the natural world and analytical capability with knowledge of cultural adaptability to enhance environmental and societal resilience.
- **UK Climate Resilience (with the focus on adaptation):** building resilience to climate change, its associated risks and their likely impacts on people and communities.
- **De-risking the risk of solid earth hazards:** understanding how such events manifest and how their impacts cascade and converge to affect multiple interacting societal and environmental components

## Crosscutting

- **Research and Coordination Hub:** Cross-theme investment to help drive theme’s objectives, ensuring that individual investments and theme as a whole delivers solution-based systemic approaches to resilience and security that are human-centred, connecting and convening the relevant national and local stakeholders to ensure research and evidence support decision-making for better preparedness and response to crisis in a more integrated way.
- **BSRW Flexible Fund (deployed through the Hub):** Ensuring theme remains responsive to newly identified knowledge and evidence gaps, supporting emerging opportunities to connect to policy and practice through taking flexible approaches matching particular requirements of situation and place (eg via KE, placements, workshops, policy reports).