



DARE UK

SATRE: Standardised Architecture for Trusted Research Environments

Dr Christian Cole on behalf of the team



DARE

UK

Trusted research environment (TRE) reference architecture

“Applications for a short, targeted project focused on consolidating the existing work on TRE reference architectures, including example implementations, and co-developing with feedback from established stakeholders within the TRE community a composite reference architectures for TREs.”

Transparency and Openness – Core Principle

Open Code/Resources:

- <https://github.com/sa-tre>
- <https://github.com/sa-tre/satre-specification>

Open Documentation:

- <https://satre-specification.readthedocs.io/en/latest/standard.html>

Open Communication:

- <https://medium.com/satre>
- satre-contact@dundee.ac.uk



LANDSCAPE – What’s the current context?

TREs are the future for sensitive/health data research in the UK


Department of Health & Social Care

Policy paper
Data saves lives: reshaping health and social care with data
Updated 15 June 2022

A review commissioned by the Secretary of State for Health and Social Care

Better, Broader, Safer: Using Health Data for Research and Analysis

April 2022


UK Health Data Research Alliance

Building Trusted Research Environments v1.0 dated 8th December 2021

DARE UK

Paving the way for a coordinated national infrastructure for sensitive data research

A summary of findings to date from Phase 1 of the UK Research and Innovation DARE UK programme

August 2022

LANDSCAPE – What's the current context?

- There are currently a large number of TRE implementations in the UK, with many different approaches



Infrastructure choices

Cloud
On-prem



Development models

Community-driven
Commercial



Governance & Accreditation

Regulatory requirements
ISO27001, CE+, DSPT...
Risk appetites

Example production TREs: ONS, NHS England, Public Health Scotland, Scottish Safe Haven Network, SAIL Databank, Turing Data Safe Haven, Azure TRE... and many more...

DESIGN WORK - SATRE

Using a **community-driven approach** to build a **reference TRE architecture** and **accompanying implementation**



Learn & Explore

Currently



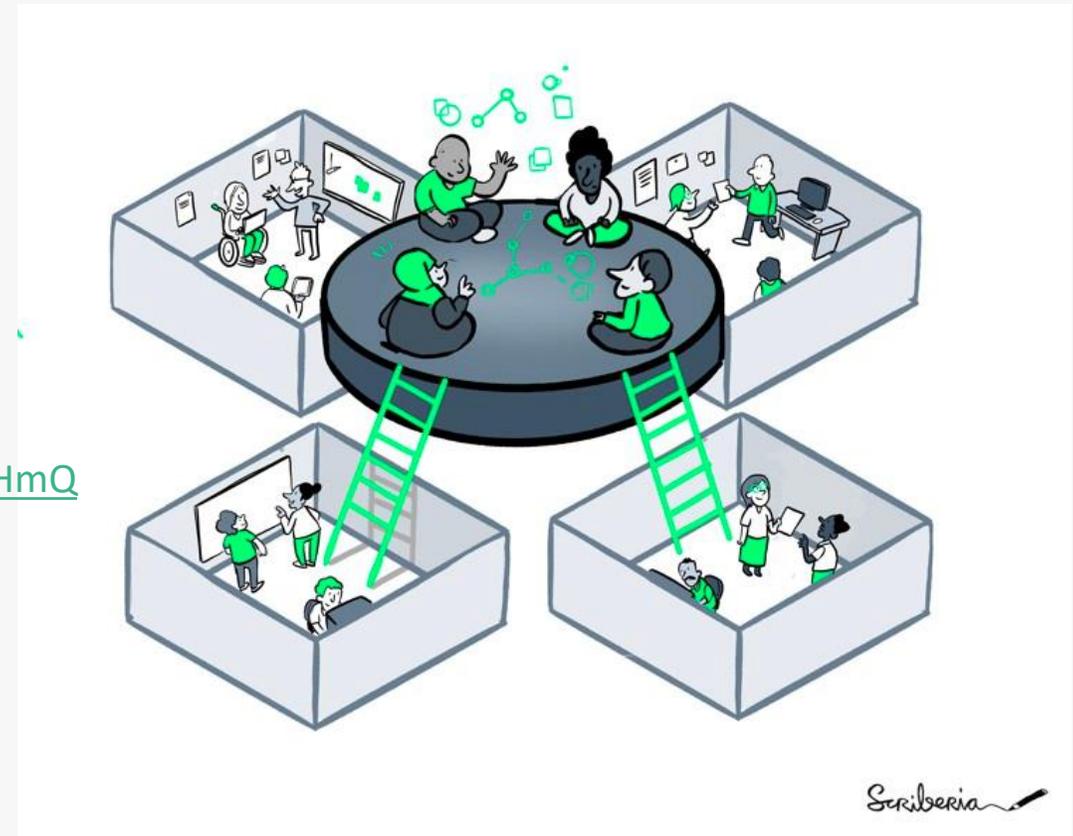
Simplify & Specify



Guide & Sustain

Stakeholder Activity

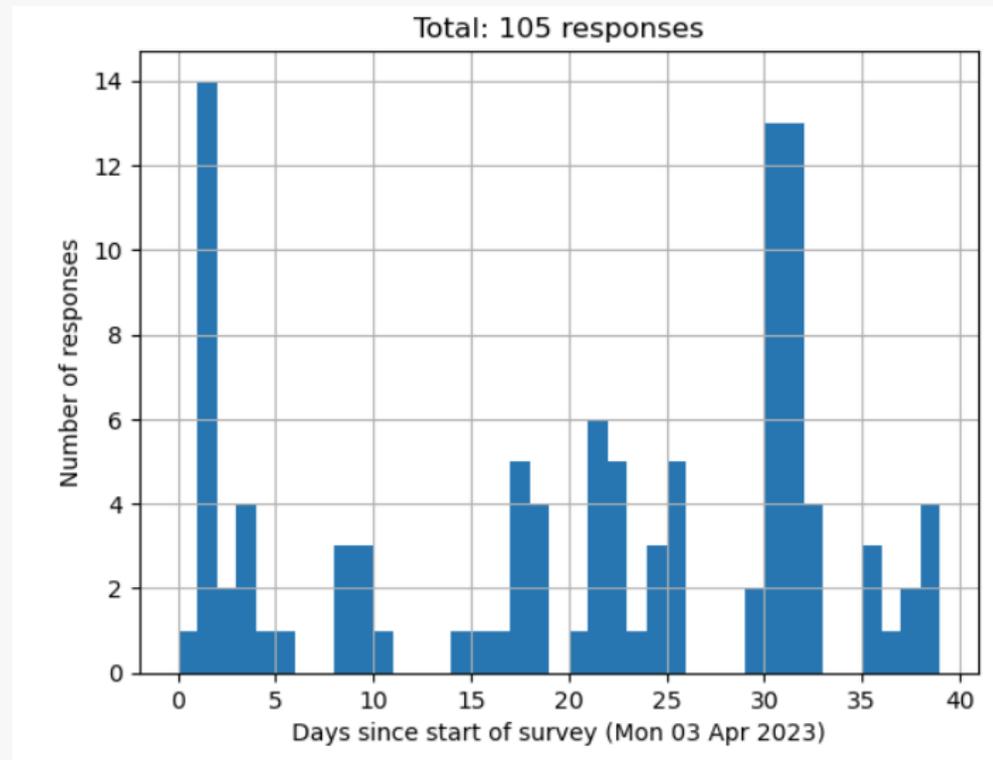
- Engaged broadly, widely and continually with the UK data/TRE community
- Two kick-off sessions in March
 - 75 attendees in total
- Feature Survey
- Collaboration Cafés: <https://hackmd.io/GI5EZQouTYuGhkYBSBYHmQ>
 - Fortnightly since 4th April (>40 attendees recently)
 - General or Themed
 - **15th June – accessible public engagement**



STAKEHOLDERS

- We have currently identified four main groups of stakeholders
 - **Strategy/policy makers:** People who direct & steer TRE provision in the UK
 - Examples: HDR UK/ADR UK, DARE, DHSC, Bennett Institute...
 - **TRE Builders & Operators:** People responsible for developing, deploying & managing TREs
 - Examples: SATRE team, RSE TRE community, SSHN, RDS, NHS SNSDEs...
 - **Governance teams:** People responsible for the governance processes surrounding TRE deployment
 - Examples: IG professionals, Data protection & legal teams
- **Users:** People who work within TREs
 - Examples: Researchers, data scientists...
- **Patients & public:** People whose data is being used with TREs

Stakeholder Feature Survey



- Open ~6 weeks Apr-May 2023
- 105 responses
- 56 reported Institutions
- Large range of roles:
 - CEO | Research Software Engineer | Information Governance | Project Manager | TRE lead | etc

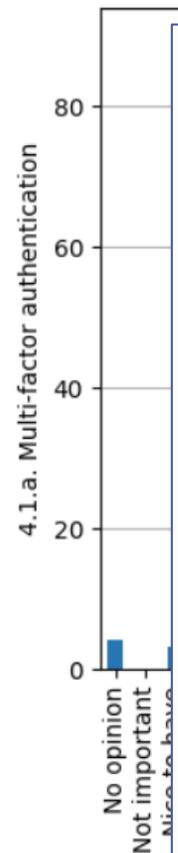
Stakeholder Feature Survey - Interpretation

- Defined a clear, transparent method for informing the specification.
- Turned each Q into a Github issue
 - Captured responses
 - Discussed and refined to draft text
 - Implemented in specification
- Sanitised version of survey to be published soon
- Specification versions captured with DOIs

Stakeholder Feature Survey – Issue #51

4. User authentication

4.1.a. Multi-factor authentication



1.6 Member accreditation

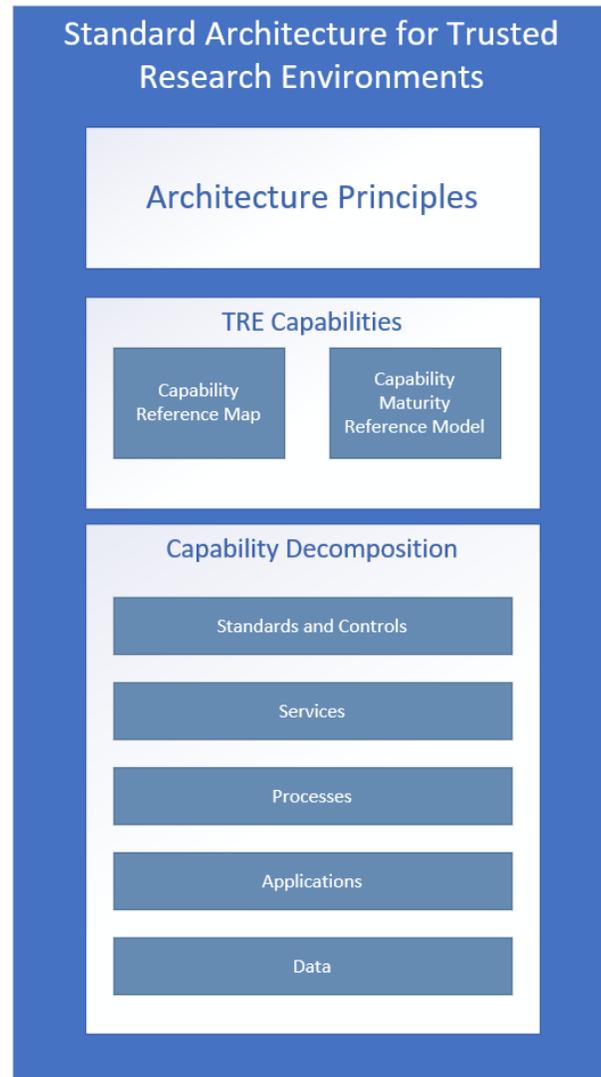
The ability of the TRE organisation to ensure that people with access to data are identified correctly and they are suitably qualified.

Onboarding members

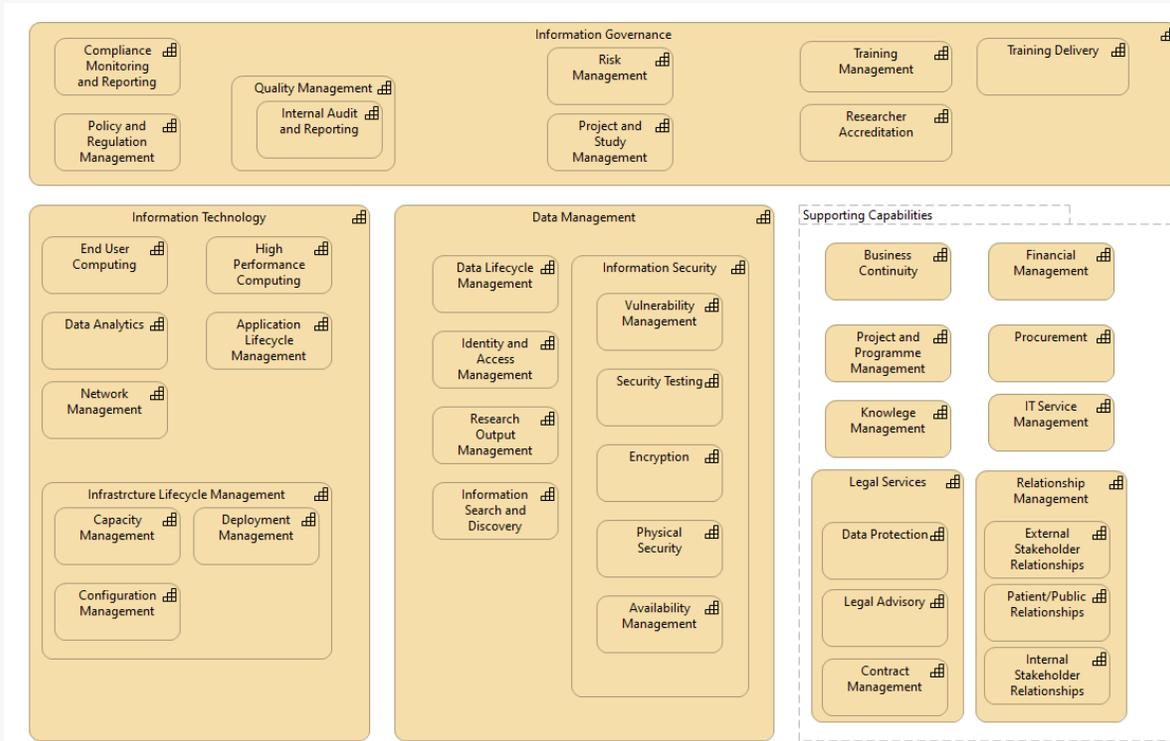
Statement	Guidance	Mandatory status
You have clear onboarding processes in place for all roles within your TRE organisation	This may include all members signing role-specific terms of use, and completing role specific training	Mandatory
You have a robust method for identifying accredited members of your TRE organisation, prior to their accessing of sensitive data	This may include multi-factor authentication (MFA), ID checks or email/phone verification	Mandatory

the TRE specification

Proposed Architecture Approach



Capability Map



v0.1 Released Today!

<https://satre-specification.readthedocs.io/en/latest/standard.html>



Public Involvement and Engagement (PIE)

- Two public participants on project team
 - Anthony Chuter & Jill Beggs
- Two public workshops held on broad themes of trust (March)
- Medium page created to track project (April)
- Infographic being produced summarising project (June)

Public Workshops – 28th & 30th March

- 13 participants from England, Scotland, Northern Ireland
- Discussion points
 - Consented and unconsented data
 - Ethics checks on researchers
 - How we communicate what is happening in TREs
 - How data is linked, is it accurate
 - How data remains anonymous
 - Whether private companies or charities can access the data
 - Who oversees TREs – government, ICO
 - What happens when research questions return small data sets
 - Cyber security of TREs



What makes a trustworthy TRE?

What would concern you in a TRE?

no oversight by external
incorrect information complex information
rare diseases could be identified
trust data breaches
not accurate linked up dishonesty hacking
biases ethnicity unverified sources n
inaccurate data cyber attack
private companies using inconsistency
identification of individ

Summary – PIE workshops

- Security of TRE
- Accuracy of linking data together
- Anonymisation of data
- Tracking how data has been used for research
- Feeding back to public what research their data has been used in

WHAT ARE THE BENEFITS OF TREs?



Personal or sensitive data, which have been collected for operational, commercial or governmental reasons, needs to be managed securely and safely for research for public benefit. This data is held in Trusted Research Environments (TREs). TREs come in different shapes and sizes, depending on the type of data they hold and who runs them.

Standardised Architecture for Trusted Research Environments (SATRE) is looking at how to improve consistency across these TREs across the four UK nations to make safe, secure access to data easier.

WHAT WE'RE DOING

Creating a universal understanding of what a TRE is and what it needs to be.

Designing an open specification for TREs in the UK after using the five-safes framework.

Engaging with the TREs community to understand what works well, and what doesn't.

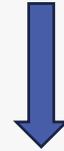
Identifying what it takes to build trust in a TRE, both for the research community and for wider society. After all, it is the public's data that's held in them.

75 people from stakeholder organisations attended kick off sessions to explore key issues

13 members of the general public attended two focused workshops to explore issues of trust in TREs

105 TREs survey responses from across the UK

Plan and Status



**TRE Explainer
Material**

Mar-Aug 2023



**TRE Specification
Documentation &
Journal Publication(s)**

Jun 2023



**Open-Source
Reference TRE
Implementations**

Aug-Sep 2023



**Community
Governance
Guidance**

Aug-Oct 2023

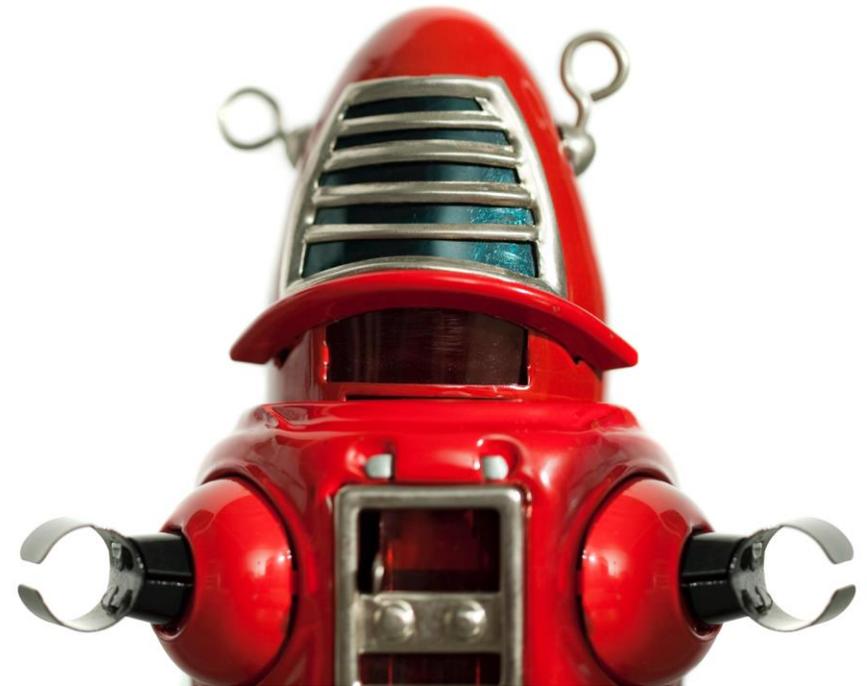
Open Questions

- Is this an architecture, specification or standard?
- Other ways to engage community/public?
- How to capture information governance technically?

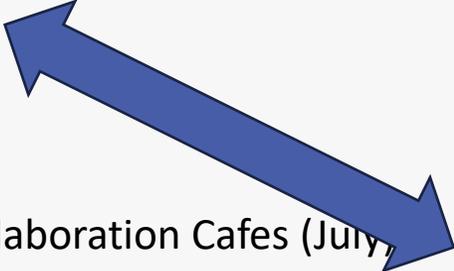


DARE Driver Input

- Feedback on v0.1 of specification/standard
- Join forces on PPI events ensure participation, engagement and four-nations approach
- Come to Collaboration Cafés



Next Stages

- 
- Specification/Standard
 - Continue refining specification
 - Regular releases
 - PIE
 - Invite members of public to Collaboration Cafes (July)
 - Pan-UK, in-person public workshops planned focusing on elements of specification (July)
 - Accessible comms piece planned (September)
 - Static and video media
 - Stakeholders
 - Collaboration Cafés
 - UK TRE group meeting (June/July)
 - RSEcon (September)
 - Implementation
 - Three-way comparison of existing OSS TREs
 - Deployment of SATRE-aware OSS TRE(s)
 - Find an end-point with SATRE, post Oct
 - “Don’t boil the ocean”



UK Research
and Innovation



DARE UK

Thank you for listening

satre-contact@dundee.ac.uk

github.com/sa-tre/satre-specification

medium.com/satre