National Research Infrastructure Investments in Humanities, Arts and Social Sciences

Discussion Paper

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dandolopartners

Investment in HASS research infrastructure

Humanities and Social Sciences (HASS) is a potential area for national research infrastructure investment

World-class national research infrastructure helps to increase the impact of Australian research and make it more internationally competitive. It helps researchers to conduct high quality and rigorous research, increases collaboration, improves efficiency and helps to unlock innovative research methodologies.

The Australian Government has a long history of investing in this type of infrastructure, alongside other partners including universities. Traditionally, these investments have usually been made in the `hard' and medical sciences fields, with investment in HASS mostly limited to galleries, libraries and museums.

Advocates for national investment in HASS research infrastructure have been successful in establishing the sector as a potential area for investment. Accordingly, the Investment Plan / Roadmap identified HASS as an important area for which research infrastructure support should be considered.

The established process for scoping investments has been designed for investments in hard science (e.g. enabling synthetic biology). There is a strong argument that the established process may not be suitable for HASS. In particular, the scale (dollar value) of proposals in HASS is likely to be very different to other more capital intensive fields.

The next step in this process is to determine a process to scope potential investments in HASS, with input from the Australian HASS research community.

HASS has distinctive characteristics. The established process for scoping investments may need refinements

Relative to other areas, HASS is broad, complicated and relatively new to the investment process.

HASS is complex:

- It's **big**: 43% of academic staff are in HASS disciplines.[1]
- It's **broad**: Includes everything from linguistics to criminology to anthropology to literature and sociology.

HASS also has some distinctive challenges and characteristics:

- It's **rarely considered an area for innovation**: There is a perception that the hard sciences are the source of innovation and progress.
- It has **rarely seen large-scale research infrastructure investment**: There is a perception that Australia's HASS sector is behind other jurisdictions in research infrastructure.
- It has **capability issues**: There is a perception that the sector will need to invest in human capability to fully unlock the benefits of infrastructure.
- It has **complicated custodianship**: The majority of HASS collections are held by government and national institutions, whereas most researchers are in universities.

While Government investments need to consider relative priorities across the whole research sector, and HASS (like all disciplines) will need to work within established frameworks to demonstrate the value of any investment, the Department acknowledges the need to consider the best process for scoping HASS investment proposals.

Because of this complexity and the challenges, and the lack of clarity about the best possible process, the Department commissioned dandolopartners – a management consulting firm – to support the development of an appropriate process for scoping HASS investment proposals.

[1] Mapping the Humanities, Arts and Social Sciences in Australia 2014

A discussion with the HASS community about investment in research infrastructure

On behalf of the Department, dandolopartners led a process to hear the sector's views

The HASS community wants sound investment decisions made about research infrastructure, because this enables competitive, quality research for Australia's largest group of researchers, which in turn leads to better outcomes across the broader community.

The best way to ensure investments reflect what is really needed for world-class research in HASS is for the sector to help inform and shape the Government's decisions on investments in research infrastructure.

dandolopartners developed a proposed framework that aimed to maximise the opportunities for investment in HASS research infrastructure and assist HASS organisations needing to pursue ambitious national infrastructure projects, by proposing a way to identify, describe and assess investments.

This thinking was tested through consultation with the Department and sixteen highly regarded and influential stakeholders from the HASS community. These included:

- the academies of humanities and social sciences
- key executive and research staff from leading Australian universities, and
- key executive staff from national HASS institutions.

The rest of this document describes these frameworks, which have been revised in accordance with the feedback of HASS stakeholders. It provides:

- a definition for national research infrastructure in HASS
- a framework for describing proposals and their benefits
- a set of hurdle and evaluative criteria to support assessment of benefits, and
- a range of examples to demonstrate the type of proposals that could be funded.

The release of this discussion paper isn't the end of the conversation.

Much progress has been made over the past few months, and there is an opportunity to keep moving the work forward.

In [MONTH], 2019 the Department will commence a scoping study that will look in far more detail at the possibility of national research infrastructure in HASS. This scoping study will:

- Department to provide bullet points on intended aims of scoping study.
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After conclusion of the scoping study, in line with the consistent views of the sector it is possible that any funding committed for national research infrastructure investment in HASS might be allocated through a supported application process. This will allow high-quality proposals to be supported through the application process, and for the process to be tested.

The draft next steps in the process will be along the following lines:

- Release of this dandolopartners paper
- Hold a series of discussions and roundtable events, to test a proposed application process.
- Development of an application process and form
- Call for EOIs
- Shortlisting of a small number of highly prospective, high impact proposals
- A supported process to further develop applications
- Submission of developed applications

[these are early ideas about next steps – for Departmental determination]

Identifying NRI investments in HASS

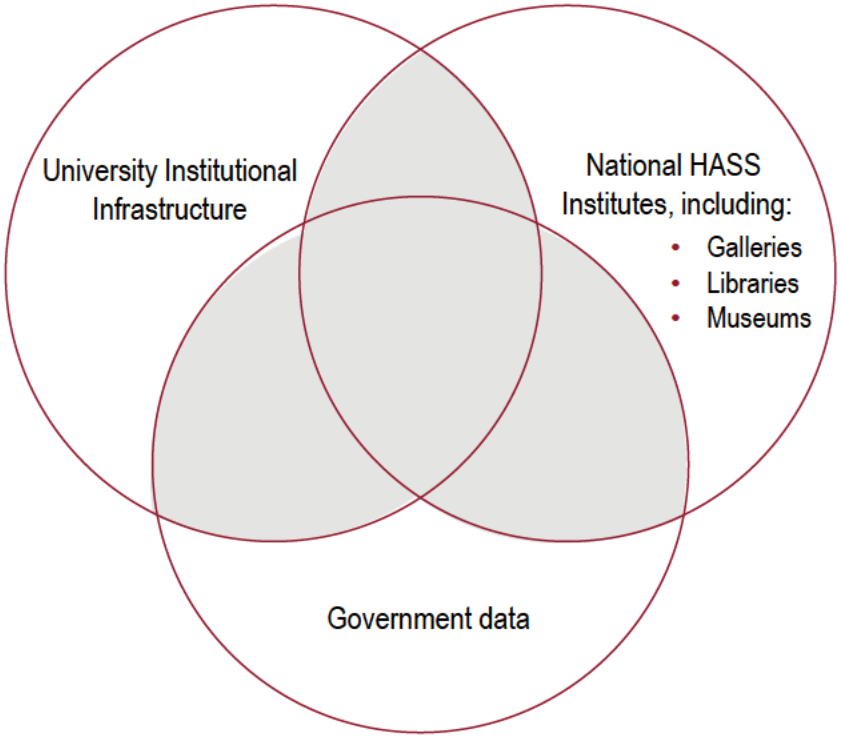
Investments must meet the definition of NRI in HASS.

HASS disciplines cover the study of human behaviour and interaction in social, cultural, environmental, economic and political contexts — both historically and now.

As a result, HASS as a whole spans a broad range of subjects. Previous mapping exercises have identified the following fields of education as HASS disciplines:[1]

- Built Environment and Design
- Education
- Economics
- Commerce
- Management, Tourism and Services
- Studies in Human Society
- Law and Legal Studies
- Indigenous Research.
- Studies in Creative Arts and Writing
- Language, Communication and Culture
- History and Archaeology
- Philosophy and Religious Studies

Figure 1: potential areas for NRI investment



All shaded areas are eligible to be considered for NRI investment

- National research infrastructure is defined as nationally significant assets, facilities and services to support leading-edge research and innovation. It is accessible and of sufficient benefit and priority to a wide group of publicly and privately funded users across Australia, and internationally.
- This does not include institutional infrastructure or specific research projects.
- Future iterations of the National Research Infrastructure Roadmap may revisit and refine the definition of NRI, but the current definition is a parameter for this work.
- Being identified as national research infrastructure doesn't automatically result in funding, or additional funding for existing facilities.
- Investments can be made by Government through various programs / initiatives, and not necessarily NCRIS.

Source: [1] Mapping the Humanities, Arts and Social Sciences in Australia 2014

Describing investments

Decision makers need to understand the nature of investments, what constitutes them and what benefits are likely to result. HASS stakeholders helped to define this.

All potential investments will need to answer three questions

What research infrastructure is being sought?
Infrastructure can be categorised as:
- Physical (hard infrastructure).
- Digital (soft infrastructure), including data and software.
- People ('wet' infrastructure), including capability building.

What functional change would the infrastructure enable?
Investments in national research infrastructure enable new abilities or better ways to do research such as:
- Broaden access and linkages between researchers and sources.
- Introduce new information and new ways to use information.
- Improve detail / accuracy / efficiency / speed of research.
- Increase standardisation and convergence.
- Reduce duplication of effort and investment.
- Further the 'open science' agenda.

What outcomes would the infrastructure ultimately support?
- These are the ultimate objectives for investing in the infrastructure, and are generally flow-on effects (e.g. improved cultural understanding, better government decision making, greater impact for research and infrastructure investment, stronger HASS sector, new discoveries, commercialisation).
- These objectives could be sorted into social, economic, cultural and/or environmental outcomes.
- Output measures, such as citations, are not examples of outcomes, and do not justify investments.

Any one of these three points could be the starting point for identifying potential investments. E.g. objective to reduce interstate criminal activity (outcome) might lead to better sharing of police data (functional change) through digital infrastructure for real-time, secure sharing of police notes (infrastructure)

This is to be expected when developing ideas for investment, but it will be important for stakeholders to fully explain what their investment is and what it will enable.

Framework to assess investments

There needs to be a consistent, comparable approach for determining the value of NRI investments. HASS stakeholders helped to refine an explanation of criteria for HASS related investments.

There are different types of criteria that can be applied to investments:

1: Hurdle criteria
Base requirements that all NRI investments will need to meet

- Objectives of the infrastructure are clear and of national scale, with a clear cost and plan for implementation and ongoing management.
- The investment does not duplicate other existing infrastructure and there is a market failure* in establishing the infrastructure.
- Wide and national need for infrastructure demonstrated across users, institutions and disciplines.
- Co-investment from a range of partners – including the lead agent – involving cash and/or in-kind contributions
- Collaborations have been identified and are viable for the infrastructure, including a stakeholder engagement plan (including industry, users, institutions, government, relevant communities)
- The infrastructure provides open merit-based access to infrastructure and research output or data against FAIR principles, noting any appropriate security and access control.

2: Evaluative criteria
Criteria that identified what is considered valuable to help prioritise investments

- **Of national and research significance** – including impact on Australia's global positioning in research supported, whether there is a unique Australian need, address national interest needs (i.e. in key government priorities), (likely) impact on university rankings and research impact ratings and~~/or~~ a link to national research priorities. A high level of international significance is of value also.
- **Return on investment** – including level of access use generation, level of merit based access, access and use by Commonwealth agencies, whole of life costs, level of co-investment from applicant and other partners, and potential revenue streams and returns on investment.
- **Impact** – including size of public benefit provided or enabled and level of innovation in research achieved or enabled.
- **Governance / risk** – including management, implementation, risk and asset management, decommissioning/transition plans

Notes on process

- A staged process is anticipated, to reduce burden on applicants and to provide support available where required. Greater government support may be needed for development of some proposals (e.g. facilitated applications, scoping studies).
- Investments will be made for a fixed period
- Consistent with commitments to regular Roadmaps and Investment Plans, all infrastructure investments by Government will be periodically re-assessed for future funding priority, including against alternative investment opportunities

* Market failure in this case covers benefits being too distant or too dispersed to incentivise any single institution to invest or step in.

Examples

This table demonstrates how the frameworks would be used to filter and prioritise investments

(1) Could be this…	(2) But not this…	Why
• A time capsule of social continuity for research investigation	• Storage of "orphaned" datasets	• (2) Data storage is responsibility of custodian unless national need and of high-volume / use
• Australian standards for HASS metadata	• Data management and cleaning of individual datasets	• (2) Storage and cleaning is generally the responsibility of data custodian / owner
• A federated research cloud service providing Australia's research community with computing infrastructure and software.[1] Researchers can store, access, and run data, remotely, rapidly and autonomously	• An intranet for a group of universities • Training in accessing and manipulating data	• Access is open to all researchers in (1) and supports innovations in research as opposed to (2) where benefits of investment are only for a small group or an institutions own responsibility • (1) training is focussed on how to use the tools and resources, not general research skills
• 20 institutions across Australia seeking to digitise assets at risk and in high demand through share equipment, other outputs very open	• NGV (National Gallery of Victoria) wants funding to digitise its records	• (2) is outside of definition — it is institutional infrastructure not national research infrastructure
• Support indigenous research through functionality to link government data with indigenous research surveys, supported by specialist tools	• Collection of longitudinal population data	• (2) is a research survey whereas (1) is open tools to bring together data

Other supporting documentation to guide the scoping study and any investment proposals appear in appendix 1:

- Collated list of national and international examples of HASS infrastructure, existing and prospective
- 7 case studies to demonstrate the application of the framework in this document (note these are to demonstrate the application of the framework and are not sample applications. Applications would require significantly more detail, quantification, and examples).

[1] This example is based on the Nectar Research Cloud. See https://ardc.edu.au/services/nectar-research-cloud/