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**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. |
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| 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. |