

# Engineering and Physical Sciences Research Council



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# **EPSRC – Strategy and Opportunities in NWTF Research Areas**

- **EPSRC Strategic Priorities**
- **Tomorrow's Engineering Research Challenges**
- **Technical Challenges**
- **Future Opportunities for NWTF**

# EPSRC – Powering UK science and prosperity

## Our Vision

To make the UK recognised as the place where the most creative researchers can deliver world-leading engineering and physical sciences research.

## Mission Statement

EPSRC invests in world-leading research and skills to advance knowledge and deliver a sustainable, resilient and prosperous UK.

Our diverse portfolio ranges from digital technologies to clean energy, manufacturing to mathematics, advanced materials to chemistry.

We support new ideas and transformative technologies which are the foundations of innovations that improve our economy, environment and society.

In partnership and co-investing with industry, we work to deliver both national and global priorities



# EPSRC's 8 Strategic Priorities

**Discovery  
- led  
Research**

**The Physical and  
Mathematical Sciences  
Powerhouse:** curiosity  
driven discovery, with  
boundless potential

**Frontiers in  
Engineering and  
Technology:**  
unleashing our  
productivity potential

**Digital Futures:**  
the future of  
communications,  
computing and the  
internet

**Mission -  
Inspired  
Research**

**Engineering Net Zero:**  
decarbonising our  
economy and society,  
creating an alternative  
energy future &  
developing truly circular  
economies

**AI, Digitalisation and  
Data – Driving Value  
and Security:** powering  
transformative change  
and the next industrial  
revolution

**Transforming Health  
and Healthcare:**  
improving quality of life  
through innovative  
technological solutions

**Quantum  
Technologies:** realising  
the transformative  
impact of this technology  
across business,  
government and society

International

Talent and  
Skills

Place

World Class  
Infrastructure

Impact

Business  
Engagement

**An Effective Ecosystem for Engineering and Physical Sciences**



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# Tomorrow's Engineering Research Challenges

TERC was initiated with a UK-wide community engagement activity from EPSRC to identify key challenges and the engineering research that is needed to tackle these challenges.

This process identified a spectrum of challenges at different levels:

- high-level community priorities
- cross-cutting themes
- technological challenges.

The high-level community priorities, cross-cutting themes and technological challenges are all detailed in the report document, along with some recommendations from the co-chairs and annexes containing details on the sources of the information gathered.



# Technical Challenges



Ensure **space research** is sustainable, and design and develop technologies that will be used to explore and sustain life in space and on Earth.



Develop sustainable, integrated, and equitable **transportation systems**.



Accelerate environmentally sustainable and socially responsible creation and utilisation of **materials**.



Improve **whole-life health and wellbeing** by developing sustainable, inclusive, and resilient healthcare systems and technologies.



Co-design and embed **robotics and AI** into engineering while ensuring ethical use with transparent and equitable decision making.



Foster **socially and environmentally responsible approaches to engineering** guided by our understanding of human behaviours and needs.



Unlock the full potential of **nature-based engineering**.



Deliver adaptable **global engineering solutions** that are compatible with our understanding of the planet's ecosystem.

# Future Opportunities for NWTF

- Future Research Funding especially around TERC challenge areas
- Support for an open culture around Research Infrastructure
- New directions for research agenda shaped by industry and government challenges
- Interdisciplinary research opportunities (systems engineering, new materials)

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