



Advancing UK Aerospace Research through University Collaboration

The 11 founding member universities:



AIMS

Supported by the UK's Engineering and Physical Sciences Research Council (EPSRC) with the aim to provide:

1. A simplified **point of contact** into aerospace and aviation research, continually growing the community.
2. Development and **delivery of excellent research**, aligned with the sector.
3. Strengthened **international collaborative research** relationships.
4. Coordination for development of **world-class university strategic facilities**.
5. Nurture the **future aerospace technology skills**.

A growing network of experts working across aviation and aerospace

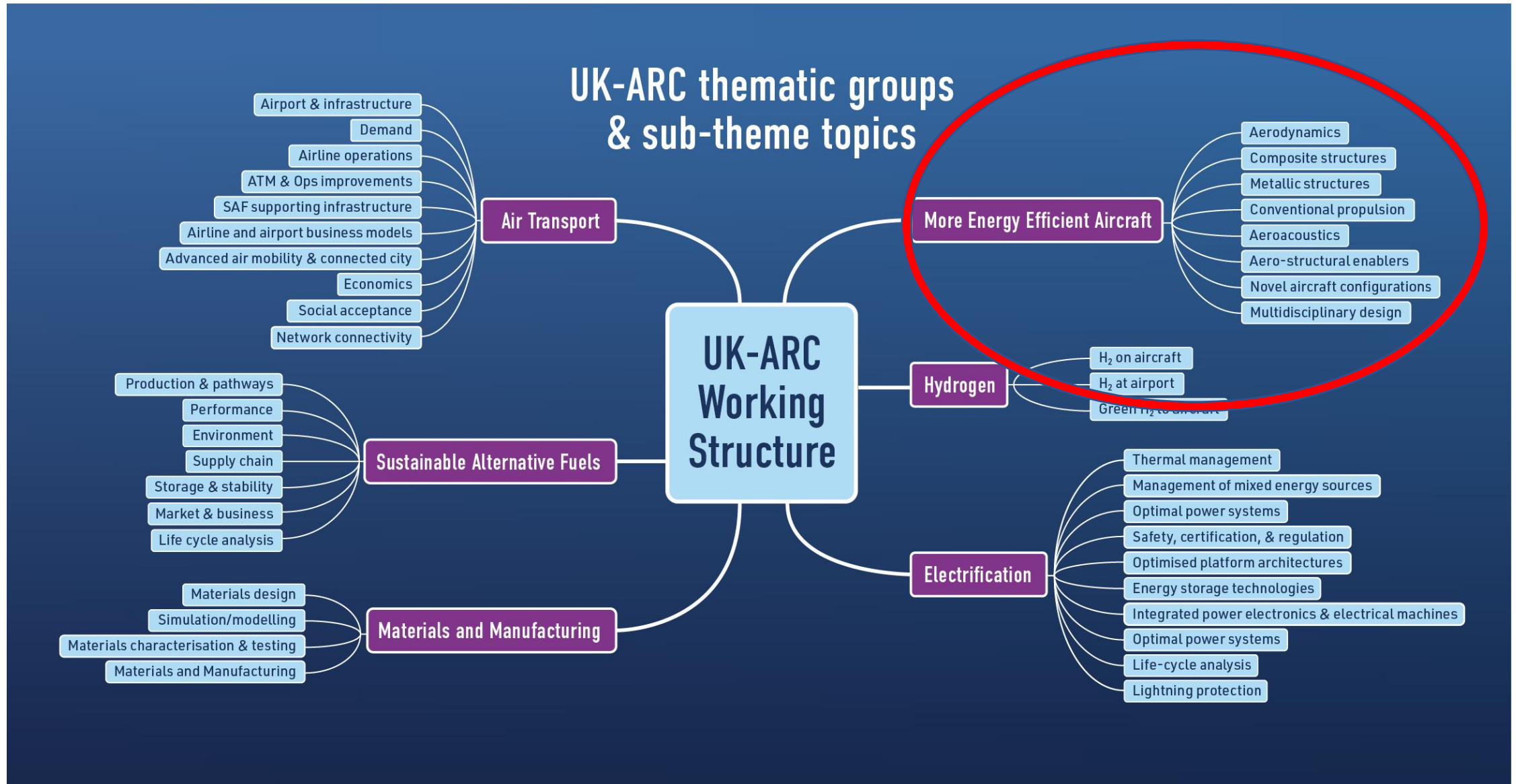
Purpose

- Expand community engagement within and beyond academia and its value to the sector
- Foster aligned research that feeds up to industry and to the aviation community
- Respond to UK HMG strategies to nudge university research
- Leverage lower TRL research investment to bolster sector innovation
- Build greater awareness and visibility of academic research
- Promote our participation internationally linked to sector plans

Connectivity

- Linking to:
- UK
 - ATI strategy
 - UK and multi-national manufacturers
 - Jet Zero Council and aviation system interests
 - Catapults, HVMCs, CPC
 - Aerospace Growth Partnership (AGP)
 - Future Flight Challenge
- International
 - GARTEUR, EREA, ACARE, EASN, ICAS

A strong net zero focus, linking with industry



Leads

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Lighter Composite Structures

- Improved manufacturing processes
- Improved materials

Lighter Metallic Structures

- Improved manufacturing processes
- Improved materials

Multi-Disciplinary Optimisation

- Exploit different topics synergistically
- Pathways to certification

Conventional Powerplant

- Higher BPR
- Improved propellers
- Use of SAF

MORE ENERGY EFFICIENT AIRCRAFT

novel technologies to use less energy
moving aircraft closer towards net zero
H2 and electric configurations

Aeroacoustics

Modelling and testing

- Improved modelling and prediction
- Improved test capabilities

Aerodynamics

Modelling and Testing

- Flow control
- More accurate ROMs
- Better edge of the flight envelope modelling
- High speed
- Optimised geometry
- Improved test facilities

Aero-Structure Enablers

- Aeroelastic Tailoring
- Morphing
- Loads alleviation
- Flutter Suppression

Non-traditional
Configurations

- HARW
- BWB
- Strut braced wings
- Joined wings
- Distributed propulsion
- H2 and electric designs

Material and Manufacturing

Leads

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Considering the challenges,
e.g. :

- Hydrogen – cryogenics/embrittlement
- Composite/multi-materials
- Electrification – thermal management
- Structures – weight saving – bio-based materials
- AM implementation

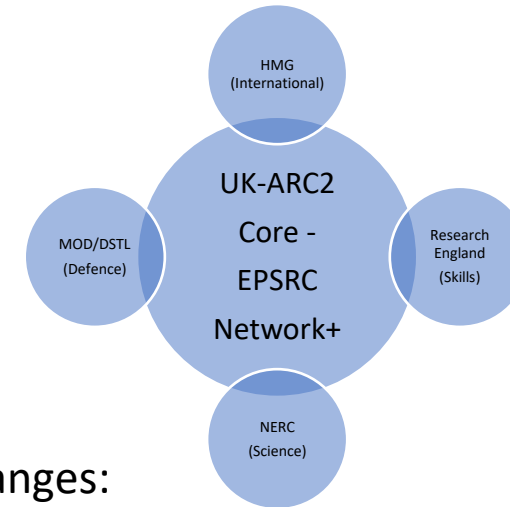


Now



Looking forward

- UK-ARC1 – EPSRC network funding has one year to run
- Theme focus has built communities
- Many additional universities linked
- Created structures to link to industry – Strategic Aerospace Research Forum (SARF)
- Alignment with the ATI strategy covering lower TRLs
- Direct sector bilaterals growing
- Projects now being submitted
- Better connection with climate science and socio-economic
- UK - International linkages - representation, secondments, alliances, workshops, consortia/project building
- Exploring skills development aligned to research narratives

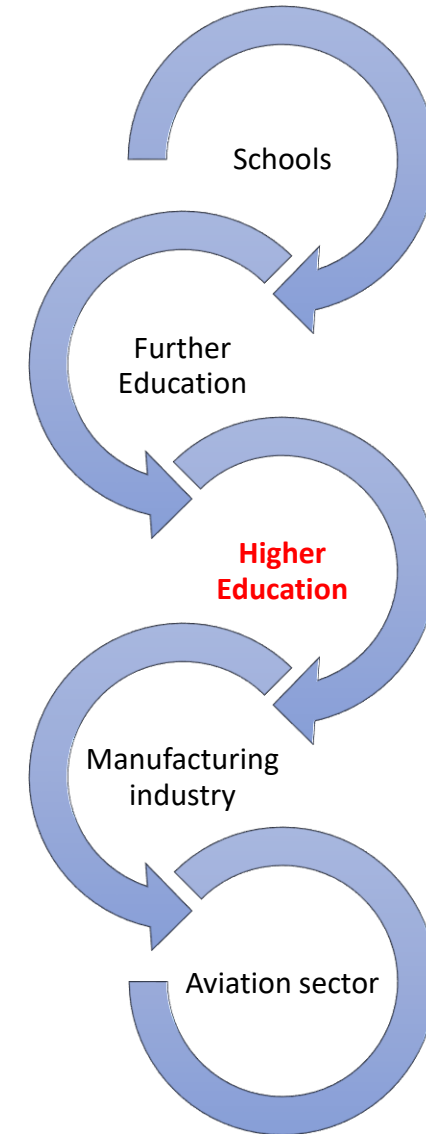


Key changes:

- Internal to external – move out more into sector
- Expand consortium and collaborations
- Simplified agenda setting and resource exploitation
- More project co-creation, including internationally
- Planned additional areas: UAM, AI/digital, climate science, circular economy
- Link with other EPSRC networks
- Support skills development

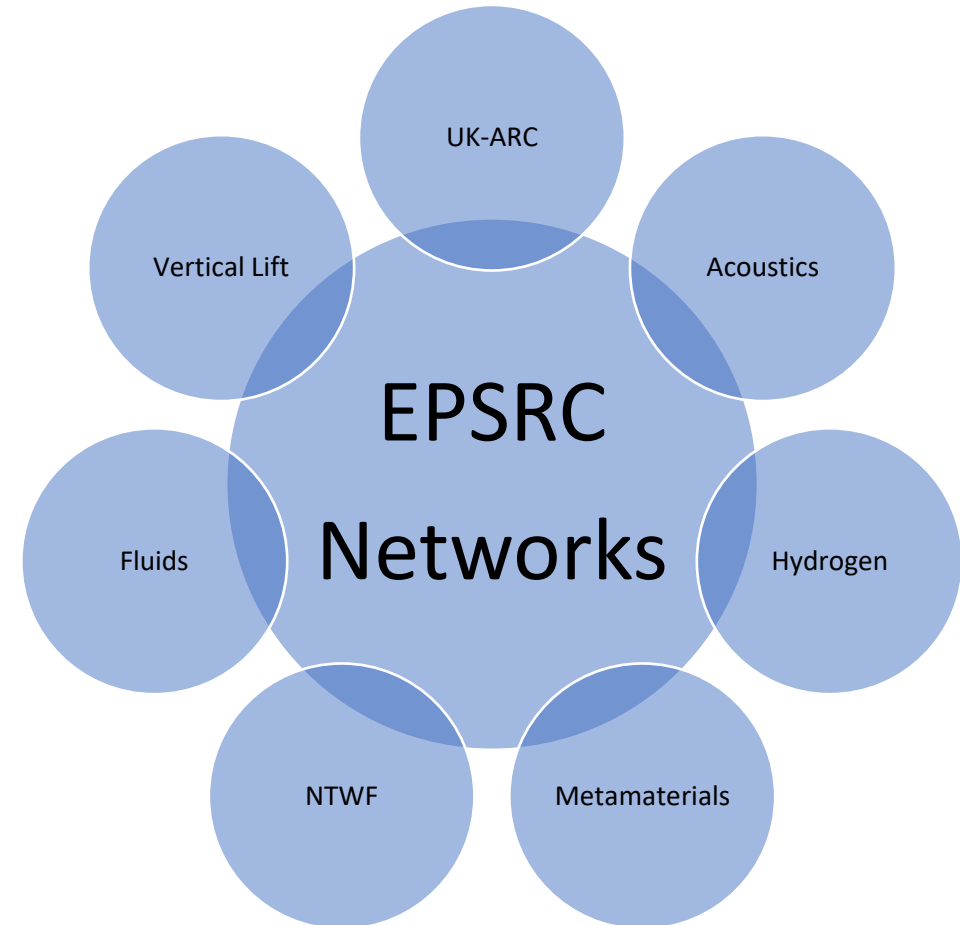
Skills

- Outside our core brief but....
- Use capabilities to support & build future skills fitting future technology
- Building connections, e.g. ADS Skills Initiative, Enginuity, HVMC Skill Group – align agendas
- Association of Aerospace Universities has ceased
- Initiating ECR activity to test possibilities
- Regional pilots to connect the hierarchy?



Collaboration

- UK-ARC links many areas
- Better connectivity to leverage EPSRC investments
- Scope for joint events
- Project co-creation across disciplinary boundaries
- Intention to ramp up connection through UK-ARC2



Thank you – any questions?