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## Enabling Federated Access to Administrative Data and Beyond

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### Objectives

Enable federated access to datasets across multiple Trusted Research Environments (TREs) while adhering to the Five Safes framework and international standards. This approach enhances global interoperability, prioritizing flexibility, accessibility, and transparency to advance secure, collaborative research.

### Method

Through DARE UK funding, we developed TRE-FX, a rapid prototype leveraging GA4GH Task Execution Service (TES) for federated analysis. Originally designed for genomics, we extended TES to diverse data types and environments. TRE-FX supports complex workflows while integrating SQL and GraphQL to simplify adoption. Wizard-driven interfaces and API access further enhance usability, enabling seamless execution of federated queries across secure environments.

### Results

TRE-FX establishes a hub-and-spoke configuration for secure data access. Safe Settings, Projects, and People ensure controlled access to Safe Data, with results passing through an airlock for authorized release. Open-sourced and backed by further investment, TRE-FX will evolve into a national, cross-domain solution. Transparency is a core principle, with public visibility of projects, participants, and queries fostering trust. This commitment will expand in the next development phase.

### Conclusion

TRE-FX delivers an end-to-end federated analysis solution within nine months, spanning three institutions. By integrating accessible tools like SQL, we support diverse research needs. Future phases will enhance reproducibility with RO-Crates and explore FAIR federated analytics. This initiative drives national dialogue, shaping the future of federated research in the UK.



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