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## Towards a UK federation of trusted research environments

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### Objectives

Phase 1 of the DARE UK programme concluded in 2024 with a portfolio of architectures, designs and proofs-of-concept for a national federated network of trusted research environments (TREs). We present the current state of the UK's journey towards a TRE federation.

### Methods

Our approach was four-fold.

1. A wide dialogue with stakeholders from across the UK TRE community, from data providers through research users to members of the public.
2. A portfolio of driver projects, each addressing a key aspect of the overall needs of a trustworthy UK-wide network of TREs, each anchored in the concepts of the Five Safes.
3. Assimilation of state-of-the-art ideas from scientific and public digital infrastructures from the UK, Europe and beyond.
4. A single UK-scale architecture to connect everything together.

### Results

The stakeholder dialogues shaped our overall programme of work and enabled us to narrow our scope to focus on the essential building blocks needed to connect the UK's TREs and data providers safely and securely.

The portfolio of driver projects created proofs-of-concept for these building blocks: applying natural language processing to create safer TRE input data; applying new statistical theory and tooling to create safer TRE outputs; extending the concepts of safe settings and safe projects to span multiple TREs while maintaining strong security and governance oversight of research projects; and creating the first specification of what a TRE should actually be.

The architecture distilled these results together with state-of-the-art thinking into a common blueprint for a federated UK research network for sensitive data.

### Conclusion

These results lay excellent foundations for DARE UK Phase 2 which will further develop and integrate the building blocks into the first version of a UK-wide TRE network. They are also already influencing broader design thinking within the UK and continental Europe on the next generation of connected TREs.

