

NATIONAL COLLABORATIVE RESEARCH INFRASTRUCTURE STRATEGY (NCRIS) ADVISORY COMMITTEE

IMPLEMENTATION ADVICE

The Committee is pleased to provide advice on:

- principles and mechanisms that should apply in identifying and funding specific infrastructure investment priorities; and
- the governance arrangements to succeed the Advisory Committee to manage the long term implementation, monitoring and review of NCRIS.

The recommendations in this advice are intended to establish a set of general propositions, agreed by you, which would form the basis for detailed programme guidelines.

A summary of the Committee's recommendations is provided at **Appendix 1**. The Committee's terms of reference are at **Appendix 2**.

DEVELOPMENT OF THE ADVICE

In August 2003 the Government established the National Research Infrastructure Taskforce (NRIT) to develop a national research infrastructure strategy framework to inform government investment in research infrastructure for universities and publicly funded research agencies.

The Committee has taken as its starting point the findings of NRIT and the Government's response to the NRIT report. The Government accepted the central finding that there is a need to strengthen, plan and prioritise research infrastructure needs. It announced the National Collaborative Research Infrastructure Strategy (NCRIS) in the 2004-05 Budget to provide the necessary funding and policy framework and established this Committee with terms of reference to advise it on investment priorities and the operational details.

The Committee has also taken into account the findings of the Closer Collaboration Taskforce.

STRATEGIC DIRECTION

The Committee endorses setting a strategic direction for the Australian Government's investment in research infrastructure. The effectiveness of Australia's research system will depend to a large degree on how well the Government's support for major research infrastructure engenders quality research in strategically important areas.

The Committee believes that NCRIS potentially provides a valuable focal point for Australia's research system that will ensure that our major research infrastructure is in fact vital national infrastructure making important contributions to Australia's economic development, national security, wellbeing and environmental sustainability.

As well as targeting strategically important outcomes, it is vital that Australia invest in areas where we have the potential to be world-class and provide international leadership. The best returns will come from fostering internationally benchmarked excellence. Focussing on excellence boosts Australia's reputation as a nation with highly developed scientific and technological know-how and capacity.

We must use NCRIS to integrate Australia even further into the global research system. Increasingly cutting edge research, that has the potential to have a significant impact, is happening at an international level. Australia needs to be a major player in strategic

international research projects particularly those looking at long term global issues such as energy, resources and the environment. Australia also needs to have world-class niches where it leads and provides the focus for international efforts.

The Committee considers that NCRIS decisions must be part of an ongoing commitment to investment in research infrastructure. The six year funding horizon of NCRIS is a good start. However, many of the research capacity issues that could potentially be addressed by NCRIS need to be tackled over a longer timeframe. To attract and retain the best researchers, there must be a perception that the government is committed to building and maintaining a world-class research capacity.

The Committee considers that NCRIS funding should not be used to develop institutional level or small scale infrastructures, which are supported by block grants and under programmes such as the ARC Linkage Infrastructure Equipment and Facilities (LIEF) Programme. Nor is there scope within NCRIS to fund major “landmark” facilities (see Recommendation 11).

The Committee believes that the mechanisms for identifying potential areas for investment and implementing and managing projects must be transparent and robust, but flexible and cost effective. It is important that the Government adopt a tailored approach that limits the high opportunity costs that typically attend such processes. It is also critical that decisions regarding location, participating institutions and so forth are made strategically.

RECOMMENDATIONS ON PRINCIPLES

Ongoing investment in major research infrastructure

1. The Committee recommends that NCRIS should be reclassified and administered as a lapsing (subject to review) funding programme¹ rather than a programme which terminates after 2010-11.

The pace of change in contemporary research demands ongoing investment and renewal of research infrastructure. Many vital infrastructures have a relatively short life-span (for example a high performance computer remains state of the art for only two or three years), while new infrastructure needs will continue to emerge as leading research fields develop.

It is likely that some of the infrastructure priorities the Government will want to fund will take longer to plan, develop and deliver than the six years of available funding (up to 2010-11). It is also inevitable that worthy proposals will come forward in this process that cannot be funded within the current funding programme but which the Government may want to consider over the longer timescale.

¹ The Cabinet decision for a programme may specify that it has a termination date (a terminating program); or that it is a lapsing (subject to review) programme, meaning that it is subject to review or re-negotiation at a future date, but funding is likely to continue.

Focussing investment on priority capabilities

2. The Committee recommends that:
 - (a) the Government identify a number of priority 'capabilities', consistent with the goals established under the National Research Priorities, and focus its investment strategy on developing them
 - (b) an ongoing process of review is established to ensure there is scope for priorities to shift and evolve over time.

The National Research Priorities (NRPs) and the associated *Priority Goals* provide an appropriate framework for the Government's prioritisation decisions. However, the Government should retain the option to invest in other areas where Australian research has the potential to have significant impact.

The Committee has commenced the development of the Strategic Roadmap to provide guidance on the capabilities that the research and innovation sectors are likely to need over the next decade, using as its criteria the guiding principles set out in the November 2004 *Draft Implementation Framework*.

The Committee has previously recommended to you that the Roadmap is periodically reviewed and continue to have an ongoing role in providing guidance on priorities.

Focus on excellence

3. The Committee recommends that:
 - (a) a primary consideration in identifying priority areas and strategies should be Australia's ability to be internationally excellent in those areas
 - (b) a key aim of the Strategy should be to develop, in the priority areas, capabilities amongst the best internationally through a combination of building world-class domestic research facilities and services, or providing access to world-class facilities and services offshore
 - (c) NCRIS facilities should be funded on the condition that they are open to researchers on the basis of excellence (subject to the recommendations (22 and 23) on access below).

Australia's strategic investments in research infrastructure should be made in the context of supporting and developing excellence.

Major research infrastructures developed in Australia should be significant in international terms, attracting excellent international researchers to work and collaborate in Australia. The best Australian researchers should also have ample opportunity to work on cutting-edge facilities overseas in order to collaborate with their international peers.

Integrated approach to addressing capacity

4. The Committee recommends that:
 - (a) capacity issues should be addressed in an integrated way that takes into account not only physical and soft infrastructure requirements, but also the associated skills and human capital issues, such that the effectiveness of interactions across the system is maximised
 - (b) NCRIS funds should be focussed on delivering facilities and services that serve the national research system broadly
 - (c) proponents of a specific new investment be required to demonstrate that a capability does not currently exist and that it could not be delivered more efficiently by other means.
 - (d) proponents of further funding for existing facilities be required to demonstrate that the capability offered by the facility is a current priority, is in demand and could not be delivered more efficiently by other means.

Funded facilities and services should be national in the sense that they service the national research system broadly, not just the host/funded institutions, and are available to external researcher on the basis of excellence.

Focus on Collaboration

5. The Committee recommends that investments should be made in the context of collaborative arrangements that serve to draw together and focus diverse strengths and resources from across the national research system.

The development of national research infrastructure creates a valuable opportunity to increase collaboration and networking within the research sector and between research sector, industry and the community.

Enhancing capacity on a broad front

6. The Committee recommends, in order to enable as reasonably broad portfolio of investments, that:
 - (a) NCRIS funding allocations should be in an indicative range of \$5 million to \$60 million
 - (b) the program should be flexible enough to include initiatives demonstrably in the national interest but requiring a smaller or larger level of resources
 - (c) NCRIS investments should be balanced in terms of disciplinary and cross-disciplinary areas and focus on both fundamental research and shorter-term user-oriented research outcomes
 - (d) there is a balance between investment in:
 - systemic, enabling infrastructure;
 - new facilities and equipment;
 - gaining access to off-shore facilities;
 - further development of existing facilities; and
 - the ongoing operations of existing facilities.

NCRIS investments should be calculated to deliver a quantum improvement in research capacity in the priority areas. The Committee suggests that, as a guide, investment of around \$5million would be the minimum needed to have the necessary impact.

Given available funding, the number of capabilities that could be properly addressed within the current programme is likely to be relatively small. The \$60 million upper limit should provide enough scope for a number of internationally significant facilities and services to be developed. If a substantial proportion of the available funding was used on a small number of large projects it would be at the expense of a balanced portfolio of investments across the system.

Systemic infrastructure

7. The Committee recommends that the Government continue to invest strategically in data communications, data management and advanced computation infrastructure and the adoption of common data and information standards.

A clear message from the NCRIS consultations is that all areas of research have critical needs around research communications, data management and advanced computation infrastructure and the adoption of common data and information standards.

Significant progress has been made in Australia in recent years to build Australia's systemic infrastructure. However, this needs to be reinforced and extended to connect researchers, applications, information repositories and infrastructure in a seamless manner to facilitate access. This requires funding for the development and deployment of software and standards.

Existing infrastructure

8. The Committee recommends that a proportion of NCRIS funding be available to support both the further development and ongoing operation of existing facilities. This funding must be based on a rigorous review of past performance, continuing need and an assessment of future potential against other possible options. The proportion of funding available should be determined competitively on the basis of demonstrated performance and need.

NCRIS must be mindful of earlier investment in research infrastructure, including through predecessor programmes such as the Major National Research Facilities (MNRF) programme and the Systemic Infrastructure Initiative (SII), and the role that existing facilities can play in developing Australia's key research capabilities.

International engagement

9. The Committee recommends that NCRIS become a focal point for the consideration and support of Australia's collaborative involvement in major international research infrastructure.

Australia must develop its research capacity as an integral part of the international research system. The benefits of investment are amplified significantly through effective connection with the outcomes of global research.

Feedback from stakeholders suggests that the absence of a focal point to consider and fund collaboration in major international infrastructure is a weakness in our system. However, NCRIS should not necessarily be the only funding source for international collaborations.

In some cases the most cost effective approach to developing a specific capability will be through Australia's participation in international infrastructure initiatives or in securing/facilitating access for Australian researchers to overseas facilities.

10. The Committee recommends that NCRIS should include consideration of opportunities for Australia to host major international facilities.

Australia has the potential to host major international facilities. There may also be opportunities for Australia develop infrastructure, particularly around our natural resources, that offer unique capabilities to the international research community. Such opportunities offer a range of benefits in addition to the facility specific benefits, including raising the profile of Australia as a research destination.

Landmark infrastructure

11. The Committee recommends that:

- (a) Government consider proposals to fund landmark infrastructure outside the scope of NCRIS funding on a case by case basis
- (b) the brief of the NCRIS Committee includes advising the Government on the requirements and options for landmark infrastructure.

There will be cases where compelling reasons exist for Australia to strategically invest in large scale, or landmark (as defined by NRIT) infrastructure. For the reasons outlined above these needs should be considered outside the NCRIS funding process.

There is still a need for an advisory mechanism for Government to be advised on landmark infrastructure and tasking the proposed NCRIS Committee with this role would allow proposals to be assessed against other priorities.

RECOMMENDATIONS ON GOVERNANCE

The Committee has previously recommended that the Government establish a standing committee no later August 2005, which we suggest be called the NCRIS Committee, to continue the development and implementation of NCRIS.

Terms of reference

12. The Committee recommends that:

(a) the proposed NCRIS Committee's terms of reference include:

- working with the research community and research users to provide advice to Government on national research infrastructure strategy and priorities
- coordinating infrastructure funding decisions with the research funding agencies
- developing a Strategic Roadmap providing guidance to the Government on priority investment areas and implementation options
- advising on NCRIS funding allocation processes and the implementation of NCRIS funded projects
- the capacity to establish further advisory structures as necessary to assist it in fulfilling its terms of reference
- developing detailed programme guidelines

(b) the Government consider whether the NCRIS Committee should also have a wider advisory function in relation to research infrastructure issues, including providing advice on landmark infrastructure, provision of basic infrastructure and the coordination of research infrastructure funding decisions across government

(c) the Committee recommends that the Government's e-Research committee be given a formal role in providing advice to the NCRIS Committee on systemic infrastructure.

Consultation and expert advice

The proposed terms of reference provide for the advice of the NCRIS Committee to be informed by broad consultation and expert sub-committees or working groups.

The Government's existing advisory structures in relation to e-Research are well positioned to advise on the development of systemic infrastructure.

Composition of the Committee

13. The Committee recommends that membership of the proposed NCRIS Committee should ensure that there is:

- effective coordination across funding jurisdictions and mechanisms; and
- appropriate expertise in research, innovation, industry R&D and e-Research

The States and Territories have made significant investments in recent years in research and innovation, including major research facilities, as evidenced by the Mapping Australia's S&T report. These investments include substantial co-investment with the Australian Government, for example the NSW Government's contribution to the National ICT Centre of Excellence, which will be jointly based at the Australian National University and the University of New South Wales. NSW, Queensland and Victoria all have large infrastructure programs that are aimed at the development of major research facilities and have funding timeframes ranging up to five years.

State and territory representation in the advisory process could be useful in achieving both effective coordination and in facilitating a cross-governmental approach to financial support for national infrastructure.

RECOMMENDATIONS ON FUNDING PROCESS

The Committee has previously recommended that NCRIS be developed and implemented in two main stages: (1) a process to identify priorities and to explore options for delivery (the Strategic Roadmap; and (2) formal processes, guided by the Strategic Roadmap, to further prioritise options and select funding recipients.

Funding allocation processes

14. The Committee recommends that:

- (a) the proposed NCRIS Committee should advise you on how the priorities identified in the Strategic Roadmap could be actioned as part of formal allocation processes
- (b) the processes for implementing the Strategic Roadmap recommendations should be open and transparent but flexible so that an appropriate mechanism is used in each case. One of the aims should be to minimise opportunity costs for potential funding applicants
- (c) peer review, informed by international comparisons, should form a part of the assessment process.

The Committee has previously advised you that it intends to fulfil its term of reference to “provide guidance on areas in which investments in research infrastructure would significantly enhance the capacity of the national research and innovation system in delivering national benefits” by developing a Strategic Roadmap.

The Strategic Roadmap will provide a suitable framework to guide the allocation of NCRIS funds. The Committee considers that the proposed NCRIS Committee should advise you in detail on the process. However it is envisaged that the NCRIS Committee might make recommendations to the Government on:

- the relative priority of the potential capabilities;
- the need for competitive processes to further prioritise capabilities;
- the scope of competitive processes to assess potential grantees. For example the NCRIS Committee might recommend a competitive process to identify a consortium to develop a specific facility.

It should remain open to the NCRIS Committee to recommend to Government that a given capability is a high priority for the system and that a pre-eminent ‘supplier’ exists. This might be the case, for example, with the national high performance computing network where it may be appropriate to extend funding for the Australian Partnership for Advanced Computing.

Coordination with funding agencies

15. The Committee recommends that a key role of the proposed NCRIS Committee should be to work closely with research funding agencies to ensure that its recommendations and processes are well aligned with agencies’ strategies and processes.

The success of NCRIS hinges to a large extent on how well NCRIS decisions are aligned with the strategies of Australia's research funding agencies (especially the ARC and the NHMRC) whilst also noting the outcomes of other funding processes (such as state grants to medical research institutes).

Business planning

16. The Committee recommends each funded project be required to have an approved business plan addressing in detail the issues raised in recommendations 17-25 below.

RECOMMENDATIONS ON FUNDING CONDITIONS

Co-investment

17. The Committee recommends that:

- (a) the NCRIS funding rules encourage and facilitate collaborative arrangements and co-investment from a wide range of potential partners, including State and Territory governments (consistent with the principle that facilities are 'national')
- (b) consistent with the Government's response to the NRIT report, there is no mandatory requirement to provide matching funds but that project partners would be expected to indicate their commitment through some form of co-investment whether that be in cash or in kind.

Requirements in relation to collaborative arrangements

18. The Committee recommends that:

- (a) NCRIS funded projects should involve a substantial element of collaboration that incorporates areas of major research activity and strength relevant to a given priority
- (b) each project should include significant involvement from at least one Australian Government research agency or higher education institution
- (c) governance arrangements should be flexible and determined on a case by case basis but must provide for acceptable arrangements in relation to the management of public funding.

Funding for single institutional level infrastructure and small-scale collaboration is supported by other Government policies and programmes.

Institutional eligibility

19. The Committee recommends that, consistent with recommendation 18, NCRIS funding should be available to fund projects involving, but not necessarily limited to, the following:

- Australian Government and state and territory research agencies and institutions (including museums, libraries and botanical gardens);
- Higher education institutions;
- Private sector research organisations (including independent medical research institutes).

Consistent with a 'national' strategy with a focus on enhancing collaboration in pursuit of national goals, the range of organisations eligible should be as open as possible.

Capital and operational costs

20. The Committee recommends that:

- (a) NCRIS provide scope for funding both capital and operational costs to ensure that investments are accessible and financially viable. The extent of operational costs and the time limit for funding them should be determined on a case by case basis having regard to the nature of the facility and likely users
- (b) whole-of-life costs be managed flexibly in the context of a comprehensive business plan tailored to the individual circumstance of each facility.

Past infrastructure programmes may have placed too much emphasis on financial independence for major facilities. This can have negative consequences in terms of usage, viability of facilities and accessibility.

Although it would be appropriate for the cost of a major facility to come from a plurality of sources, in many situations a valid case can be made for some operational costs to be provided from the same funding sources as start-up costs.

Depreciation

21. The Committee recommends that the Government adopt the principle that host institutions should not be required to make provision for the replacement cost of major research assets funded through NCRIS.

The life of a major research asset can vary widely from around 2 to 3 years (for example for a high performance computer) to more than 50 years (for example for a large telescope or ocean-going research vessel). Depreciation of major assets could be handled at a strategic level as part of an ongoing investment and renewal strategy for research infrastructure. Consideration of depreciation in this way by NCRIS will help ensure that the deployment of resources is strategic and reduce potential distortions in relation to usage and access.

The Committee recognises that this approach to funding may have implications for facility level accounting practices. The Government may need to consider this in developing guidelines for NCRIS.

Access and charging

22. The Committee recommends that the NCRIS funding rules in relation to access and charging should present as few barriers as possible to access.

Access is a key issue to the success of NCRIS. Infrastructure serving the broad needs of the research systems should facilitate and encourage access to those undertaking meritorious research rather than present barriers to access.

23. The Committee recommends that:

- (a) NCRIS funded facilities must have open access arrangements for all researchers that apply for a reasonable proportion of the available operating time. Transparent governance arrangements must ensure that access is determined on criteria of excellence.
- (b) Charging for open access for public sector researchers should be sensitive to the specific circumstances but should at most reflect marginal operating costs only
- (c) Appropriate provisions for making facilities accessible are planned from the earliest development phase of the project, including remote electronic access where relevant
- (d) Charging for access for commercially oriented research should generally be at an appropriate commercial rate having regard to institutional circumstances.

There is significant variation in terms of the capacity for infrastructure users to pay marginal costs. The marginal cost of using a communications network may be negligible, while the marginal cost of accessing a research aircraft, for example, is very high.

In some disciplines there are internationally accepted access conventions that cannot be readily overridden. It is the case that many Australian researchers have benefited substantially from the generous access provisions of major overseas facilities.

Demonstration projects

24. The Committee recommends that funding for demonstration projects could be made available.

Preference should be given to fully realised proposals. However, it is recognised that there may be circumstances in which a phased approach to implementation is warranted and that a demonstrator is a sensible risk management strategy.

OTHER ISSUES

Funding gap

An implication of this advice, if accepted, is that a 'funding gap' is likely to develop between resources available through NCRIS and the funds that can be bid for through programmes such as ARC LIEF.

While it is outside the brief of this Committee to advise on this issue, the Committee suggests that the Government acknowledge this gap and give consideration to how it may be addressed by funding mechanisms outside of NCRIS.

Basic infrastructure

The Committee recognises that there is an issue in relation to maintaining a high quality stock of basic research infrastructure. However, the Committee believes that investments in basic research fall outside of the scope and objectives of NCRIS. Basic infrastructure is supported primarily by block funding arrangements.

RECOMMENDATIONS

1.	The Committee recommends that NCRIS should be reclassified and administered as a lapsing (subject to review) funding programme rather than a programme which terminates after 2010-11.
2.	<p>The Committee recommends that:</p> <ul style="list-style-type: none"> (a) the Government identify a number of priority 'capabilities', consistent with the goals established under the National Research Priorities, and focus its investment strategy on developing them (b) an ongoing process of review is established to ensure there is scope for priorities to shift and evolve over time.
3.	<p>The Committee recommends that:</p> <ul style="list-style-type: none"> (a) a primary consideration in identifying priority areas and strategies should be Australia's ability to be internationally excellent in those areas (b) a key aim of the Strategy should be to develop, in the priority areas, capabilities amongst the best internationally through a combination of building world-class domestic research facilities and services, or providing access to world-class facilities and services offshore (c) NCRIS facilities should be funded on the condition that they are open to researchers on the basis of excellence (subject to the recommendations (22 and 23) on access below).
4.	<p>The Committee recommends that:</p> <ul style="list-style-type: none"> (a) capacity issues should be addressed in an integrated way that takes into account not only physical and soft infrastructure requirements, but also the associated skills and human capital issues, such that the effectiveness of interactions across the system is maximised (b) NCRIS funds should be focussed on delivering facilities and services that serve the national research system broadly (c) proponents of a specific new investment be required to demonstrate that a capability does not currently exist and that it could not be delivered more efficiently by other means. (d) proponents of further funding for existing facilities be required to demonstrate that the capability offered by the facility is a current priority, is in demand and could not be delivered more efficiently by other means.
5.	The Committee recommends that investments should be made in the context of collaborative arrangements that serve to draw together and focus diverse strengths and resources from across the national research system.

<p>6.</p>	<p>The Committee recommends, in order to enable a reasonably broad portfolio of investments, that:</p> <ul style="list-style-type: none"> (a) NCRIS funding allocations should be in an indicative range of \$5 million to \$60 million (b) the program should be flexible enough to include initiatives demonstrably in the national interest but requiring a smaller or larger level of resources (c) NCRIS investments should be balanced in terms of disciplinary and cross-disciplinary areas and focus on both fundamental research and shorter-term user-oriented research outcomes (d) there is a balance between investment in: <ul style="list-style-type: none"> ▪ systemic, enabling infrastructure; ▪ new facilities and equipment; ▪ gaining access to off-shore facilities; ▪ further development of existing facilities; and ▪ the ongoing operations of existing facilities.
<p>7.</p>	<p>The Committee recommends that the Government continue to invest strategically in data communications, data management and advanced computation infrastructure and the adoption of common data and information standards.</p>
<p>8.</p>	<p>The Committee recommends that a proportion of NCRIS funding be available to support both the further development and ongoing operation of existing facilities. This funding must be based on a rigorous review of past performance, continuing need and an assessment of future potential against other possible options. The proportion of funding available should be determined competitively on the basis of demonstrated performance and need.</p>
<p>9.</p>	<p>The Committee recommends that NCRIS become a focal point for the consideration and support of Australia’s collaborative involvement in major international research infrastructure.</p>
<p>10.</p>	<p>The Committee recommends that NCRIS should include consideration of opportunities for Australia to host major international facilities.</p>
<p>11.</p>	<p>The Committee recommends that:</p> <ul style="list-style-type: none"> (a) Government consider proposals to fund landmark infrastructure outside the scope of NCRIS funding on a case by case basis (b) the brief of the NCRIS Committee includes advising the Government on the requirements and options for landmark infrastructure.

<p>12.</p>	<p>The Committee recommends that:</p> <p>(a) the proposed NCRIS Committee's terms of reference include:</p> <ul style="list-style-type: none"> - working with the research community and research users to provide advice to Government on national research infrastructure strategy and priorities - coordinating infrastructure funding decisions with the research funding agencies - developing a Strategic Roadmap providing guidance to the Government on priority investment areas and implementation options - advising on NCRIS funding allocation processes and the implementation of NCRIS funded projects - the capacity to establish further advisory structures as necessary to assist it in fulfilling its terms of reference - developing detailed programme guidelines <p>(b) the Government consider whether the NCRIS Committee should also have a wider advisory function in relation to research infrastructure issues, including providing advice on landmark infrastructure, provision of basic infrastructure and the coordination of research infrastructure funding decisions across government</p> <p>(c) the Committee recommends that the Government's e-Research committee be given a formal role in providing advice to the NCRIS Committee on systemic infrastructure.</p>
<p>13.</p>	<p>The Committee recommends that membership of the proposed NCRIS Committee should ensure that there is:</p> <ul style="list-style-type: none"> ▪ effective coordination across funding jurisdictions and mechanisms; and ▪ appropriate expertise in research, innovation, industry R&D and e-Research
<p>14.</p>	<p>The Committee recommends that:</p> <p>(a) the proposed NCRIS Committee should advise you on how the priorities identified in the Strategic Roadmap could be actioned as part of formal allocation processes</p> <p>(b) the processes for implementing the Strategic Roadmap recommendations should be open and transparent but flexible so that an appropriate mechanism is used in each case. One of the aims should be to minimise opportunity costs for potential funding applicants</p> <p>(c) peer review, informed by international comparisons, should form a part of the assessment process.</p>
<p>15.</p>	<p>The Committee recommends that a key role of the proposed NCRIS Committee should be to work closely with research funding agencies to ensure that its recommendations and processes are well aligned with agencies' strategies and processes.</p>
<p>16.</p>	<p>The Committee recommends each funded project be required to have an approved business plan addressing in detail the issues raised in recommendations 17-25 below.</p>

17.	<p>The Committee recommends that:</p> <ul style="list-style-type: none"> (a) the NCRIS funding rules encourage and facilitate collaborative arrangements and co-investment from a wide range of potential partners, including State and Territory governments (consistent with the principle that facilities are ‘national’) (b) consistent with the Government’s response to the NRIT report, there is no mandatory requirement to provide matching funds but that project partners would be expected to indicate their commitment through some form of co-investment whether that be in cash or in kind.
18.	<p>The Committee recommends that:</p> <ul style="list-style-type: none"> (a) NCRIS funded projects should involve a substantial element of collaboration that incorporates areas of major research activity and strength relevant to a given priority (b) each project should include significant involvement from at least one Australian Government research agency or higher education institution (c) governance arrangements should be flexible and determined on a case by case basis but must provide for acceptable arrangements in relation to the management of public funding.
19.	<p>The Committee recommends that, consistent with recommendation 18, NCRIS funding should be available to fund projects involving, but not necessarily limited to, the following:</p> <ul style="list-style-type: none"> ▪ Australian Government and state and territory research agencies and institutions (including museums, libraries and botanical gardens); ▪ Higher education institutions; ▪ Private sector research organisations (including independent medical research institutes).
20.	<p>The Committee recommends that:</p> <ul style="list-style-type: none"> (a) NCRIS provide scope for funding both capital and operational costs to ensure that investments are accessible and financially viable. The extent of operational costs and the time limit for funding them should be determined on a case by case basis having regard to the nature of the facility and likely users (b) whole-of-life costs be managed flexibly in the context of a comprehensive management plan tailored to the individual circumstance of each facility.
21.	<p>The Committee recommends that the Government adopt the principle that host institutions should not be required to make provision for the replacement cost of major research assets funded through NCRIS.</p>
22.	<p>The Committee recommends that the NCRIS funding rules in relation to access and charging should present as few barriers as possible to access.</p>

<p>23.</p>	<p>The Committee recommends that:</p> <ul style="list-style-type: none"> (a) NCRIS funded facilities must have open access arrangements for all researchers that apply for a reasonable proportion of the available operating time. Transparent governance arrangements must ensure that access is determined on criteria of excellence. (b) Charging for open access for public sector researchers should be sensitive to the specific circumstances but should at most reflect marginal operating costs only (c) Appropriate provisions for making facilities accessible are planned from the earliest development phase of the project, including remote electronic access where relevant (d) Charging for access for commercially oriented research should generally be at an appropriate commercial rate having regard to institutional circumstances.
<p>24.</p>	<p>The Committee recommends that funding for demonstration projects could be made available.</p>

NCRIS ADVISORY COMMITTEE - TERMS OF REFERENCE

BACKGROUND

The 2004-2005 Budget, as part of the *Backing Australia's Ability: Building Our Future through Science and Innovation* package, committed \$542 million over 2004-5 to 2010-11 for a NCRIS. NCRIS will be based on the framework developed by the National Research Infrastructure Taskforce (which reported in late 2003).

NCRIS will provide researchers with major research facilities, supporting infrastructure and networks necessary for world-class research. It will follow the programme of investments provided under *Backing Australia's Ability* through the Systemic Infrastructure Initiative and Major National Research Facilities programme. NCRIS will provide a framework for making strategic decisions on major research infrastructure investments that is:

- national in scope and aware of the international context;
- collaborative and supportive of a collaborative research culture;
- aligned with broader research priorities;
- focussed on excellence; and
- able to broadly sustain the innovation system.

THE ADVISORY COMMITTEE'S ROLE

The Advisory Committee will advise the Government on the development of the NCRIS. It will report to the Minister for Education, Science and Training, but will not be required to provide a formal report.

In relation to NCRIS, the Advisory Committee will:

- provide guidance on areas in which investments in research infrastructure would significantly enhance the capacity of the national research and innovation system in delivering national benefits;
- advise on the principle and mechanisms that could apply in identifying and funding specific investment priorities; and
- advise on the governance arrangements to succeed the Advisory Committee to manage the long term implementation, monitoring and review of NCRIS.

The Advisory Committee has an important role as a link between the Government and stakeholders (including State and Territory governments, industry, the research community and other interested parties) for the dissemination of information and during consultations. It will help build a consensus approach to a strategy for making major infrastructure investments.

The Advisory Committee will advance the implementation of the NCRIS to the stage where guidelines are issued and the ongoing governance arrangements to oversee the operations of the NCRIS are in place.

MEMBERSHIP

The Chair is Professor Rory Hume, formerly Vice-Chancellor and President of the University of New South Wales and prior to this Executive Vice Chancellor of the University of California, Los Angeles. Other members are:

- Dr Michael Barber, Executive Director, Science Planning, CSIRO
- Dr Robin Batterham, The Chief Scientist
- Professor Ian Chubb, Vice-Chancellor, Australian National University (representing the Australian Vice-Chancellors' Committee)
- Dr Phil McFadden, Chief Scientist, Geoscience Australia (representing the National Academies Forum);
- Mr Peter Nissen, National Broadband Advisor for Education
- Professor Alan Pettigrew, CEO, National Health and Medical Research Council
- Dr Ian Smith, Executive Director, Australian Nuclear Science and Technology Organisation
- Dr Stephen Walker, Executive Director, Engineering and Environmental Sciences, Australian Research Council
- Dr Evan Arthur, Group Manager, Innovation and Research Systems Group, DEST
- Mr Colin Walters, Group Manager, Science Group, DEST

PROPOSED STRUCTURE AND MEMBERSHIP OF THE NCRIS COMMITTEE

You have previously agreed that the NCRIS Committee should be an expert committee, with ex-officio representation from the Chief Scientist, the Australian Research Council (ARC) and the National Health and Medical Research Council (NHMRC). You have asked Professor Rory Hume to chair the Committee.

Expert advisory positions

We recommend that the NCRIS Committee incorporate high-level expertise on:

- Industry R&D;
- Systemic-level infrastructure requirements;
 - Your nominee to this position would liaise closely with the e-Research Coordinating Committee, the Australian Research Information Infrastructure Committee (ARIIC) and the Australian Research and Education Network Advisory Committee (ARENAC);
- Infrastructure needed to support delivery of the National Research Priorities (NRP);
 - To this end we recommend you agree that:
 - the NCRIS Committee be asked to convene four expert subcommittees, to be chaired by your nominees, to provide cross-disciplinary advice in relation to each NRP;
 - the chairs of the expert subcommittees be on the NCRIS Committee;
 - the NCRIS Committee approve membership of the expert subcommittees; and
 - in the case of the “Promoting and Maintaining Good Health” NRP, advice is provided by the existing NHMRC Research Committee.

State/territory representation

You might want to consider appointing a person to represent the state and territory governments. The Advisory Committee’s advice notes the significant role that the states and territories currently play in funding research infrastructure and the potential benefits from a cross-governmental approach.

If you agree, we recommend that the Department invite the relevant state and territories ministries to nominate one representative at a suitable level from amongst them to fill this position.

Proposed membership

Proposed membership to match the above recommendations is:

- **Chairman** – You have previously asked Professor Rory Hume to chair the Committee. We will provide separate briefing on the question of the chair now that Professor Hume has accepted a post at the University of California.
- **Chief Scientist** (as already agreed)
- **Industry R&D expert** – Professor Leanna Read, Managing Director TGR BioSciences, also member of the ARC Board and Prime Minister’s Science, Engineering and Innovation Council (in a personal capacity).
- **Systemic infrastructure expert** – Professor David Beanland, former Chair, Australian Partnership for Advanced Computing.

- **Chairs of the proposed NRP expert subcommittees:**
 - Dr Stephen Walker, Executive Director, Engineering and Environmental Sciences, ARC. Dr Walker would chair the 'Frontier Technologies' subcommittee and also provide ex-officio representation from the ARC.
 - Professor Alan Pettigrew, CEO, National Health and Medical Research Council (NHMRC). Professor Pettigrew would liaise with the NHMRC Research Committee to provide advice on the 'Promoting and Maintaining Good Health' NRP and also provide ex-officio representation from the NHMRC.
 - Dr Roger Lough, Chief Defence Scientist DSTO. Dr Lough would chair the 'Safeguarding Australia' subcommittee.
 - Dr Phil McFadden, Chief Scientist, Geoscience Australia. Dr McFadden would chair the 'Environmentally Sustainable Australia' subcommittee.
- **State and territory representative** – as recommended above.
- **Departmental representative** – Dr Evan Arthur, Group Manager, Innovation and Research Systems Group.

The recommended people have informally indicated their willingness to serve on the NCRIS Committee if asked.

NCRIS COMMITTEE TERMS OF REFERENCE

The NCRIS Committee will advise the Government on the ongoing implementation, monitoring and review of NCRIS. The Committee's specific responsibilities will 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 programme. 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.