



**Australian Government**  
**Department of Education**

# NDRI Investment Plan Consultation Survey Summary

NDRI for Humanities, Social Science and GLAM



**Q5 - What are the gaps and weaknesses in Australia's NDRI landscape for our humanities, social sciences and GLAM sectors?**

- Repository infrastructure and preservation archives where research outputs can be made FAIR
- National Roadmap for open research.
- Skills:
  - Lack of technical professional support for humanities, social sciences and GLAM.
  - Lack of digital literacy and data management skills as well as exposure to emerging digital technologies for GLAM and researchers.
  - Need for training that is tailored to the humanities, social sciences and GLAM sectors.
  - Perception that much of humanities, social sciences and GLAM research can be done without digital tools and digital solutions have large learning curve.
- Siloing:
  - Humanities, social sciences and GLAM siloed from STEM fields and receiving less funding.
  - Humanities, social sciences and GLAM expertise should be on committees advising and designing NDRI Investment.
  - State and data collections siloed leading to loss of integrity of data.
  - Digital infrastructure in Humanities, social sciences and GLAM sectors are fragmented and siloed.
  - Different research domains within the Humanities, social sciences and GLAM sector have different legacy practices and tools that need to be considered.
  - Divide between the “cutting edge” NDRI users and those left behind.
- Lack of data linkage, data storage and missing data.
  - Lack of curated national data repository leads to data loss.
  - No funding for continued hosting of Federal Government funded research project data after the grant ends.
- Lack of consistent data and metadata management practices and standards due to wide range of data types and repositories.
- Concerns about adequacy of cybersecurity measures.
  - Sensitive data concerns and ethical use of data.
  - Unwillingness by researchers and institutions that humanities, social sciences and GLAM research might be target of foreign interference.
- Need for better recognition and implementation of the Indigenous Data Sovereignty principles.
- A lot of relevant research data is commercially sensitive or has unclear intellectual property.
- Access to key data sets difficult.
  - In some cases not all data has been digitised.
- Trust and identify across platforms.
- Need investment to make GLAM collections more FAIR and CARE-ful for researchers.



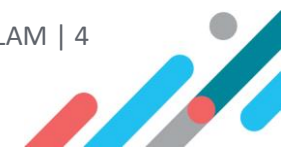
**Q6 - How can NDRI investments support the creation, management and access to digital twins?**

- The potential uses of a digital twin are variable so the activities could use the cross-disciplinary nature of the humanities, social sciences and GLAM domain to encourage collaboration.
- Investment in staff resources to help researchers design analyses and evaluations and training materials for researchers.
- Develop national digital twin repositories and frameworks to facilitate management and analysis of complex datasets.
- Invest in high performance compute (HPC) and cloud infrastructure to support required simulation and processing.
- Enhance cybersecurity to protect sensitive data used in digital twins including trust and identity.
- Develop collaborative platforms to share digital twin models.
- Standardised approach to the creation, management and access to digital twins and support development of interoperable systems.
- Investment in the ability for institutions to assign globally unique persistent identifiers to physical objects and digital twins derived from them.
- Automated research data processing and AI resources for modelling and visualisation .



**Q7 - What international exemplars of large-scale research infrastructure investments to support the humanities, social sciences and GLAM sectors do you recommend Australia should consider as part of the NDRI Investment Plan?**

- Open repositories:
  - Zenodo repository – especially as an example of plans for long term preservation.
  - OAPEN digital library.
  - Directory of open access books.
  - Towards a national collection (TaNC) – using digital technology to create a unified national collection of the UK’s museums, libraries, galleries and archives to maintain global leadership in digital humanities and arts research.
  - CoSTAR – UKRI creative industry investment.
  - Digital Public Library of America – aggregates metadata to provide single access point to millions of artefacts.
  - Common Language Resources and Technology Infrastructure (CLARIN) is a digital infrastructure offering data, tools and services to support research based on language resources.
  - Common Lab Research Infrastructure for the Arts and Humanities (CLARIAH) – Netherlands based distributed research infrastructure for the humanities and social sciences as part of Europe-wide ESFRI enterprise.
  - HathiTrust Digital Library - a partnership of academic and research institutions offering a collection of millions of digitised titles.
  - The European Social Survey (ESS) - a biennial survey that measures the attitudes, beliefs, and behaviour patterns of diverse populations in Europe.
  - The UK Data Service - provides access to a wide range of social and economic data.
  - DiSSCO – Distributed System of Scientific collections in European museums holding natural science collections.
  - European Digital Research Infrastructure for the Arts and Humanities (DARIAH).
  - Humanities Commons: A collection of tools and materials to support education.
  - CLOSER -an interdisciplinary partnership of leading social and biomedical longitudinal population studies, the UK Data Service and The British Library.
  - Europeana - access to Europe's digital cultural heritage.
  - Social Science and Humanities Open Cloud (SSHOC) - seamless, Europe-wide access to research data and tools across scientific or thematic disciplines and geographical borders.
  - CESSDA - Consortium of European Social Science Data Archives.
  - REIRES - Research infrastructure on religious studies.
  - E-RIHS - European Research Infrastructure for Heritage Science.
- Skills:
  - UKRI Digital Research Technical Professional Skills NetworkPlus – addresses cross-cutting challenges related to digital RTP skills and careers.
- Transformative technologies and AI:
  - Responsible AI UK – international ecosystem for responsible AI research and innovation.



- Future data services: pilots to enhance data services for the future (pilot new data service delivery solutions to enable federation of data services, data discovery using AI, skills capacity).
- National Library of Norway's AI lab.
- Alan Turing Institute – particularly projects with British Library materials that reduce black boxing of language.
- Research Security:
  - NSF-backed SECURE Centre in the United States – a collaborative format to delivery national capability in research security advice.
  - The Authentication and Authorisation for Research Collaborations (AARC) Framework developed by the international community specifically for globally aligned research infrastructure.
  - Smart Data Research UK (formerly Digital Footprints) – provides secure data access, safeguard public trust, and build capability for cutting-edge research.
- Standards:
  - The International Image Interoperability Framework (IIIF) provides a set of standards and APIs for working with image data that is widely used internationally – example of leveraging is the Biblissima project.
- Funding streams:
  - The US National Endowment for the Humanities (NEH) which funds data infrastructure for humanities.



**Q8 – What are the priority humanities, social sciences and GLAM NDRI investments that would enhance Australia’s collaborative research efforts?**

- Skills:
  - Training for digital literacy.
  - Create them-based team around research style (for example, qualitative vs quantitative) and broad topics to identify missing elements requiring NDRI investment.
  - Training in Aboriginal and Torres Strait Islander people data governance and sovereignty.
- Security, trust and identity:
  - Secure environments for sensitive data.
  - Trust and identity to ensure researcher identification.
  - Trust and identity tools based on AARC Blueprint.
- Data:
  - Non-commercial repository infrastructure compliant with FAIR and CARE principles.
  - Indigenous data sovereignty.
  - Centralised data linkage for health data.
  - Integrated platforms to facilitate sharing of cultural and research data.
  - Consistent data management standards including metadata.
  - Tiered access to sensitive data.
  - Support for archiving research-focussed websites that contain research results and supporting media.
- Tools:
  - HPC and cloud tailored to the needs of humanities, social sciences and GLAM researchers.
  - Use of persistent identifiers (PIDs) to track and report on research impact and reproducibility.
  - Use of PIDs for physical objects.
  - Investment for developing interoperable digital tools (for example, collaborative data labs).
  - Digital twins for cross-sector research.
- Collections:
  - Digitisation of social and cultural assets.
  - Digitisation of historical death records from state and territories.
- Strategies/strategic thinking:
  - Open research roadmap that includes humanities, social sciences and GLAM.
  - Develop a national strategy for humanities, social sciences and GLAM.
  - Ongoing sustainability of key existing infrastructure in the space.
  - Support an independent coordinating body to support humanities and social science researchers and identify research infrastructure requirements.
  - Establishment of a national humanities collection builder and repository adhering to linked open data standards.



