



Building Small Scale Trusted Research Environments

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Outline

- What is a Trusted Research Environment (TRE)?
- Where do TRE come from?
- How to establish a small TRE in an organisation

What is a Trusted Research Environment (TRE)?

- TRE Key Elements:
 - User computing environment with appropriate software and tools
 - User access controls
 - Data access controls
- Very useful elements:
 - Data lifecycle management
 - Reproducible computing environment

What is a Trusted Research Environment (TRE)?

- Relatively new and niche term
- Also known as:
 - Secure Data Environment
 - Secure Access Environment
 - Secure Research Environment
 - Five Safes Framework

The 'five safes' framework for the IDI

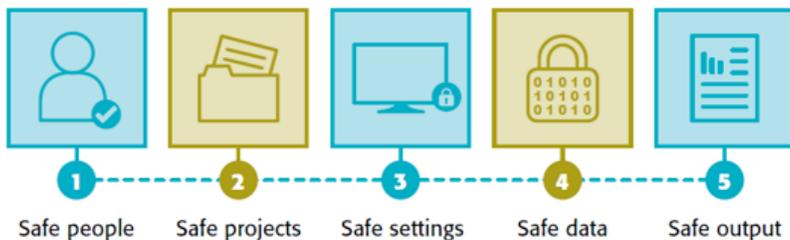
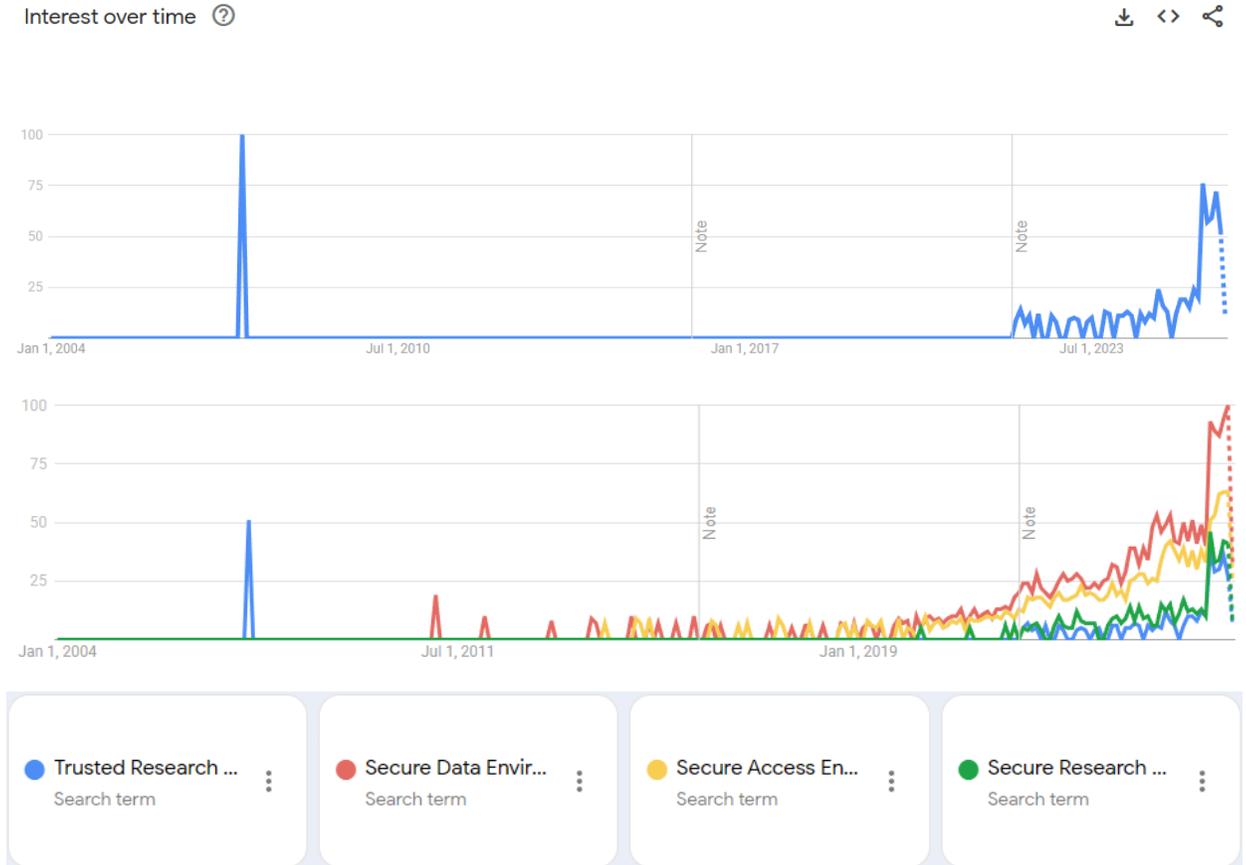


Image from stats.gov.nz 2025-01-06



Charts from Google Trends 2025-01-06

What is a Trusted Research Environment (TRE)?

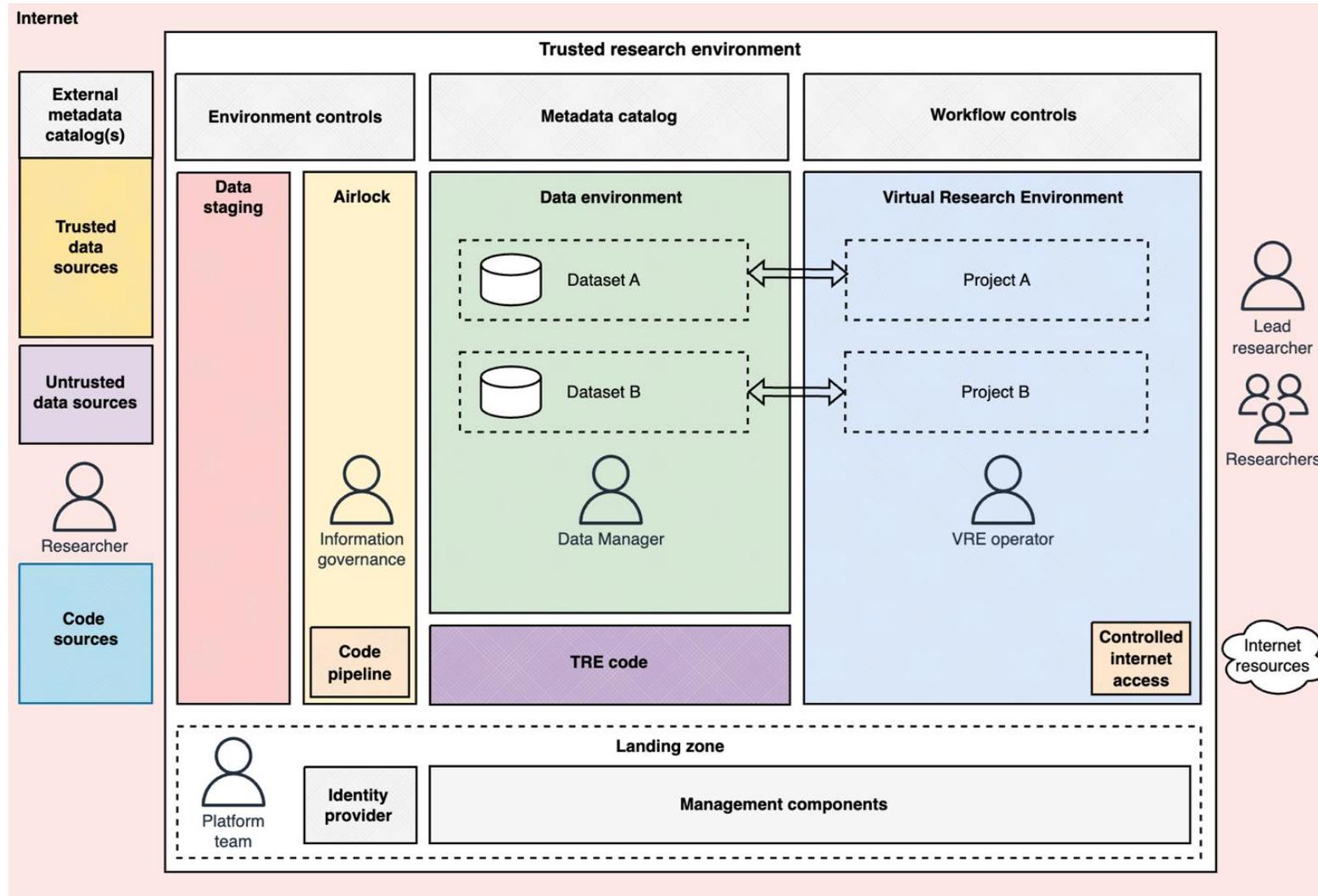


Diagram from: <https://aws.amazon.com/blogs/publicsector/building-trusted-research-environments-on-aws/> 2026-01-06

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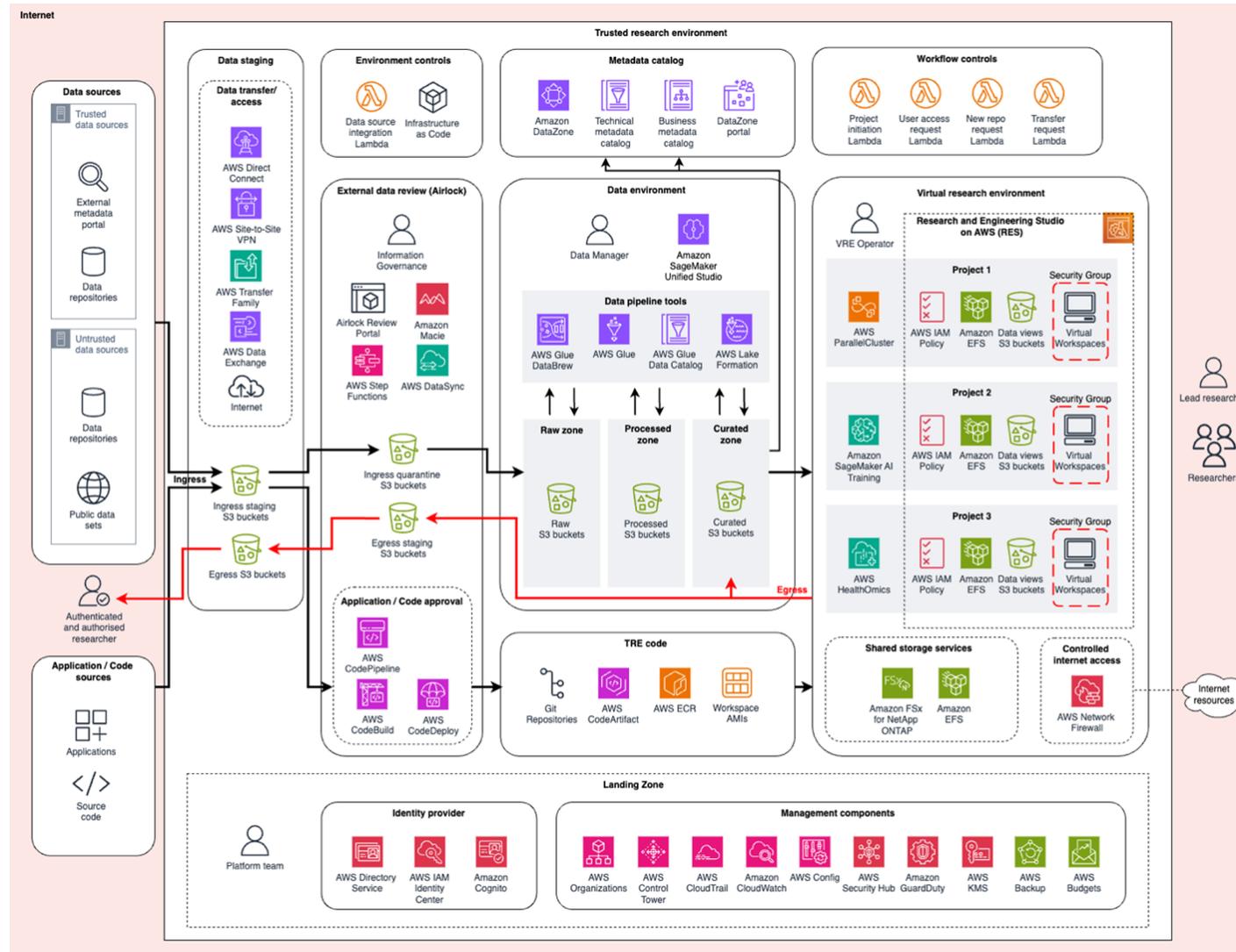


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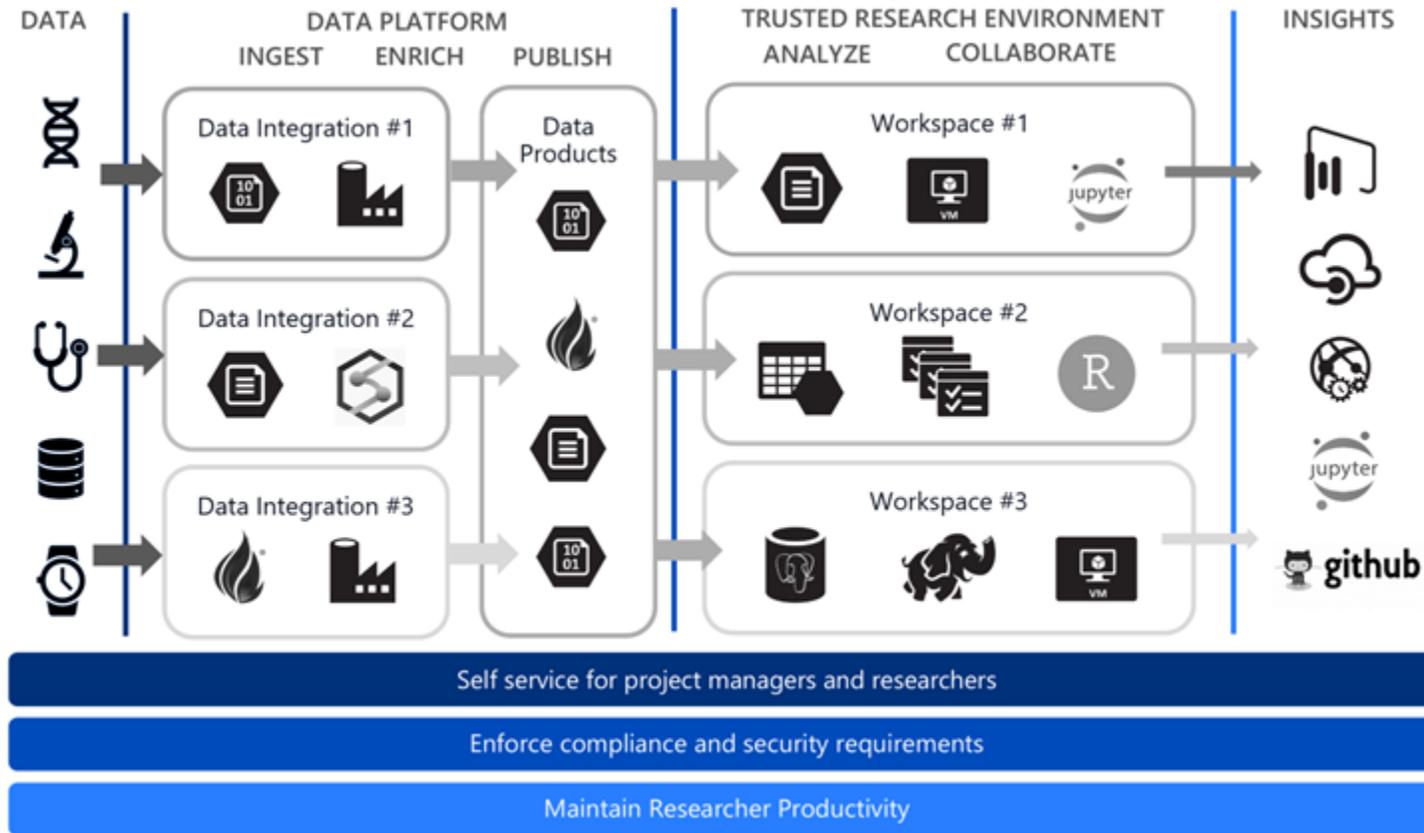


Diagram from: <https://microsoft.github.io/AzureTRE/latest/> 2026-01-06

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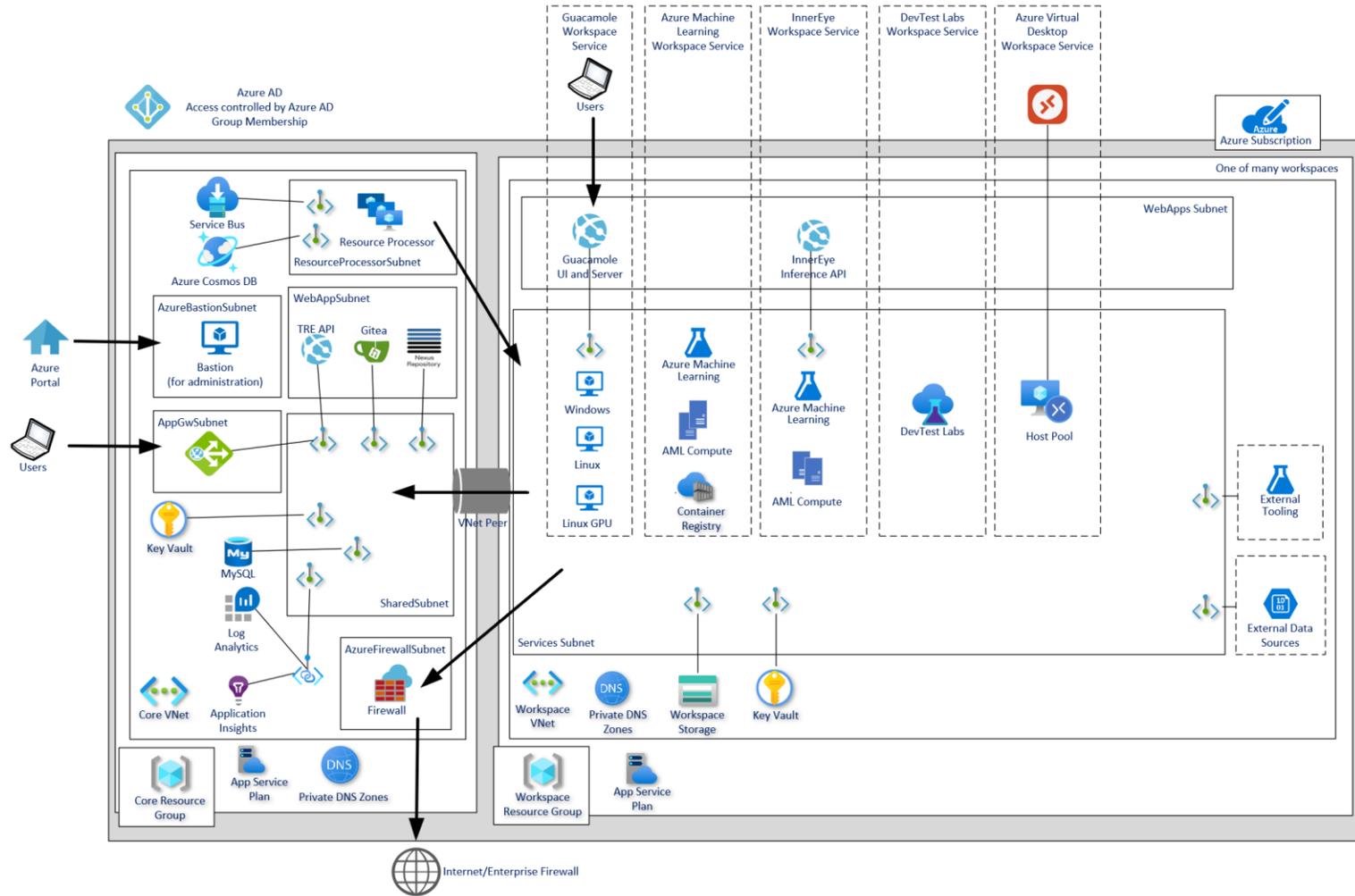


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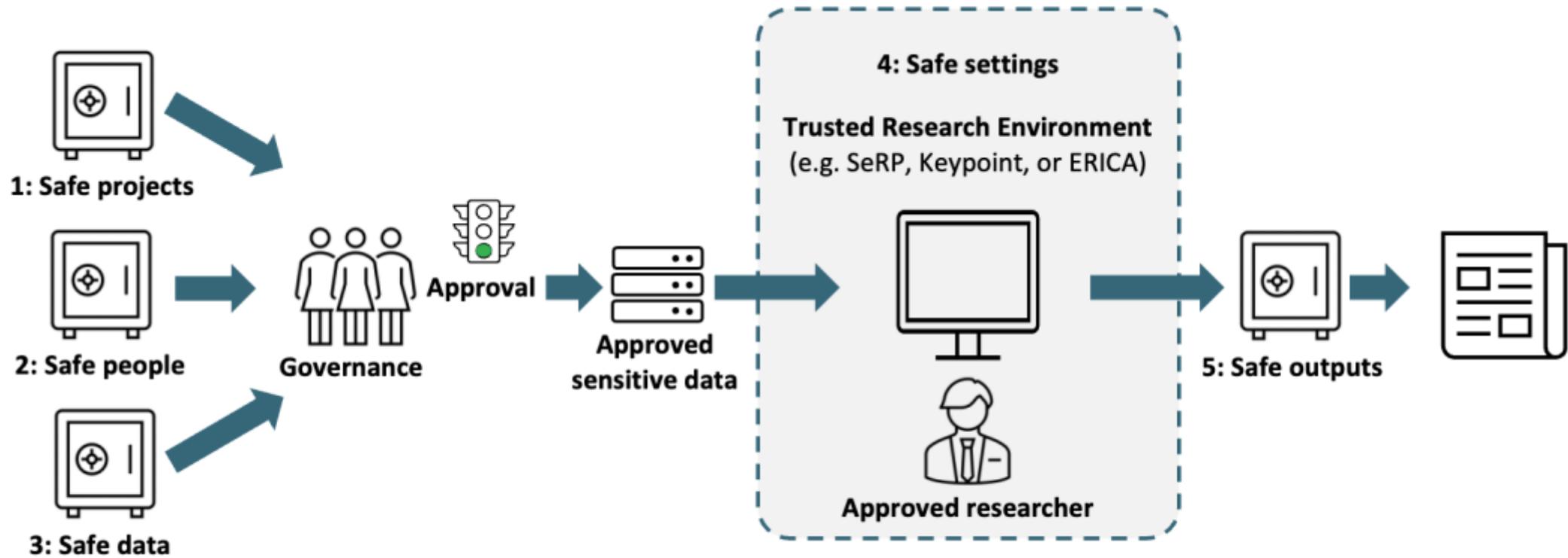
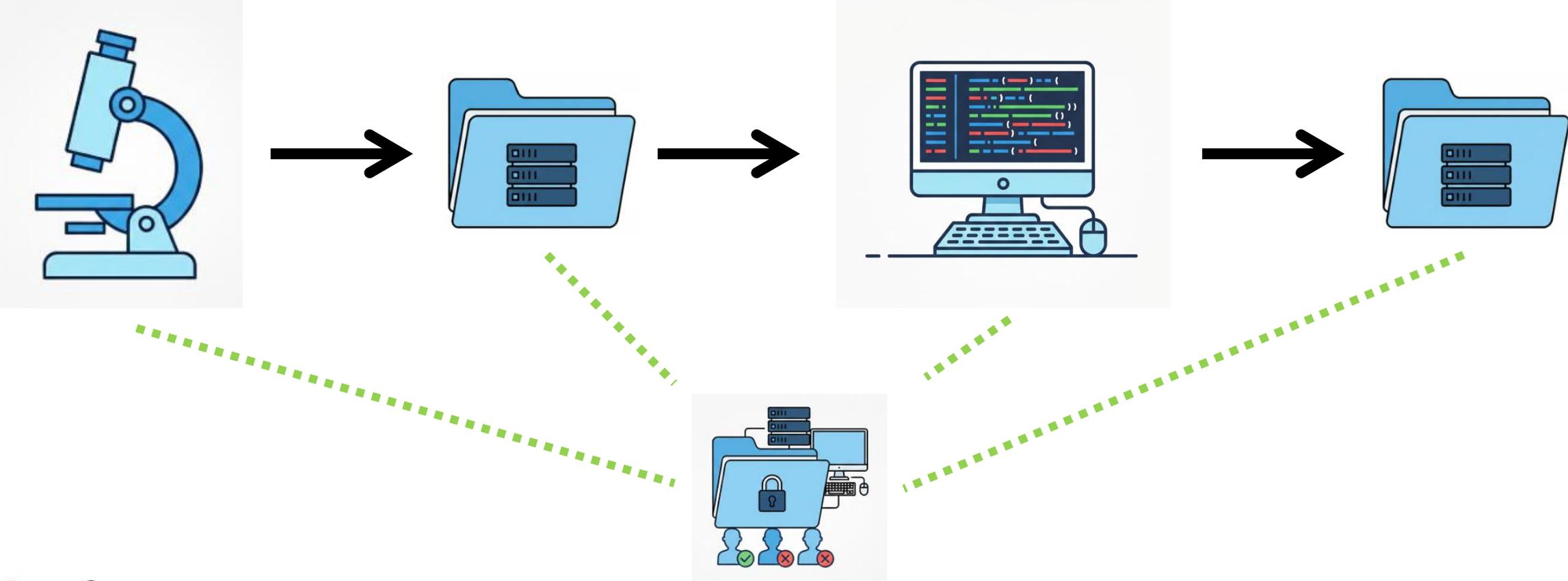


Figure 1. Positioning of TREs within Five Safes approach

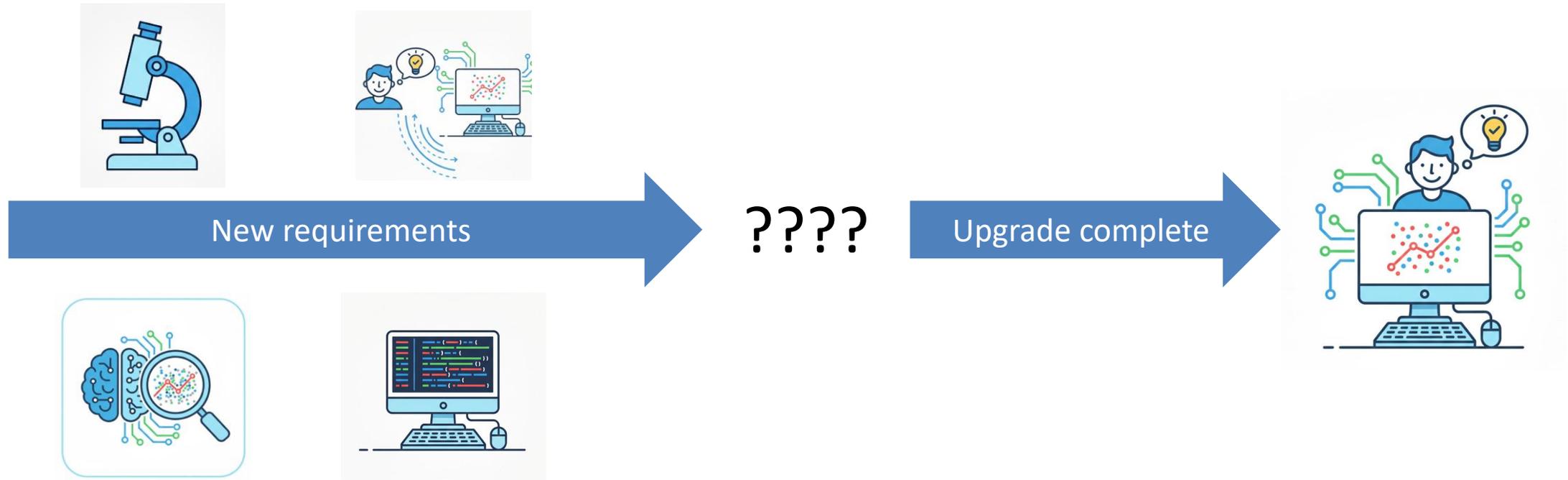
Diagram from: <https://ardc.edu.au/resource/trusted-research-environments-framework/> 2026-01-06

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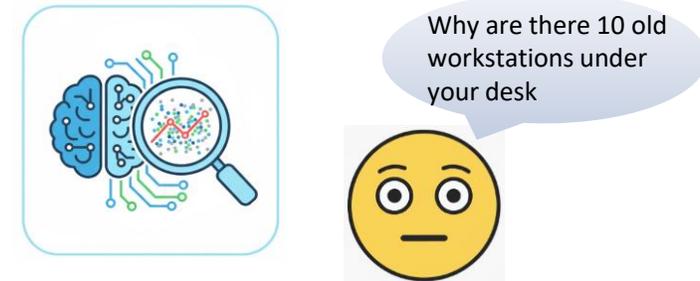
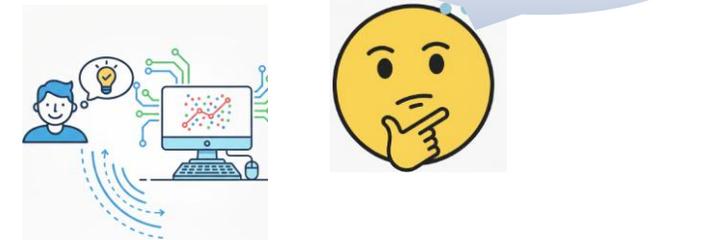
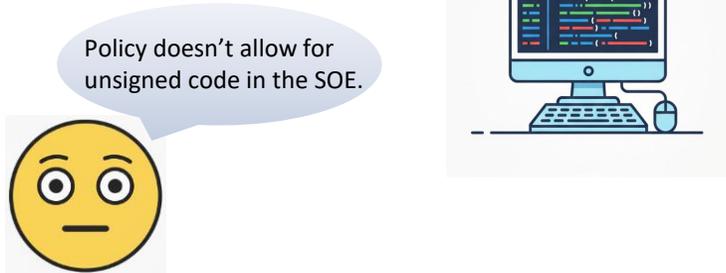
Where do TRE come from?

- Lifecycle usually begins with the researcher, triggered by a change in requirements



Where do TRE come from?

- Each requirement faces friction as it attempts to exist.



Where do TRE come from?

- Without appropriate ongoing support, the TRE may not be able to adapt and survive.

Ideal

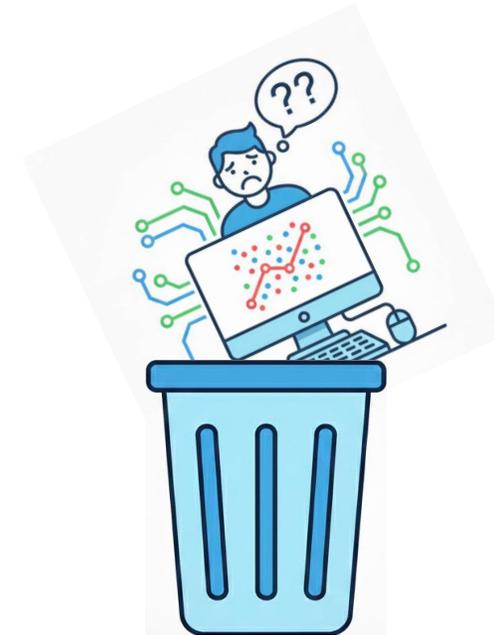


Regular maintenance is complete. Your TRE is up to date and ready to use.



Compute and storage expansion funding for next FY is approved.

Less than ideal



Too Hard Basket

How to establish a small TRE in a large organisation

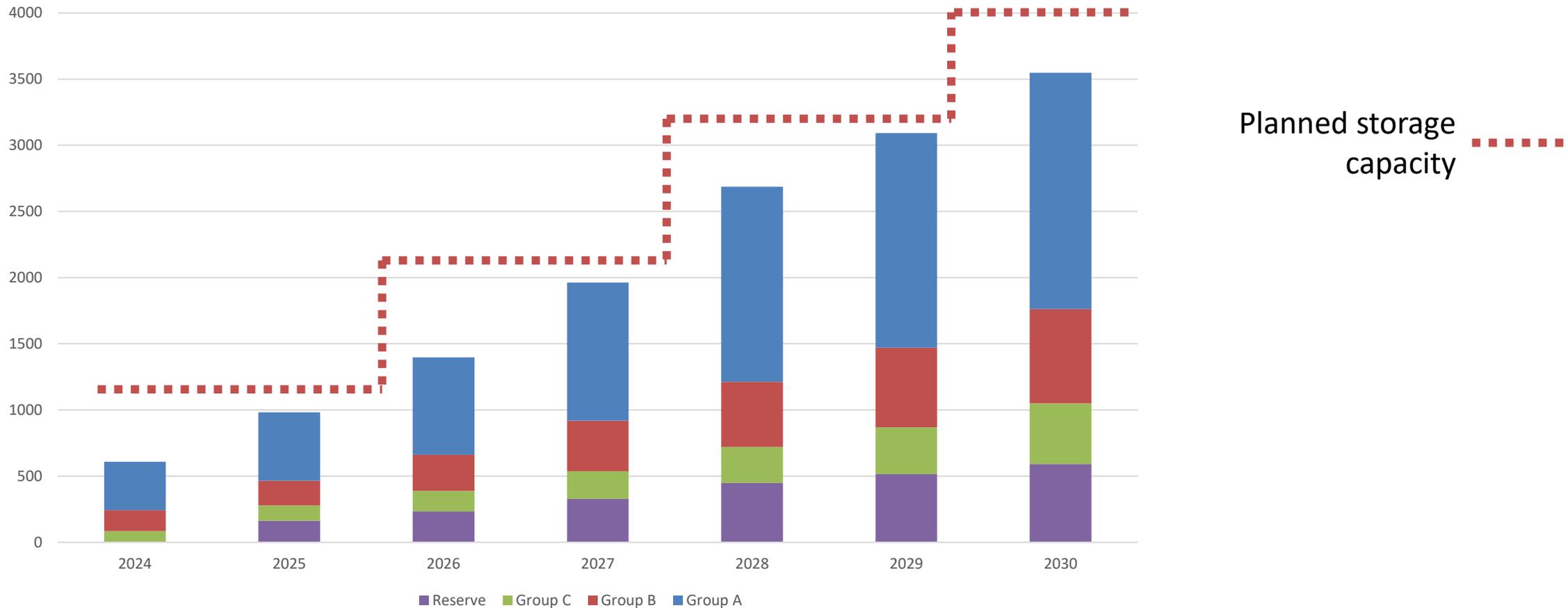
- Depends on business process maturity
 - Use existing frameworks where possible, create new frameworks where required
 - Know your stakeholders
- Frameworks and interfaces
 - Minimum viable product
 - Phased deployment and iterative improvements
 - Ongoing service maintenance and lifecycle
 - Compute and data storage policies

How to establish a small TRE in a large organisation

- Data policy
 - Data categories (Raw, Intermediate, Processed, Published)
 - Compliance obligations for each category (must be stored for a period of time)
 - Deletion plans (may be deleted after a period)
- Data storage estimates (historical, projected)
 - Size of data per project per category
 - Number of projects per year

How to establish a small TRE in a large organisation

Estimated storage capacity required at end of year (Terabytes)



How to establish a small TRE in a large organisation

- Business case
 - Stakeholders
 - Minimum viable product
 - Phased implementation roadmap
- Compute and Data Policies



Thank You

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