

CAMMD | COUNCIL OF
AUSTRALASIAN
MUSEUM
DIRECTORS

**Response to the
NATIONAL RESEARCH INVESTMENT PLAN
Discussion Paper**

**Submitted by
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COUNCIL OF AUSTRALASIAN MUSEUM DIRECTORS (CAMD)**

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COUNCIL OF AUSTRALASIAN MUSEUM DIRECTORS

NATIONAL RESEARCH INVESTMENT PLAN DISCUSSION PAPER - CAMD RESPONSE

Introduction

The Council of Australasian Museum Directors (CAMD) congratulates the Australian Research Committee (ARCom) on its work to date on the National Research Investment Plan (NRIP). CAMD believes that the plan as outlined will provide a clear rationale for Government investment in research and ensure that this outlay is maximised through coordination and collaboration. CAMD also applauds indications that the plan will adopt an integrative approach covering not only infrastructure but also skills, the workforce and collaboration in relation to research investment.

While it is clear that the investment plan is still at the ‘broad-brush’ stage, CAMD would like to emphasise the importance of utilising Australia’s existing research infrastructure and research capacity in producing the future ‘research fabric’. This should include the vast research resource available in and through Australia’s public collections in which the Government, at both Federal and State levels, has made significant, long-term investment. The development of the NRIP provides an opportunity for a national strategy to identify and prioritise the core collections which contribute to each research domain.

Research Collections

CAMD represents the leaders of the major national, state and regional museums in Australia and New Zealand (see appendix 1) whose members manage 62 separate institutions ranging from natural science to social history museums and historical sites (see appendix 2). CAMD museums hold over 60 million natural science and geoscience specimens and cultural, heritage and technological objects which form part of the distributed national collection. Museum collections constitute significant research infrastructure which in turn provides the basis for ongoing, unique research by museum research staff.

Public collections are an essential part of Australia's future as they provide the raw material through which researchers can discover the extent and character of biological and cultural diversity and how they may be sustained in the future. The critical role of these collections was recognised by the *Strategic Roadmap for Australian Research Infrastructure* (2011) which included a separate ‘Digitisation Infrastructure’ capability based on the importance of public research collections to the broadest range of disciplines. It also noted in its ‘Cultures and Communities’ capability that urgent work was required to make humanities collections

discoverable and reusable. A concerted Government effort is required to ensure that the rich resources locked away in the collections of major museums and other public collections are available, in real time, and remotely to the research community in Australia and internationally.

Using their vast collections as a starting point, museums also generate research which frequently breaks new ground in scientific and cultural knowledge and application, uncovers new species and climactic processes and provides data and ideas which support problem solving in a broad range of fields. In 2010-11 CAMD museums undertook 569 in-house research projects, participated in 261 grant-funded research projects and expended over AUD\$12 million in research grants. Their contribution to the research effort, while far smaller in magnitude than university output, remains critical due to the specialisation of museum staff and the unique nature of their focus around collections.

Australia's National Research Fabric

CAMD generally supports the NRIP's representation of the national research fabric and its identification of key enabling capabilities but would make comment on one aspect which would appear to require development. There is an absence of a cultural dimension in the diagram and text depicting how national research increases national well-being. CAMD believes that national well-being cannot be limited in scope to access to or use of resources in the physical environment or economic prosperity. There is a sizeable body of research which also deals with the cultural expression, social cohesion and engagement which is central to the broader human goals – such as the pursuit of happiness and life satisfaction - implicit in a better quality of life. The types of research benefits which should be included here were substantially covered in the priority area, 'Enhancing Society, Cultures and Communities', canvassed in the discussion paper released in February 2011 as part of the process to refresh the National Priorities.

CAMD would also suggest that the 'fundamental elements of the research system' on page 9 should be expanded to include 'public collections' ie collecting and information institutions including libraries, archives, galleries, museums and herbarium and government departments and agencies. These collections constitute basic research infrastructure. Their content, as suggested above, has the capacity to support research by museum staff and a broad range of academics across and between the identified domains.

Key Domains

The key domains are logical and sufficiently broad to encompass the greater range of present and future research activities. As currently presented, they would benefit from some definition of their strategic intent although perhaps this will be provided with the finalisation of

complementary National Research Priorities.

CAMD commends the intent of the plan to ensure the key domains are highly interlinked, interdependent and multidisciplinary. This will be particularly relevant in relation to research in the ‘human domain’ which has the capacity to support work carried out across a range of other key areas. The humanities, arts and social sciences can provide critical input not only to immediately recognisable social and cultural issues but across the sciences to encourage new thinking about the conceptualisation of problems and the implementation of workable solutions. Museums, which are multi-disciplinary institutions by nature, have learnt from experience that such approaches provide unique opportunities to identify and implement innovative problem solving approaches to a wide range of key challenges.

CAMD also applauds the plan’s acknowledgement of the importance of data in unifying and enriching the identified research domains (p.11). It is important to emphasise however that the need for ‘secure, open and user-friendly access’ to research data will require not only data management tools and skilled staff but also research investment in the preparation of collection data for online access.

The following section provides comments on four of the five key domains identified in the Discussion Paper.

EARTH DOMAIN

Scope: CAMD agrees with the proposed breadth of the Earth capability and the interlinked research it proposes to encompass. It would note however that while there is a necessary emphasis on observing systems, the type of data contained in collections, which is verifiable and repeatable, should also be considered under this and other domains.

Existing capability: As noted in the Discussion Paper, Australia has a strong research base in this area. It should also be noted that museum collections provide a wealth of information relevant to climatology, oceanography, biology, ecology, geology and geomatics. Due to their comprehensive nature and history, many collections are uniquely placed as a factual record of multi-generational observations. Geological and paleontological collections also have the capacity to assist in research seeking to understand past climate patterns and the current use of earth resources.

Gaps/Vulnerability: CAMD agrees that ‘coordinated support for acquisition, management and accessibility’ of data is a substantial gap/vulnerability. Research is also required not only on a

global or national scale but at a molecular level. Investment in infrastructure for geological and paleontological collections is needed to improve access to these important collections.

Implications: Research uncovering fundamental processes in this field are required to ensure Australia's continued economic advantage in resource management.

BIOLOGY DOMAIN

Scope: CAMD is gratified to note that biological collections, bioinformatics and biostatistics are recognised as key capabilities and that the paper acknowledges the critical importance of 'Access to large data sets holding many different types of biological information' (p.12).

Existing capability: Reference to areas of strength in the Biology Domain should also note the strong contribution of natural science museums to biodiversity studies through their collections and associated research studies. These museums:

- manage substantial specimen collections which document the biota of Australia;
- continue to add to collections by initiating and collaborating in exploration, discovery and associated research;
- undertake research topics which are unique or insufficiently represented at other research institutions (eg systematics, taxonomy, phylogenetics and biogeography);
- produce a range of other studies and projects in fields like genomics, ecology, evolutionary biology, disease modelling, palaeobiology, mineralogy, ecological resource management, bioprospecting and biosecurity amongst others;
- employ research staff holding adjunct appointments at universities, supervise postgraduate biology and taxonomy students and mentor undergraduate science students;
- play a significant research role in detecting, identifying and managing terrestrial and marine environmental pests which, if unchecked, can have massive environmental and economic impacts;
- participate in numerous international collaborations which enhance Australia's reputation as well as contributing to the global cultural and science knowledge base; and
- contribute to the involvement and engagement of the community in biodiversity issues by developing public exhibitions and public programs.

The important role of the biological collections held in museums, herbaria, universities and the CSIRO in providing essential research infrastructure has already been identified in earlier Research Infrastructure Roadmaps and, subsequently, through the provision of funds for the

online *Atlas of Living Australia (ALA)*. To date the natural science museums within CAMD, including the Australian Museum, Museum Victoria, the Museum and Art Gallery of the Northern Territory, Queen Victoria Museum and Art Gallery, Queensland Museum, the Tasmanian Museum and Art Gallery, South Australian Museum and the Western Australian Museum, have contributed over 2.2 million records to the *ALA*. The *ALA* also serves as the Australian node of the Global Biodiversity Information Facility (GBIF).

Gaps/Vulnerability: CAMD agrees that there are critical skills shortages in the field of bioinformatics and would also note shortages in relation to taxonomy and systematics (including molecular) where new graduates are required to replace an ageing workforce.

In addition, CAMD believes that far more investment is required to coordinate ‘support for acquisition, curation, management and accessibility of biology data’. *ALA* has clearly been a highly successful program with exciting potential not only as a tool for organising Australia’s biodiversity information and as a supporting basis for prioritising public collection research and management but as a mechanism for organising data for environmental analysis. CAMD supports further investment in the *ALA* in order to expand the range and quality of the data it holds.

CAMD also believes that the utilisation of museum biodiversity collections would be improved by their databasing and linkage, but would go further in arguing that support for both digitisation and databasing of collections in priority areas would be the final and most important step in liberating this vital information and making it widely available.

Implications:

The sustainable management of biodiversity and ecosystems is critical to the survival of human populations on the planet. Museums are the primary repositories of the scientific samples on which understanding of the variety of life is ultimately based. The collections, expertise, research and training enshrined in taxonomic institutes (museums and herbaria) are fundamental to this capability area. With only 20% of the world’s biodiversity discovered and described to date it is critical that accurate determination of species is available to inform decision-making in biodiversity conservation, resource management and biosecurity fields.

HUMAN DOMAIN

Scope: CAMD supports the inclusion of the Human Domain research capability, its need for ‘national scale research infrastructure’ and the ongoing support by the NRIP for collaborative research on ‘areas of strategic importance’ in this broad field.

CAMD would note however that the scope of the domain as currently described leans towards solving complex social problems which fails to adequately address or encompass major areas of human dimension research. There should be some allowance here for belief systems, cultural attitudes or cultural expression and for questions that emerge from such areas in their own right, rather than only as they are constructed within a social science framework.

The priority area ‘Cultures and Communities’ which emerged as part of the 2011 National Research Investment Plan was broader in concept and more inclusive of the full spectrum of humanities, arts and social science research. This type of coverage dealt with broader questions of identity, engagement and life satisfaction as well as the more targeted development of solutions for contemporary challenges.

Existing capability: CAMD would suggest that museums should also be noted as key research organisations in human domain research outside universities. In order to understand diversity in human populations it is necessary to recognise the disciplines of anthropology, archaeology and history and the tangible record of achievement and failure within the human ‘domain’ which reside in museum collections. Museums provide an immense archive of social and cultural history and document past technological innovations which address problems as diverse as pest control, medical science and warfare. Importantly, such collections also highlight the significant contribution of migrant communities to national identity.

Object-based research provides a unique approach to understanding the processes behind human decision-making in the past (both recent and distant), and this holds relevance to understanding how future decision-making processes are made. The analysis of material culture/moveable objects can reveal much additional context about history and diverse cultural groups that may otherwise not be detected through the more traditional approaches to inquiry (eg in history correspondence, oral histories and archives).

As an example, Queensland Museum is currently using its extensive archaeological collections (over 400 excavated assemblages) to understand how Aboriginal people adapted their technologies and economies to the climatic fluctuations that occurred throughout the Holocene period. The archaeological record at museums is conserved for future research of this nature, and if such collections are not carefully curated then a key research resource will be lost. Museums have a lead role to play here and have the capacity to generate novel research solutions to gaps in our knowledge base.

Museums also foster research in the humanities and social sciences, in particular in indigenous

cultural studies, in learning and the dissemination of knowledge and in historical and social science studies which focus on identity and change. Museums have a unique multidisciplinary capacity to highlight such issues of social concern and interest as health, education, sustainability and the exploitation of digital and cultural infrastructure, as well as broader questions of identity and tolerance.

The list of disciplines provided in this section should include archaeology, recognizing that the physical remains of the past are in themselves a vital and irreplaceable source of information.

Gaps/Vulnerability: CAMD agrees that there is a pressing need for national scale research infrastructure and coordination in this domain. A prominent gap in this context is a strategy to unlock and utilise Australia’s cultural and humanities collections.

One possible way of encouraging the level of multi-disciplinary research infrastructure encouraged by the NRIP would be to create a cultural equivalent to the *Atlas of Living Australia* which could be integrated with *ALA* biodiversity and geospatial data and thus provide an important tool for research and to inform policy-making on major social and cultural issues.

Another gap which should be noted here relates to the need for a special focus on research on the surviving physical evidence for the human past of the continent. State of the Environment reports confirm the accelerating destruction of known indigenous sites.

Implications:

Without a national strategy to open up and utilise significant public collections, Australia will be denied an opportunity to build the knowledge which will allow it to confidently and collaboratively address the future.

The lack of consistent cultural mapping for Indigenous Australia, including both urban and rural areas, means that the remains of the oldest continuous culture in the world are at risk, as is our potential to learn from 30,000 years of land management and climate change.

INFORMATION DOMAIN

Scope: CAMD strongly supports the development of eResearch infrastructure to underpin the domains identified in the Plan.

Existing capability: The potential for this type of investment has been shown in recent times by

the successes of the *ALA*, which was initiated by CAMD museums, and by the CAMD/Museums Australia (MA) *Museum Metadata Exchange (MME)*. The *MME*, which was funded by the Australian National Data Service (ANDS), involves a partnership between 15 major collecting institutions and four universities and has made data on close to 1,000 collections accessible to research academics through Research Data Australia. Its inception is also contributing to a shift in culture in the way museums conceptualise their collections. The positive response of research academics from a variety of disciplines to the *MME* pilot projects attests to the potential for digitisation projects which unleash the knowledge held in Australia's collections.

Gaps/Vulnerability: The introduction to the 2011 Roadmap of the 'Digitisation Infrastructure' capability, to address the need to digitise Australia's scientific and cultural collections, was especially welcomed by museums. Research in all fields is informed by the significant and disparate collections currently held within Australian public collections. This proposal will enable more effective access to and use of Australia's distributed national collection and allow it to be researched as one entity; an opportunity which may well produce valuable research questions and outcomes not yet even envisaged.

Investment and Collaboration

The discussion paper also notes that Australia underperforms in terms of collaborative relationships (p.19). CAMD strongly supports the principle of promoting collaborative approaches to research. The ongoing collaboration of museums, universities and other research institutions has underpinned the success for example of the *ALA* and *MME*. In this context, however, it should be noted that recent changes to Discovery Program funding rules have been counterproductive. If museum researchers can no longer be co-Chief Investigators on Discovery Projects, for instance, there is likely to be less willingness on the part of museums to apply for funding through universities despite the success of previous engagements.

Research Sector Group

CAMD is keen to ensure that the contribution of museums, through collections and staff projects, to Australia's research effort is fully integrated into research planning. For this reason, we would suggest that consideration be given to including a representative from the sector on the ARCom Research Sector Group.

For further information or clarification in regard to the points made above, please contact Dr Meredith Foley, Executive Officer, CAMD, 02 9412 4256 or by email mfolwil@bigpond.net.au.

Appendix 1

**COUNCIL OF AUSTRALASIAN MUSEUM DIRECTORS
MEMBERSHIP 2012**

Ms Margaret Anderson

Director
History SA

Mr Pierre Arpin

Director
Museum and Art Gallery of the Northern Territory

Mr Bill Bleathman

Director
Tasmanian Museum and Art Gallery

Mr Alan Brien

Chief Executive Officer
Scitech Discovery Centre, Perth

Dr Dawn Casey

Director
Museum of Applied Arts and Sciences
(Powerhouse Museum)

Ms Kate Clark

Director
Historic Houses Trust of NSW

Mr Alec Coles

Chief Executive Officer
Western Australian Museum

Professor Graham Durant AM

Director
Questacon – National Science and Technology Centre

Dr Ian Galloway

Director
Queensland Museum

Dr J.Patrick Greene OBE

CAMD Chair
Chief Executive Officer Museum Victoria

Ms Nola Anderson

A/Director
Australian War Memorial

Mr Frank Howarth

Director
Australian Museum

Mr Michael Houlihan

Chief Executive
Museum of New Zealand Te Papa
Tongarewa

Mr Jeremy Johnson

Chief Executive Officer,
Sovereign Hill Museums Association

Prof Suzanne Miller

Director
South Australian Museum

Mr Richard Mulvaney

Director
Queen Victoria Museum and Gallery

Mr Shimrath Paul

Chief Executive
Otago Museum and Discovery World

Mr Andrew Sayers

Director,
National Museum of Australia

Mr Tony Sweeney

Chief Executive Officer
Australian Centre for the Moving Image

Mr Kevin Sumption

Director
Australian National Maritime Museum

Mr Anthony Wright

Director
Canterbury Museum

Appendix 2

CAMD Museum Sites

- **Auckland War Memorial Museum**, Auckland
- **Australian Centre for the Moving Image**, Melbourne
- **Australian National Maritime Museum**, Sydney
 - Wharf 7 Maritime Heritage Centre, Sydney
- **Australian Museum**, Sydney
- **Australian War Memorial**, Canberra
- **Canterbury Museum**, Christchurch
 - Robert McDougall Gallery
- **Historic Houses Trust of NSW**
 - Elizabeth Bay House, Sydney
 - Elizabeth Farm, Sydney
 - Government House, Sydney
 - Hyde Park Barracks Museum, Sydney
 - Justice & Police Museum, Sydney
 - Meroogal, Nowra
 - Museum of Sydney, Sydney
 - Rose Seidler House, Sydney
 - Rouse Hill Estate, Sydney
 - Susannah Place Museum, Sydney
 - Vaucluse House, Sydney
 - The Mint, Sydney
- **History SA**
 - History Trust of South Australia, Adelaide
 - National Motor Museum, Birdwood
 - South Australian Maritime Museum, Port Adelaide
 - Migration Museum, Adelaide
- **Museum of Applied Arts and Sciences**
 - Powerhouse Museum
 - Sydney Observatory
 - Powerhouse Discovery Centre
- **Museum of New Zealand Te Papa Tongarewa**
- **Museum Victoria**
 - Melbourne Museum, Melbourne
 - Scienceworks Museum, Melbourne

- Immigration Museum, Melbourne
- IMAX
- Royal Exhibition Building, Melbourne
- **Museums and Art Galleries of the Northern Territory**
 - Bullock Point, Darwin
 - Fannie Bay Gaol, Darwin
 - Lyons Cottage, Darwin
- **National Museum of Australia, Canberra**
- **Questacon – The National Science and Technology Centre** , Canberra
- **Otago Museum and Discovery World**, Dunedin
- **Queensland Museum**
 - Queensland Museum South Bank, Brisbane
 - Museum of Tropical Queensland, Townsville
 - Cobb & Co Museum, Toowoomba
 - Lands Mapping & Surveying Museum
 - The Workshops Rail Museum, Ipswich
- **Queen Victoria Museum and Art Gallery**
 - Inveresk, Tasmania
 - Royal Park, Launceston, Tasmania
- **Scitech Discovery Centre, Perth**
- **South Australian Museum**
 - South Australian Museum, Adelaide
 - South Australian Museum Science Centre, Adelaide
- **The Sovereign Hill Museums Association**
 - Sovereign Hill, Ballarat
 - Gold Museum, Ballarat
 - Narmbool, Elaine
- **Tasmanian Museum and Art Gallery**
 - Tasmanian Museum and Art Gallery, Hobart
 - Tasmanian Herbarium, Hobart
 - Rosny Research and Collections Centre, Hobart
- **Western Australian Museum**
 - Western Australian Museum, Perth
 - Western Australian Maritime Museum, Fremantle
 - Fremantle History Museum
 - Western Australian Shipwreck Galleries
 - Western Australian Museum Geraldton

- Western Australian Museums Kalgoorlie-Boulder
- Western Australian Museum Albany
- Samson House, Fremantle