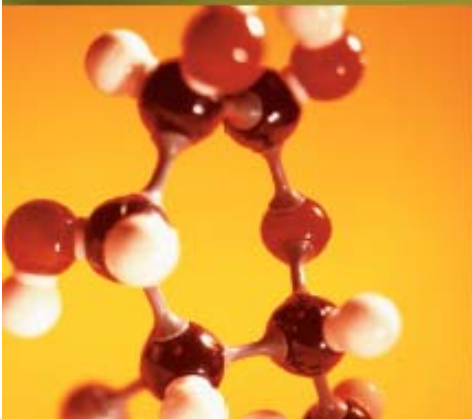


N C R I S

National Collaborative Research Infrastructure Strategy

NCRIS Committee
Submission to the
Review of the National Innovation System

April 2008



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NCRIS Committee

This submission to the Review of the National Innovation System is provided by the NCRIS Committee. The Committee's role, membership, contact details and declarations of interest by Committee members are shown at Attachment A.

Introduction

Innovation occurs at the interface between need, knowledge and creativity. Need provides the circumstance for innovation to occur, while knowledge and creativity provide the innovative response.

In simple terms, the more often that knowledgeable and creative people are brought into contact with unsolved needs, the more innovative a society will be. If as a nation we wish to increase our innovative capacity, then we need to broaden this interface to create incentives and minimise any impediments to innovation.

Broadening the innovative interface is about increasing engagement and co-operation among researchers, and between researchers and practitioners so that there is a greater understanding of the current research questions and of the tools that can solve them. There is also a need to create a culture where organisations actively pursue innovative ideas of merit.

It is a reality in this modern age that innovation needs to be appropriately resourced. A lack of resources in the form of capital or labour will quickly inhibit a researcher's ability to develop a new product or process. Funding shortages can relate to the research activity itself, research training or research infrastructure. Skill shortages can relate to researchers or to the technicians and other staff who support the innovative process.

The NCRIS Committee has overseen the implementation of a major research infrastructure funding program that is based on collaboration and the strategic allocation of funds to meet priority needs. The Committee's experience not only provides lessons about the efficient allocation of infrastructure funding, but also about ways in which the overall innovative process can be enhanced.

The Nature of Research Infrastructure

The 2004 report of the National Research Infrastructure Taskforce (NRIT) adopted the following functional definition of research infrastructure:

Research infrastructure comprises the assets, facilities and services, which support organised research across the innovation cycle and which maintain the capacity of researchers to undertake organised research.

By defining infrastructure to include 'assets, facilities and services', the NRIT report emphasised that research infrastructure comprises more than just physical assets. In particular, infrastructure includes enabling services such as information and communication technologies (ICT) and it includes support staff who are essential to maintaining and operating research facilities.

This again highlights the fact that effective research infrastructure investment needs to be supported by appropriate skill development: both research skills and technical support skills.

Some infrastructure investments involve providing Australian researchers with access to major research facilities located overseas. International collaboration of this sort helps to link Australian researchers more strongly with the global research community.

Smaller items of infrastructure (investments of, say, less than \$5 million) tend to have largely local implications and can often be progressed independently by an individual institution, or in limited collaboration with other organisations.

These investments are often funded from block grants such as Research Infrastructure Block Grants or the Institutional Grants Scheme. Alternatively, items of institutional infrastructure might be funded under the Linkage Infrastructure, Equipment and Facilities (LIEF) program operated by the Australian Research Council (ARC) or the Equipment Grants provided by the National Health and Medical Research Council (NHMRC).

Investments of between \$5 million and \$60 million generally tend to have national implications for research capability. When making substantial investments of this sort it is important to prioritise investment decisions on the basis of their potential strategic impact for the nation. The implementation and conduct of such projects often benefits from collaboration among multiple research organisations.

National infrastructure programs include NCRIS and the Higher Education Endowment Fund (HEEF). NCRIS is a limited life program that funds national research infrastructure networks in priority capability areas as identified in the NCRIS Strategic Roadmap. While the HEEF can only fund capital works and research facilities in higher education institutions, NCRIS provides funds for collaborative investments involving higher education institutions, State/Territory and Commonwealth government research agencies, independent research institutes and business. Existing NCRIS funding runs until 30 June 2011, whereas HEEF is a perpetual fund. The Chairs of the NCRIS Committee and the HEEF Advisory Board are liaising to ensure that the investments made under these two programs are complementary. For example, where a HEEF investment may fund a building to house a research facility, NCRIS may fund the equipment to be located in the facility.

Investments of greater than about \$60 million (ie landmark infrastructure) have national, and often global, implications that require collaboration among institutions and detailed consideration by relevant State/Territory and national governments. Despite the fact that landmark infrastructure investments have major strategic implications for Australia's research capability, no formal process exists to identify, prioritise and assess these projects.

The Impact of Research Infrastructure Funding Programs

It has long been acknowledged that investment in infrastructure is an essential input to the conduct of excellent research. Various government programs have been

established over the years to support infrastructure investment. For the most part, these programs have either allocated infrastructure funds on a competitive basis (similar to the allocation of research funds), or allocated infrastructure funds in proportion to an institution's success in winning research funds. These past allocations have not, therefore, been optimised against a strategic assessment of our overall research infrastructure needs.

The former Government's May 2004 statement: *Backing Australia's Ability – Building Our Future Through Science and Innovation*, accepted the NRIT recommendations and provided \$542 million over the period to June 2011 for the establishment of NCRIS. Consistent with the NRIT recommendations, NCRIS was to operate with a "strengthened system for planning and prioritising research infrastructure investments", and was to "ensure that infrastructure is widely available to researchers".

The research infrastructure funding principles proposed by NRIT in 2004 (see Attachment B) included three new elements that were incorporated into the design of the NCRIS program:

- Funding programs should encourage collaborative investment rather than competition for infrastructure funds;
- Infrastructure funding should provide for effective operation and staffing of facilities; and
- Access regimes should provide for infrastructure to be broadly available to researchers across Australia.

Evidence from the implementation of NCRIS has shown that a collaborative approach to investment planning does enable a Strategic Roadmap of priority investment areas to be developed. Such an approach enables universities, governments, non-profit research institutes and business to co-operate in targeting and implementing those research infrastructure investments that will support priority research areas and provide the greatest return for the nation.

The utilisation of the resulting national infrastructure networks is then maximised through each host institution being required to make the facility available to researchers from across Australia. This hub and spoke access regime is facilitated through the provision of NCRIS funding to the host institution to support the operation and maintenance of the facility.

Access to the facility is managed according to an access and pricing regime that provides access for publicly funded researchers at marginal cost on the basis of merit. Commercial users are able to access the facilities at a price equivalent to the market rate.

Together, these three principles have proven central to the efficient and effective investment of available funding for national research infrastructure.

The full implications of this approach are, however, even more pervasive.

NCRIS brings together researchers, institutions, governments and business to discuss strategic, national research priorities and the infrastructure that will be needed to support that research. This creates an environment where groupings of innovative people with relevant knowledge, skills and tools are in frequent contact about emerging issues.

The extensive national collaboration and co-operation that occurs as a result of NCRIS is significantly broadening the innovative interface. Not only are experts within a capability area such as characterisation or fabrication better networked, but they also have substantially improved linkages with other areas.

By way of example, the creation of national infrastructure networks and the building of a collaborative culture among researchers in emerging plant, animal and human diseases will enable researchers in these fields to link their various datasets. In time, they will be able to use state of the art ICT to overlay that information with data on insect, plant and animal species, land use and ecology, marine and climate developments and population health records.

These initiatives will bring together researchers from a range of disciplines and provide them with a power of which they had only dreamed - the analytical and predictive power to model the likely spread of emerging diseases, including their transmission to humans, and to assess the effectiveness of alternative containment strategies.

While in the first instance these collaborative arrangements are being put in place to develop research infrastructure, it is already evident that the NCRIS structures provide a major opportunity to create new research linkages that can better solve current national and global research challenges. In this way, collaboration in addressing research infrastructure investment is significantly enhancing Australia's national innovative capability more broadly.

National Collaborative Research Infrastructure Strategy

The structure and operation of the NCRIS program is summarised at Attachment C. Given the funding available and the need for NCRIS to have a strategic impact in each of the capability areas it addresses, it was decided by the NCRIS Committee to progress only 12 of the 16 capability areas identified in the February 2006 NCRIS Roadmap.

The NCRIS Committee has commenced work on an update of the Strategic Roadmap to provide a sound basis for future national research infrastructure investment decisions. This update will be drafted by June 2008 and finalised in July 2008. The NCRIS Committee will provide a copy of the update to the Review of the National Innovation System.

There are three main issues that need to be addressed in order to build on the lessons learned to date, and to maximise the benefit of future research infrastructure investment for the innovation system as a whole.

1. Further enhance innovative interaction

The first, and most important, way in which innovative interaction can be increased is through support for the deployment of information and communication technologies (ICT) that enable collaboration.

There has been a rapid growth in the capacity of ICT to underpin research. With scientific instruments generating terabytes of digital data, clusters of networked high-performance computers, the capacity to store data for access and reuse by other researchers and broadband networks capable of transporting data and results between researchers anywhere in the world, the conduct of research and innovation is much different to what it was ten years ago. ICT has become a threshold issue in many research disciplines including climate change, astronomy and high energy physics.

The development of ICT policies, practices and infrastructure that supports collaboration and the effective use of research facilities is a key element of the NCRIS program. These initiatives are progressed via the Platforms for Collaboration (PfC) priority area that puts in place the ICT infrastructure, procedures, standards and protocols that support all other NCRIS capability areas.

ICT issues will be of such importance to national research capability in the coming years that an enduring, national investment strategy will be needed to progress Australia's ICT research infrastructure.

The PfC capability is managed under the auspices of the Australian e-Research Infrastructure Council (AeRIC) which advises the Department of Innovation, Industry, Science and Research (DIISR) on e-Research issues. AeRIC is providing a separate submission to the Review of the National Innovation System that will address these issues in more detail.

The scope for innovative interaction will increase through closer engagement with the humanities, arts and social sciences (HASS). NCRIS has established a HASS working group as part of the current NCRIS Roadmap update with a view to better documenting the strategic priorities and infrastructure needs of this sector. The HASS sector is expected to require investment in data management and repositories, high performance computing, sophisticated software tools and the conversion of research materials to digital form.

The NCRIS program seeks to engage with all research interests including business. While most businesses could not be expected to perceive a benefit in making their infrastructure available to publicly funded researchers, the existing NCRIS projects do include several businesses (for example, in the areas of biotechnology products and biomolecular platforms) that participate in the provision of research infrastructure consistent with NCRIS principles.

Now that many of the NCRIS projects have been implemented, a key opportunity is for these projects to engage with business as users of the research facilities. Major examples of such interaction include the use of geoscience infrastructure by the mining industry and the use of plant phenomics infrastructure by agri-business.

As the NCRIS program develops, further opportunities will be created to increase collaboration between NCRIS capability areas by sharing information about activities in each capability and by bringing participants from various areas together for specific purposes.

2. Provide continuity for infrastructure planning

Modern research infrastructure is essential in an innovative nation. A government commitment to ongoing support for national research infrastructure would enable planning for the refreshment and replacement of infrastructure to take place in a structured fashion. Such a commitment should desirably relate at least to the period ending in June 2016 or, preferably, put in place an ongoing source of national research infrastructure funding.

The provision of future support for an individual infrastructure provider would depend on that provider's activity continuing to be an area of priority for national investment, and be subject to satisfactory performance by the provider.

There is not currently any funding available beyond 30 June 2011 to support the sort of national research infrastructure networks that have been created under NCRIS.

3. Increase the level of financial support

During the development of the initial NCRIS investment plans in 2006 it was estimated that in excess of \$1.3 billion would be required over five years to fund fully the 16 capability areas identified in the Strategic Roadmap. This estimate was based on work carried out with key researchers and institutions in the various capability areas.

Given that only around \$500 million in NCRIS funding was available, the NCRIS Committee had to take the decision to progress just 12 of the 16 capabilities and to limit the funding to each of those capabilities that was progressed. A particular area of unmet need is ICT (or e-Research) infrastructure where no NCRIS funds are currently available for the storage and curation of research data or the digitisation of research collections, and only limited funding is available for high performance computing and telecommunications networks.

The 2008 update of the Strategic Roadmap will provide a fresh assessment of the national infrastructure investment needs over the next ten years. Based on the 2006 analysis plus developments since then, it is expected that this update will demonstrate that an increase in NCRIS funding from its current level of \$100 million per year to around \$300 million per year would represent an effective investment for the nation.

Landmark Research Infrastructure

Landmark infrastructure investments typically involve a research facility that will be a "one-off" for Australia, eg ANSTO's nuclear reactor or the Australian Synchrotron. Such facilities normally involve significant funding for the design and development phase, very large capital expenditure for the construction phase and significant ongoing operating costs.

Any final decision on Government support for such a proposal would require case by case consideration. Indeed, given the design and planning complexities of such a project, Government may need to take a series of staged decisions over time as the project is developed.

Very large infrastructure projects of this sort can have major strategic implications for Australia. Projects of this scale and complexity are too important to be the subject of ad hoc decision making.

For example, if the Square Kilometre Array (SKA) were to be located in Australia there would need to be a major upgrade in the optic fibre network within Australia and a significant upgrade in international communication links to support the anticipated volumes of data. Such infrastructure development would represent a transformational change in the communication links available to Australian research, business and the wider community.

A process needs to be put in place to assess landmark infrastructure projects in a structured way. The NCRIS Committee would be an appropriate body to identify and conduct a preliminary assessment of potential landmark projects.

Investment in Australia's Overall Research Capability

Australia's national innovation system needs to be underpinned by an excellent research capability. This research capability requires investment in research infrastructure, research skills development and research funding.

Desirably, Australia's investment in these three areas will be broadly aligned and there will be a shared national vision about the way in which these resources will be marshalled to address our key research challenges.

Australia is facing a series of major, global challenges such as the impact of climate change, the need for affordable and sustainable energy sources and the transmission of emerging plant, animal and human diseases across borders. Addressing key national research challenges such as these will benefit the economic performance of industries, the health of the environment and the health and welfare of individual Australians. Progress in addressing these issues could be enhanced through a clearer alignment of investment in the research activity, skills development and infrastructure deployment needed to address research challenges of this sort.

One example of this type of investment alignment stems from the Final Report of the e-Research Co-ordinating Committee (2006) which identified a shortage in the availability of skilled people to develop and manage e-Research projects. Given the importance of ICT facilities to the conduct of modern research, and to collaboration among researchers, this shortage is of strategic importance to the development of Australia's research capability. It would therefore be desirable to complement the e-Research initiatives occurring under NCRIS by implementing new initiatives aimed at training and attracting more people with high level e-Research skills.

Conclusions

Effective investment in excellent research infrastructure is an essential component of a national innovation system.

National infrastructure investments should be prioritised on the basis of their strategic importance to Australia.

Broadening the interface between need, knowledge and creativity is central to the effectiveness of the national innovation system. Collaboration in the provision of the underpinning research infrastructure provides an excellent vehicle for facilitating innovation among Australia's public and private sector researchers.

Infrastructure support programs should address operating and maintenance costs, in addition to capital costs.

Recommendations

In order to expand the innovative capability of the nation it is recommended:

1. That the NCRIS principles be endorsed as an appropriate basis for allocating future national research infrastructure funding;
2. That national research infrastructure funding be substantially increased. This will allow provision of support for priority areas that will have a strategic impact upon the nation's innovative capability, and in particular provide greater support for e-Research infrastructure;
3. That an ongoing commitment be made to providing national research infrastructure funding so that investments can be made in a planned and strategic manner that is transparent to stakeholders;
4. That a process be implemented to identify, prioritise and assess potential landmark infrastructure projects; and
5. That a new initiative be implemented to train and recruit increased numbers of people with high level e-Research skills.

NCRIS Committee
April 2008

ATTACHMENT A**NCRIS COMMITTEE****Terms of reference**

The NCRIS Committee advises the Government on the ongoing implementation, monitoring and review of NCRIS. The Committee's specific responsibilities include:

- Advising the Government on national research infrastructure strategy and priorities, including:
 - Priority areas of research for major infrastructure investment within the scope of the NCRIS funding program. The Committee will further develop the Strategic Roadmap, initiated by the interim NCRIS Advisory Committee, to give specific guidance on priority investment areas and implementation options.
 - Infrastructure requirements for the national research and innovation system outside the scope of the NCRIS funding program, including the development of landmark' facilities and support for basic and institutional level infrastructure.
- Advising on the coordination of infrastructure funding decisions with research funding agencies, across government and across levels of government.
- Advising on NCRIS funding allocation processes, including the development of program guidelines, and the implementation of NCRIS funded projects.
- Advising the Government on progress in implementing NCRIS, including any barriers to effective implementation; and
- Advising the Government in relation to the review of NCRIS funded projects and NCRIS in general.

Membership

Chair:

Dr Michael Sargent (Chair)

Members:

Professor Margaret Sheil	CEO, Australian Research Council
Professor Warwick Anderson	CEO, National Health and Medical Research Council
Dr Jim Peacock	Commonwealth Chief Scientist
Dr Roger Lough	Chief Defence Scientist
Dr Phil McFadden	Chief Scientist Geoscience Australia
Professor David Beanland	e-Research expert
Ms Anne-Marie Lansdown	Department of Innovation, Industry, Science and Research
Position Vacant	Industry representative

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Declarations of Interest

Apart from the positions held by the Committee members as listed above, members have also declared the following interests:

Committee Member	Interest
Dr M A Sargent	Position of Adjunct Professor held at the University of Technology Sydney
	Position of Adjunct Professor held at the University of Queensland
Professor Margaret Sheil	Emeritus Professor at the University of Wollongong (Honorary Position)
Professor W P Anderson	On secondment from Monash University
	Ongoing research interests at Monash University
Dr W J Peacock	CSIRO Fellowship
Dr R Lough	Nil
Dr P McFadden	Nil
Professor D Beanland	Nil
Ms Anne-Marie Lansdown	Nil

ATTACHMENT B

RESEARCH INFRASTRUCTURE FUNDING PRINCIPLES

The Final Report of the National Research Infrastructure Taskforce Department of Education, Science and Training (March, 2004)

- Investment in research infrastructure should be made in a strategic and collaborative manner.
- Funding programmes and processes should recognise the need to support institutional, regional, national and international strategies and priorities as well as the strategies and priorities of thematic groups.
- Funding programmes and processes should foster collaborative investment in infrastructure, rather than competition for infrastructure funds.
- Investment in research infrastructure should be made in a transparent manner that provides effective use of funds and ensures that infrastructure is productive and remains viable.
- Funding of research infrastructure should ensure the ongoing viability of infrastructure by providing for effective operation and staffing, and for refurbishment while it remains relevant to research.
- Infrastructure investments should support quality research across all innovation platforms from basic to applied research.
- Access regimes should permit research infrastructure to be broadly available to researchers to support their research.
- Infrastructure investments should foster collaborative use of research infrastructure.

NCRIS Strategic Roadmap

Department of Education, Science and Training (February, 2006)

- Australia's investment in research infrastructure should be planned and developed with the aim of maximising the contributions of the R&D system to economic development, national security, social wellbeing and environmental sustainability;
- Infrastructure resources should be focussed in areas where Australia is, or has the potential to be, world-class (in both discovery and application driven research) and provide international leadership;
- Major infrastructure should be developed on a collaborative, national, non-exclusive basis. Infrastructure funded through NCRIS should serve the research and innovation system broadly, not just the host/funded institutions. Funding and eligibility rules should encourage collaboration and co-investment. It should not be the function of NCRIS to support institutional level (or even small-scale collaborative) infrastructure;

- Access is a critical issue in the drive to optimise Australia's research infrastructure. In terms of NCRIS funding there should be as few barriers as possible to accessing major infrastructure for those undertaking meritorious research;
- Due regard be given to the whole-of-life costs of major infrastructure, with funding available for operational costs where appropriate; and
- The Strategy should seek to enable the fuller participation of Australian researchers in the international research system.

BACKGROUND INFORMATION ON THE NCRIS PROGRAM

The NCRIS process

NCRIS addresses the problem that many high-priority research facilities, or infrastructure investments, are too large and complex to be supported by any single research institution and too important to the wider community to be confined to individual interests or jurisdictions. It seeks to avoid the waste of limited resources that would result from competitive or uncoordinated duplication of key research facilities. NCRIS embodies an approach, based on collaboration and co-operation, that builds research infrastructure networks that target critical research challenges facing Australia.

The first step in the NCRIS process was to build a national consensus about the priority areas for research infrastructure investment. This was achieved through extensive consultation that resulted in the release of the NCRIS Roadmap by the former Minister for Education, Science and Training in February 2006. The Roadmap identified 16 priority areas for investment and was well received by jurisdictions and institutions as being an appropriate basis for future investment. In November 2006, the former Minister approved funding for the following 12 priority research capabilities:

- Evolving biomolecular platforms and informatics;
- Integrated biological systems;
- Characterisation;
- Fabrication;
- Biotechnology products;
- Networked biosecurity framework;
- Optical and radio astronomy;
- Integrated marine observing system;
- Structure and evolution of the Australian continent;
- Population health and clinical data linkage;
- Terrestrial ecosystem research network; and
- Platforms for collaboration.

The investment plan developed for each of these research capabilities is not the subject of a competitive process involving the assessment of alternative submissions. Rather, NCRIS works with all stakeholders to develop a collaborative plan for the strategic development of each capability area. To achieve this, NCRIS engages with universities, non-profit research institutes, Commonwealth, State and Territory government organisations and business.

Each of the NCRIS projects involves the establishment of ongoing management structures that have multiple benefits including:

- Bringing the relevant institutions across Australia together to operate and manage the infrastructure as a national network accessible by all researchers according to merit;
- Providing a basis for the strategic development of those networks into the future;
- Facilitating new research initiatives as a result of increased collaboration among researchers and among institutions;
- Allowing researchers to operate in new and more powerful ways through the use of emerging Information and Communication Technologies; and
- Providing a mechanism through which Australian researchers can more easily participate in major international research projects addressing global problems.

The organisations established under NCRIS achieve more than just the funding of research infrastructure. NCRIS creates bodies that address key national challenges in a way that:

- crosses jurisdictional boundaries;
- brings academic, government and business researchers together;
- gives Australian research greater analytical and predictive power; and
- allows Australia to participate more fully in international research projects.

Consultation

The NCRIS process involves ongoing collaboration and consultation with:

- Commonwealth research and research funding organisations including CSIRO, ANSTO, AIMS, Geoscience Australia, the ARC, the NH&MRC and the Health and Environment Departments;
- State and Territory government research organisations and policy agencies dealing with issues such as innovation and state development; and
- Research organisations including universities, non-profit research institutes and private companies.

The success of the NCRIS projects depends on their acceptance by all stakeholders nationally. For this to occur, each of the NCRIS projects needs to be positioned such that it supports, and is consistent with, the policy objectives of relevant jurisdictions and institutions.

To achieve this outcome, NCRIS maintains a dialogue with organisations such as Universities Australia and the Group of Eight and regularly meets with the collective group of Deputy Vice-Chancellors Research.

NCRIS also operates a committee of officials from State and Territory governments that has been instrumental in winning cross-jurisdictional support for NCRIS and in realising substantial new co-investment from States and Territories.

NCRIS holds frequent discussions with officials from numerous Commonwealth Government agencies to ensure that NCRIS projects are aligned with the policy positions of those agencies.

NCRIS Capabilities for which investment plans have been implemented

Evolving biomolecular platforms and informatics

Funding of \$50.0 million has been provided for facilities to support bio-molecular research and deliver services in the specialist areas of genomics, proteomics, metabolomics and bioinformatics through networks of collaborating organisations.

Integrated biological systems

Funding of \$40.0 million is provided for the development of systems biology infrastructure to increase the ability of researchers to study the phenotypes of plants and animals and how these are related to their genetic make-up.

Characterisation

This capability has received \$47.7 million to support four complementary national facilities that will open up access to existing imaging and microscopy equipment to researchers across the country on a merit basis.

Fabrication

\$41.0 million is being invested to build on existing infrastructure to help establish a comprehensive fabrication capability for Australia's fast emerging nanotechnology industry.

Biotechnology products

\$35.0 million is being provided to enhance Australia's capacity to produce biotechnology products in pre-commercial quantities in the areas of recombinant proteins, human cells and biofuels.

Networked biosecurity framework

Under this capability, \$8.5 million has been committed for the construction of pathogen containment laboratory space at the Australian Animal Health Laboratory.

Optical and radio astronomy

\$45.0 million is provided to support a range of projects to help ensure that Australian astronomy capability remains internationally competitive and has access to world class facilities.

Integrated marine observing system

Funding of \$50.0 million has been provided to establish the Integrated Marine Observing System to allow for an integrated capacity to collect marine data, draw it together and make it accessible to researchers and other users.

Structure and evolution of the Australian continent

\$42.8 has been provided to fund AuScope, an integrated national infrastructure system featuring the world's first continental-scale, four-dimensional geoscience data model.

Platforms for Collaboration

The development of underpinning e-Research infrastructure to enable collaborative research is supported by this capability, with \$82.0 million in NCRIS funding.

NCRIS Capabilities for which investment plans are being developed and implemented*Population health and clinical data linkage*

Funding of \$20.0 million has been allocated to develop this capability that aims to enhance the linkage and integration of health-related data collected in Australia and to improve access to these data.

Terrestrial ecosystem research network

Funding of \$20.0 million has been allocated for the development of a national collaborative research infrastructure for terrestrial ecosystems research.

Australian Biosecurity Intelligence Network

Funding of \$16.5 million has been allocated to reduce the impact of disease and invasive species by providing researchers with access to animal disease, plant disease and human health data sets.