Noise Network+
Engineering a Quieter Future

Noise Network Plus: Launch Meeting

Project Leadership Team:
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Simone Graetzer, Alan Hunter, Antonio J. Torija Martinez

University of Surrey
City St George's University of London
University of Salford Manchester
University of Bath

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UKRI Engineering and Physical Sciences Research Council

Noise Network Plus Launch Meeting, London, 18 March 2025

Welcome

Agenda (morning)

Time	Topic	Speaker	Affiliation
10:30	Welcome; Noise as a "Tomorrow's Engineering Research Challenge"	Prof. Mark Plumbley	Project Lead, University of Surrey
10:40	Session 1: Current issues in Noise pollution - perspective spotlight talks		
	Noise in the Built Environment	Jack Harvie-Clark	Founder and Director, Apex Acoustics
	New Sources of Environmental Noise	Prof. Antonio J. Torija Martinez	Project Co-Lead, University of Salford
	Health Effects of Noise	Dr. Benjamin Fenech	Noise and Public Health Programme Lead, UKHSA
	Impact of Noise on Wildlife	Dr. Lia Gilmour	Research Manager, Bat Conservation Trust
11:25	Small-group discussions: What are the key issues in noise pollution, current challenges, & future opportunities?		
12:15	Recap, plans for the afternoon		
12:20	Lunch break & networking		

Introductions: Noise Network Plus Leadership Team

Mark Plumbley
Project Lead
University of Surrey

Abigail Bristow
Project Co-Lead
University of Surrey

Charlotte Clark
Project Co-Lead
City St. George's, Univ. of London

Helen Cooper
Project Manager
University of Surrey

Simone Graetzer
Project Co-Lead
University of Salford

Alan Hunter
Project Co-Lead
University of Bath

Antonio J. Torija Martinez
Project Co-Lead
University of Salford

Project Partners (Initial)

Aecom
Alan Turing Institute (DTNet+)
Amey Limited
Apex Acoustics
Association of Noise Consultants
Atlas Elektronik
Audio Engineering Society UK Section
Audio3 Ltd
AWE plc
Bat Conservation Trust
Bickerdike Allen Partners
BMT Group
Campbell Associates Ltd
CEDAR Audio Ltd
Chartered Institution of Building Services Engineers
Clarke Saunders Acoustics
Computational Audiology Network
Engineering Professors' Council
Environment Agency
Farrat Isolevel Ltd
Forest Research
Ghent University
Hayes McKenzie Partnership Ltd
HEAD Acoustics
Health and Safety Executive
High Speed Two (HS2) Ltd
Himly Ltd
Hoare Lea
Innovation Factory
Institute of Acoustics
Institute of Occupational Medicine
Mason UK Ltd
Matelys - Research Lab
Mayer Brown Ltd.
Microflown Technologies
Mott MacDonald Ltd
National Highways
National Physical Laboratory
Noise Abatement Society
Noise Consultants Ltd
Offshore Renewable Energy Catapult
Ove Arup & Partners Limited
Peter Mapp + Associates
QinetiQ
Rail Safety and Standards Board
Risso.ai
RNID
RS Aqua Ltd
Saab UK Ltd
Sonos, Inc.
Stantec UK Ltd
Strategic Aviation Special Interest Group (SASIG)
Temple Group
Thales UK Limited
Timbral Ltd.
UK Centre for Ecology & Hydrology
UK Hearing Conservation Association
University of Derby
University of Leicester
UPEN
Volant Autonomy Ltd
WSP

Noise as a "Tomorrow's Engineering Research Challenge"

Mark Plumbley
Project Lead, University of Surrey

Importance of Noise

- Noise pollution has major impact on health, society, wildlife (second only to air pollution)
- Human Health: causes stress, leads to sleep disturbance, heart disease
  - England: 40% adults exposed to harmful levels of noise (roads etc) Health cost est. £7-10b
  - Social aspects: poorest in society, already have poorer health
  - Diversity: not everyone responds in the same way e.g., more impact on elderly, children, people with autism
- Wildlife: problems for communication, stress, fertility, migration
- Noise pollution is increasing: growth in cities, transport, shipping
- Recognised as important health issue by WHO, UK Government, …

Noise: A Really Challenging Engineering Problem

- Hard to remove noise once “out there” – need to design out early
- Where noise is considered in engineering, often just for “compliance”
  - Keep within regulatory threshold (bring in an acoustician?)
- New noise sources: heat pumps, wind turbines, drones, air taxis?
- House of Lords Sci & Tech Cttee (2023): noise as “neglected pollutant”
  - Urgent need for more research, more coordination

Noise is complex, systemic, interconnected (“wicked”) problem

The type of problem identified in 2022 EPSRC Report “Tomorrow’s Engineering Research Challenges” (TERC)

Engineering and Physical Sciences Research Council

Tomorrow's Engineering Research Challenges report

EPSRC Tomorrow's Engineering Research Challenges (TERC) report aimed to

- Identify the **most important challenges** that face engineers over the **next 10-15 years**
- Explore the **creative engineering research** that is needed to tackle these challenges;
- Inform & inspire **future research strategy** (primarily EPSRC);
- Focus on **aligning research in engineering** with other parts of UK Research and Innovation (UKRI), professional engineering institutions, policy influencers in government.

Led to EPSRC Call for TERC "Network Plus" Proposals – including Noise Network Plus

Tomorrow's Engineering Research Challenges - Overview

HIGH LEVEL PRIORITIES

- Promote inclusive engineering outcomes for all with more diverse input
- Strengthen mechanisms to facilitate and fund multidisciplinary andinterdisciplinary research
- Re-engineer the discipline of engineering
- Convene and connect with the professional engineering community to enhance impact
- Encourage diverse, agile and impactful skills
- Inspire the next generation

CROSS-CUTTING THEMES

- Achieving net zero and sustainability
- Faster digital design
- Greater access and use of data
- Increasing human resilience
- Understanding complex systems
- Harnessing emerging, disruptive technologies
- Underpinning tools and techniques

TECHNOLOGICAL 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.**

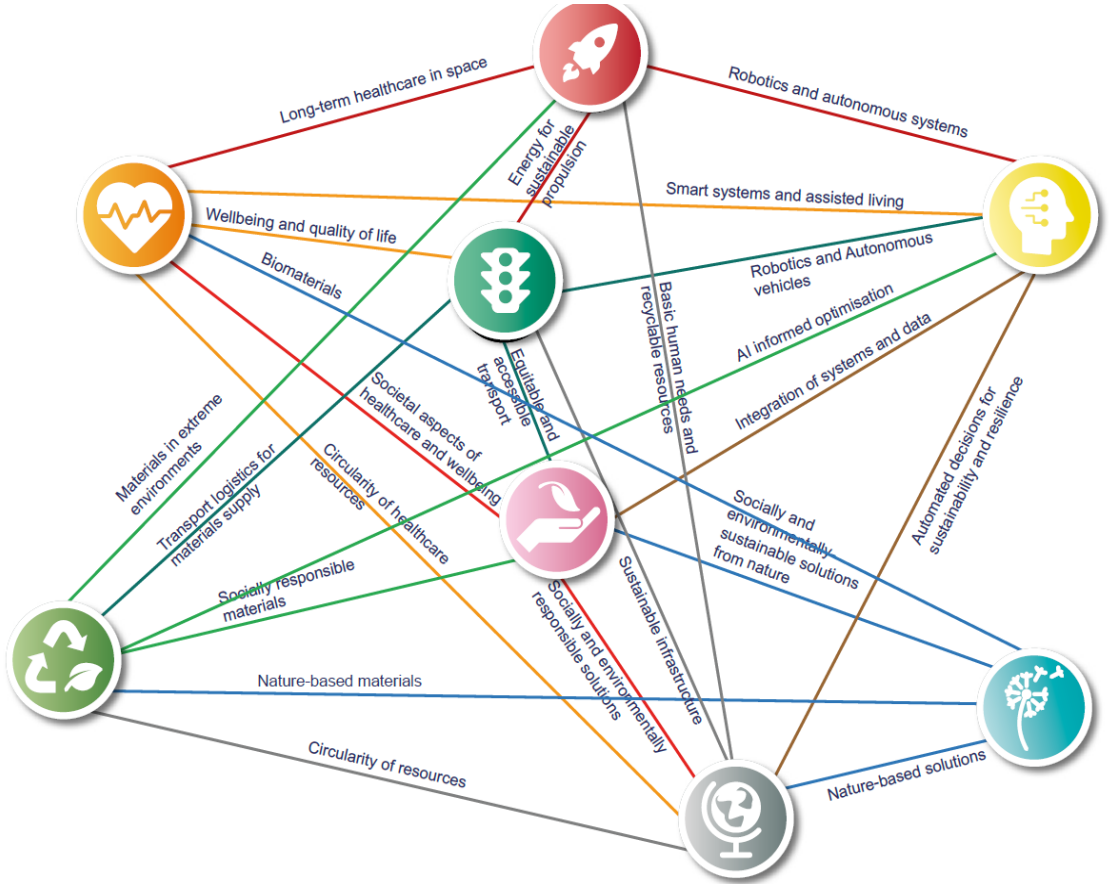
Improve **whole-life health and wellbeing** by developing sustainable, inclusive, and resilient healthcare systems and technologies.

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.



Noise & TERC Priorities (P), Themes (T) & Challenges (C)

• Impact on human health & wellbeing	[C4 Health & Wellbeing]
• Impact on people with hearing loss, autism	[P1 Inclusive Engineering]
• Impact on poorer communities	[C6 Responsible Eng]
• Impacts on wildlife	[T1 Sustainability]
• Global human/animal/ecosystem health	[T5 Complex Systems]
• Impact on AI systems and sensors	[C5 Robotics and AI]
• Causes incl. road, rail, aircraft, spaceports	[C2 Transport] [C1 Space]
• New technologies: air taxis, heat pumps	[T6 Disruptive Tech]
• Noise “invisible” in most PEIs	[P4 Prof Eng Community]
• Noise often neglected in design process	[P5 Skills]
• …	

Contributions from 3 x scoping workshops (April 2024)

Noise Network Plus: Vision

- Mission-oriented inter-organisational research & innovation network
- Addressing noise as a “wicked problem”
- Improve health & wellbeing, wildlife & sustainability, AI systems & sensors
- Build out from UK Acoustics Network Plus (UKAN+)
- Create new multi- & inter-disciplinary community
- Support from: Industry, Professional Engineering Institutions, Charities & 3rd Sector, Government & Policy Organizations, … (60+ partners)

More about Noise Network Plus after lunch