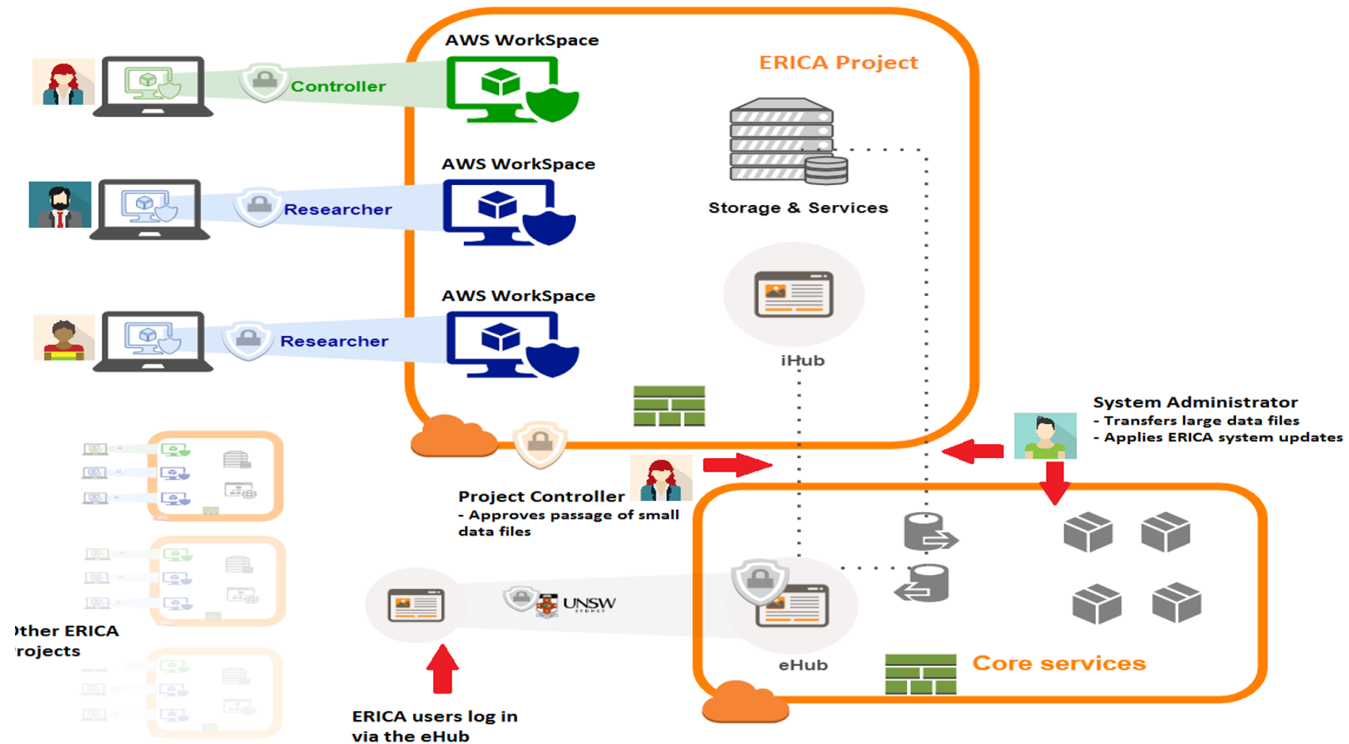


Introduction to ERICA

E-Research Institutional Cloud Architecture

ERICA IS A SECURE ANALYTICS PLATFORM



ERICA Key Features

- Developed and funded by UNSW Sydney
- Development commenced 2016
- Australian Institute of Health and Welfare joined as development partner in 2018
- Uses Amazon Web Services (AWS) commercial cloud computing
- Leverages the features and scalability of AWS:
 - different OS and workspace configurations
 - high performance computing
 - multiple storage and pricing options

ERICA Key Features

- Is institution-based:
 - governed and managed by a host institution and its policies and procedures
 - UNSW ERICA supported by a Governance and Technical Specifications document
- Multiple instances ('clones'), governed by different host institutions can be established (anywhere that AWS operates), currently:
 - UNSW Sydney
 - Australian Institute of Health and Welfare (AIHW SRAE)
 - NSW Government Data Analytics Centre (NSW Secure Analytics Lab)
 - Uni of Melbourne
 - Department of Health, WA
- A code-driven 'orchestration framework':
 - testable and tested for correct behaviour
 - system administrators do not manually configure resources

ERICA and the Five Safes Framework



Settings



- threat model: researchers honest but driven by convenience, designed to protect against malicious acts by non-users
- identity and authentication: Microsoft Active Directory, system-defined roles assigned, single set of log-in credentials and MFA, external access points can be further restricted
- virus protection: within User WorkSpaces which have no access to external sites or communication channels
- movement of data: isolated Project Spaces, encrypted at-rest and in movement, AWS encryption of all EBS and S3 data stores, import or export only through controlled gateway mechanism

People



- online training module and assessment for users covering policies and legislation, IT security, and statistical disclosure control
- system-defined roles assigned to individuals according to policies of host institution: System Administrator, Project CI, Project Controller, Project Manager, Project Researcher

Projects



- policies set by ERICA host institution
- projects must have data custodian and ethics approvals
- ERICA instance must be named as analysis facility in approvals

Data



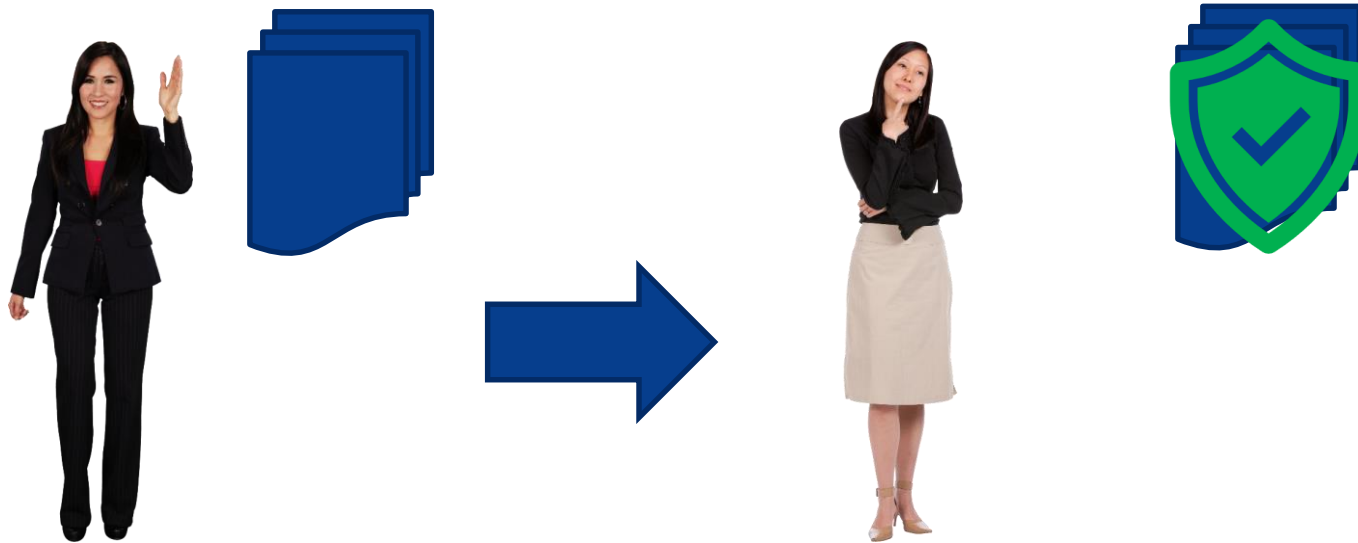
- designed for research using sensitive microdata
- data sets, variables, level of detail and any suppression or perturbation governed by data custodian and ethics approvals and policies set by ERICA host institution

Outputs



- Project Controller checks and approves all outbound files (role can be assigned to data custodian nominee)

ERICA Workflow – Data Ingress



Researcher

r

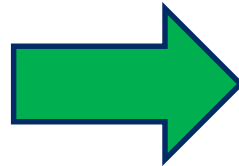


Project Controller

r

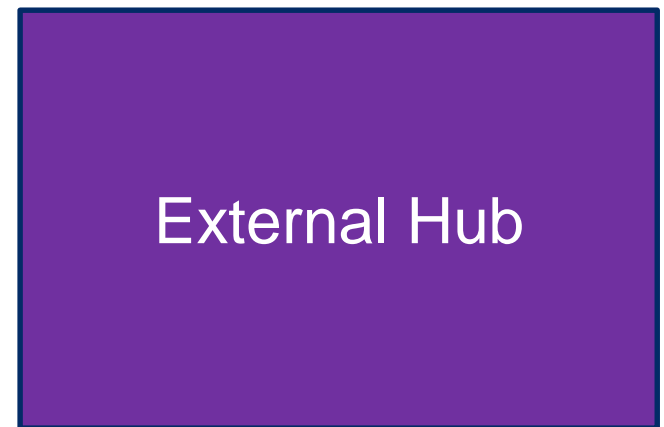
Project Space

ERICA Workflow – Data Egress

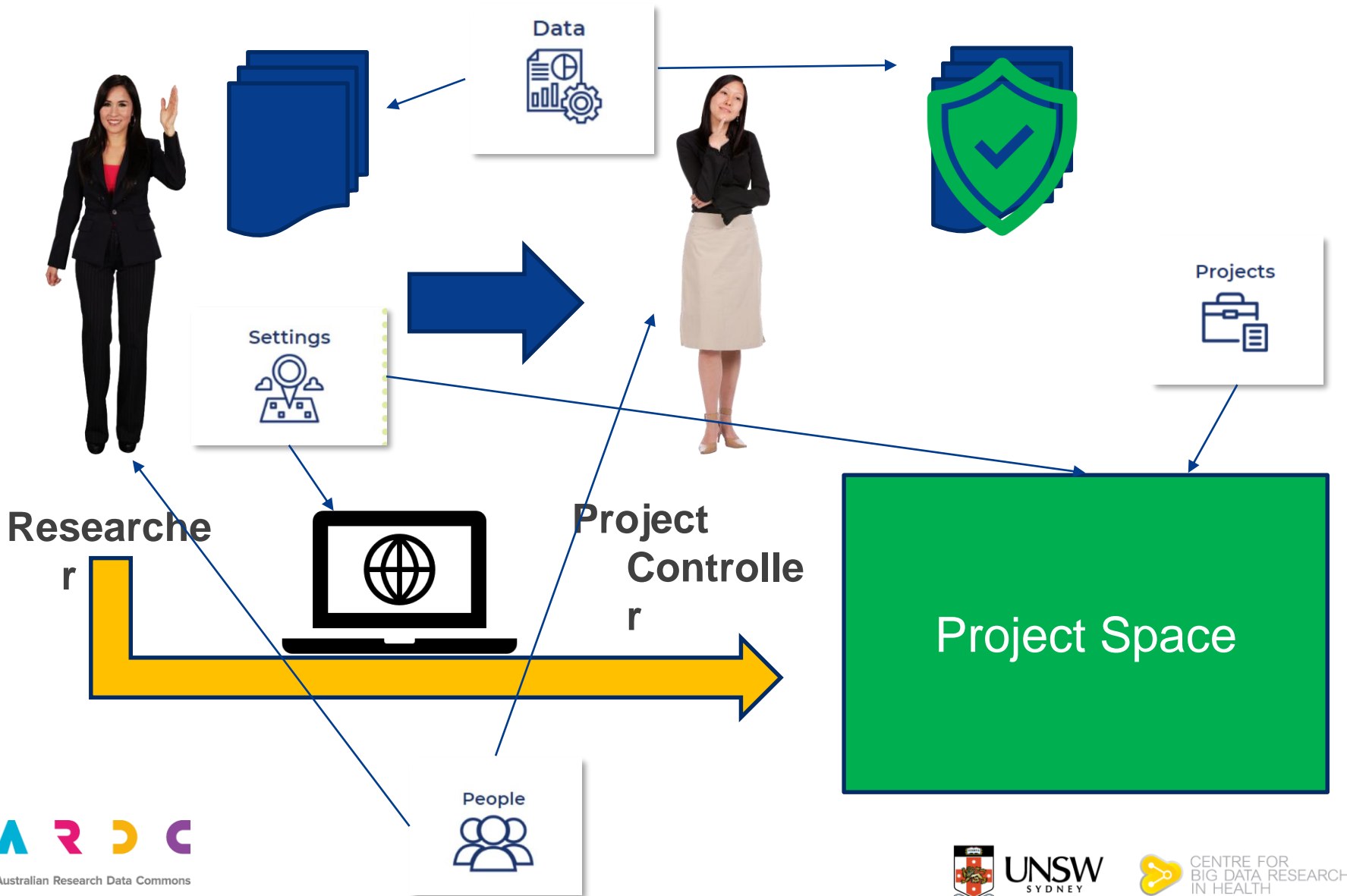


Researcher

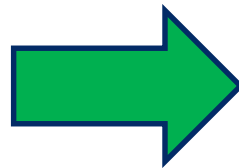
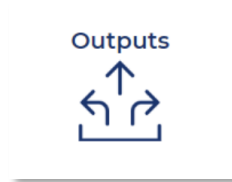
Project Controller



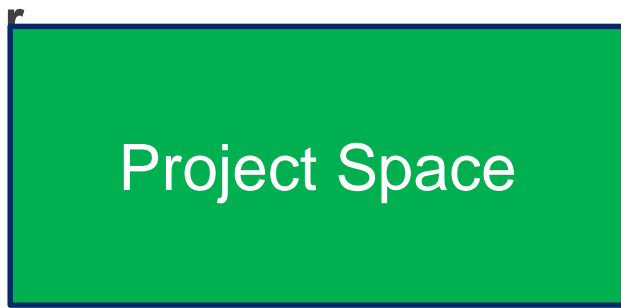
ERICA + Five Safes labels



ERICA + Five Safes labels



Researcher



Project Controller

