



Linkage Learned Academies Special Projects (LASP) Funding Rules for funding commencing in 2009

Australian Research Council Act 2001

I, KIM CARR, Minister for Innovation, Industry, Science and Research, having satisfied myself of the matters set out in section 59 of the *Australian Research Council Act 2001*, approve these Funding Rules under section 60 of that Act.

Dated 4 August 2008

KIM CARR

Minister for Innovation, Industry, Science and Research

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Acronyms

The following acronyms are used in ARC LASP Funding Rules

AEST	Australian Eastern Standard Time
ARC	Australian Research Council
GST	Goods and Services Tax
HECS	Higher Education Contribution Scheme
HELP	Higher Education Loan Programme
LASP	ARC Linkage Learned Academies Special Projects
LCI	LASP Chief Investigator
NCGP	National Competitive Grants Program
NHMRC	National Health and Medical Research Council
PI	Partner Investigator
UA	Universities Australia

Key Date

Closing time for submission of Proposals is **5.00pm (AEST) Friday 19 September, 2008.**

Contacts

Enquiries about the *ARC LASP* scheme may be addressed as follows:

By Post to:

Scheme Coordinator
Linkage Learned Academies Special Projects
Australian Research Council
GPO Box 2702
CANBERRA ACT 2601

OR

By Courier to:

Scheme Coordinator
Linkage Learned Academies Special Projects
Australian Research Council
1st Floor, 8 Brindabella Circuit
CANBERRA AIRPORT ACT 2609

Other:

Email: pcg@arc.gov.au
Phone: 02 6287 6600
Fax: 02 6287 6638
Web: www.arc.gov.au

1 Name of Funding Rules

- 1.1 These Funding Rules are the Australian Research Council Linkage Learned Academies Special Projects (LASP) Funding Rules for funding commencing in 2009.

2 Commencement

- 2.1 The Funding Rules shall take effect upon registration on the Federal Register of Legislative Instruments.

3 Definitions

- 3.1 In these Funding Rules, unless otherwise stated:

Administering Organisation means an Eligible Organisation which submits a Proposal for funding under LASP and which will receive and be responsible for the administration of the funding if a Proposal is approved for funding.

Applicant means the Administering Organisation. Funding under LASP is provided to Administering Organisations, not to individual researchers.

ARC means the Australian Research Council as established under the ARC Act.

ARC Act means the *Australian Research Council Act 2001*.

ARC's Web Site is www.arc.gov.au.

Collaborating Organisation means an Eligible Organisation which is not the Administering Organisation but which is identified in a Proposal as a contributor to the project.

Commonwealth means the Commonwealth of Australia.

Conflict of Interest means an actual or perceived conflict between a person's public duty and their private or personal interest.

Earnings means the amount paid as remuneration for work a person undertakes or services he or she performs. It includes amounts paid under employment and consultancy arrangements.

Eligible Organisation means an organisation which is eligible to apply for and receive funding under the LASP Funding Rules as outlined in Section 7.1 and listed in Appendix 1.

Funding Agreement means the agreement entered into between the ARC and the Administering Organisation if that Organisation's Proposal is approved for funding. This Agreement sets out the terms and conditions under which the Commonwealth is to provide funding and the Administering Organisation is to be responsible for administration of the funding and the conduct of the project.

Funding Rules means this document.

GST has the meaning given in section 195-1 of the *A New Tax System (Goods and Services Tax) Act 1999*.

LASP Chief Investigator (LCI) means a researcher nominated in a Proposal

who satisfies the eligibility criteria for a LCI as specified in Sections 8.1 and 8.2.

Medical and Dental Research means research and/or training which, in the opinion of the ARC, has a significant focus on clinical medical (including dental) outcomes.

Minister means the Minister from time to time responsible for the administration of the ARC Act (currently the Minister for Innovation, Industry, Science and Research), or the Minister's delegate.

National Research Priority means a national research priority referred to in Section 4.2 and further detailed in Appendix 3.

Partner Investigator (PI) means a researcher nominated in a Proposal who satisfies the eligibility criteria for a PI as specified in Sections 8.1 and 8.3.

Partner Organisation means an organisation which is not an Eligible Organisation, and which is identified in a Proposal as a contributor to the project, and which meets the requirements specified in Section 7.3.

Project Leader means the first named LCI on a Proposal.

Proposal means a request to the ARC for the provision of financial assistance for a research project.

Research Office means a business unit within an organisation that is responsible for administrative contact with the ARC regarding Proposals and research projects.

Special Condition means a special condition specified in a Funding Agreement which governs the use of the funding provided by the ARC.

4 Introduction

4.1 Overview

4.1.1 This document sets out the Funding Rules for LASP, a scheme funded under the ARC's National Competitive Grants Program (NCGP), which comply with the requirements of the ARC Act.

4.1.2 All parties involved in Proposals should read and understand the Funding Rules and the ARC's draft Funding Agreement (which is available on the ARC's Web Site) before submitting a Proposal to the ARC. Applicants are responsible for ensuring that their Proposals are complete and accurate.

4.1.3 These Funding Rules are current as at July 2008 and have been prepared in accordance with the requirements of the ARC Act in force then. These Funding Rules are subject to change at any time, for reasons including any subsequent amendment, replacement or supplementation of the ARC Act.

4.1.4 Funding under LASP is provided to Administering Organisations, not to researchers. The ARC will accept a Proposal only from an Eligible Organisation, through their Research Office and not from any individual researcher or researchers.

4.1.5 However, if, in the opinion of the ARC, any researcher nominated in a Proposal as a LCI has caused or has significantly contributed to the failure of an

organisation to meet its obligations under any current or previous Funding Agreement with the ARC, the ARC may in its absolute discretion decide to not recommend for approval any or all Proposals involving that researcher.

- 4.1.6 Subject to subsections 4.4.2.1 and 4.4.2.2, research funding received or sought elsewhere (outside the LASP scheme) has no impact on eligibility for funding within the LASP scheme.

4.2 NCGP objectives

- 4.2.1 The ARC is an Australian Government statutory authority established under the ARC Act whose primary functions are to make recommendations regarding the funding of research, to administer funding to support research programs, and to provide policy advice related to research.

- 4.2.2 The ARC, through a range of funding schemes under the NCGP, aims to:

- a. maintain and build on existing research and research training;
- b. build the scale and focus of research and research training;
- c. encourage cross-disciplinary approaches to research and research training;
- d. facilitate collaborative approaches to research and research training; and
- e. support research and research training of national benefit, including in the following National Research Priority Areas:
 - i. An Environmentally Sustainable Australia;
 - ii. Promoting and Maintaining Good Health;
 - iii. Frontier Technologies for Building and Transforming Australian Industries; and
 - iv. Safeguarding Australia.

- 4.2.3 Descriptions of these National Research Priorities and their associated Priority Goals can be found in Appendix 3.

4.3 LASP objectives

- 4.3.1 The objectives of the LASP scheme are to support programs of research, or programs that support the conduct of a program of research, undertaken by one or more of the Eligible Organisations which:

- a. capitalise on their unique capabilities;
- b. assist programs of research undertaken by organisations; and
- c. may be expected to have results of broad benefit for research and scholarship in the natural and applied sciences, technological development and applied technology, the social sciences and the humanities.

- 4.3.2 The ARC is particularly interested in supporting activities in areas of demonstrable national importance.

4.4 Fundamental principles and requirements

4.4.1 Ethics and research practices

- 4.4.1.1 All Proposals and ARC-funded research projects should conform to the principles

outlined in the following and their successor documents:

- a. the NHMRC/ARC/UA *Australian Code for the Responsible Conduct of Research* (2007);
- b. as applicable, the NHMRC's *National Statement on Ethical Conduct in Human Research* (2007); and
- c. as applicable, the NHMRC's other codes on animal research.

4.4.2 Non-duplication

4.4.2.1 The ARC will not provide funding assistance to meet the costs of a project to the extent that those costs have been, or are likely to be, met by Commonwealth funding obtained from another source (including other ARC funding). The ARC reserves the right to determine if a Proposal includes such costs and to deem a notional amount for such costs.

4.4.2.2 Where a significant portion of the costs for a proposed project has been, or is likely to be, funded by the Commonwealth from other sources (including other ARC sources), the ARC may decide to recommend that the Proposal not be funded at all. In other cases, the ARC may decide to recommend a reduced amount of funding for the proposed project.

4.4.3 Conflict of interest

4.4.3.1 All parties involved in, or associated with Proposals and ARC funded research projects are required to disclose to the ARC, and the other parties involved in the Proposal, any actual or potential conflict of interest. Conflicts of interest must be disclosed at the time of the submission of a Proposal, in reporting such research to the ARC and as soon as possible if a conflict arises during the course of an ARC funded project.

4.4.3.2 If, in the opinion of the ARC, any party involved in or associated with a Proposal has failed to disclose any such conflict of interest, the ARC may in its absolute discretion decide to not recommend for approval any or all Proposals involving that party.

4.4.3.3 If a conflict of interest exists or arises, the Administering Organisation must have established processes in place for managing the conflict of interest for the life of the project. Such processes must comply with the NHMRC/ARC/UA *Australian Code for the Responsible Conduct of Research* (2007) and any relevant successor document. In the event of any inconsistency between the original and any successor document, the latter document is to apply.

4.4 Acknowledging ARC support

4.4.1 The ARC Funding Agreement requires that any ARC contribution to research and other activities be appropriately and prominently acknowledged (wherever possible) in any research output, or communication in any media.

4.4.2 Advice on acceptable forms of acknowledgement and use of the ARC logo is available on the ARC's Web Site.

4.5 Dissemination of research outputs

4.5.1 The Australian Government makes a major investment in research to support its essential role in improving the wellbeing of our society. To maximise research

benefits and national impacts arising from the LASP scheme, results should be disseminated widely.

- 4.5.2 The ARC strongly encourages LASP researchers to consider the benefits of depositing their data and any publications arising from a research project in an appropriate subject and/or institutional repository.

5 Changes from last year

- 5.1 The majority of changes made in the Funding Rules for funding commencing in 2009 are aimed at clarification and reduction of repetition. There have been numerous formatting changes throughout the Funding Rules, including re-location and consolidation of sections, in particular: ‘areas of investigation / work not supported’, ‘cross-scheme issues’, ‘restriction on budget items’, ‘roles and eligibility for researchers’ and the ‘application process’. As these changes have not substantially altered existing arrangements they have not been detailed.

Significant changes from the 2008 LASP Funding Rules include:

- a. the list of acronyms used in ARC Funding Rules has been replaced with a list of acronyms specific to ARC LASP Funding Rules because the majority of acronyms in the former list are not used in LASP;
- b. the following definitions have been inserted: Australian Research Council, Conflict of Interest, Minister and Project Leader;
- c. the Joint NHMRC/AVCC *Statement and Guidelines on Research Practice* (1997) has been replaced by the NHMRC/ARC/UA *Australian Code for the Responsible Conduct of Research* (2007);
- d. subsection 8.1.5: the prohibition on ‘a researcher undertaking undergraduate or postgraduate studies...unless those studies lie outside the scope and area of the research proposed in the Proposal.’ has been expanded to include PIs;
- e. subsection 8.2.2: prescribed visa requirements relating to residency have been removed for LCIs;
- f. Administration of Funding has been moved to Appendix 2.

The list of changes above is not comprehensive. Applicants and other parties involved in Proposals should read and understand the entire Funding Rules and draft Funding Agreement before a Proposal is submitted to the ARC.

6 Funding

6.1 Level of funding

- 6.1.1 All amounts referred to in these Funding Rules are to be read as exclusive of GST (if any), unless expressly stated otherwise.
- 6.1.2 The minimum level of funding which will be provided by the ARC for a project is \$10,000 per year.
- 6.1.3 The maximum level of ARC funding for a LASP project is \$120,000 per year. In exceptional circumstances, the ARC is prepared to consider higher funding levels

where an outstanding case is made.

- 6.1.4 The ARC reserves the right to recommend levels of funding which may differ from those requested in the Proposal.

6.2 Period of funding

- 6.2.1 Financial assistance may be payable under these Funding Rules for LASP projects in respect of financial year 2008-09 and any subsequent years to which the ARC Act applies. Funding for approved projects will commence with effect 1 January 2009, unless other arrangements are approved by the Minister.

- 6.2.2 Projects may be funded for 1 to 3 years, subject to sufficient funding being available for LASP, the provisions of the ARC Act and continued satisfactory progress of the project.

- 6.2.3 The ARC reserves the right to recommend a period of funding which may differ from that requested in the Proposal.

6.3 Types of research supported

- 6.3.1 Subject to Sections 6.4 and 6.5, LASP supports all types of research, consistent with LASP objectives, including:

- a. pure basic research which is experimental and theoretical work undertaken to acquire new knowledge;
- b. strategic basic research which is experimental and theoretical work undertaken to acquire new knowledge directed into specified broad areas that are expected to lead to useful discoveries. Such research provides the broad base of knowledge necessary to solve recognised practical problems; and
- c. applied research which is original work undertaken primarily to acquire new knowledge with a specific application in view. Such research is undertaken either to determine possible uses for the findings of basic research or to determine new ways of achieving some specific and predetermined objectives.

6.4 Project budget and use of funding

- 6.4.1 LASP supports costs which directly support research projects. The ARC may in its absolute discretion determine whether any project costs meet this requirement.

- 6.4.2 The following project costs may be supported under LASP:

- a. personnel (salaries and on-costs), including Research Associates, technicians and laboratory attendants. However, salaries and on-costs will not be supported for LCIs and/or PIs who are receiving significant Earnings from any other source(s);
- b. teaching relief for LCIs may be considered by the ARC if such a request is fully justified in terms of achieving a successful outcome for the project. If approved, the funding contribution is limited to a maximum rate of \$32,972 (2008\$) for six months per year (or pro rata for a lesser period) per LCI, and is a Special Condition;
- c. equipment;

- d. maintenance; and
 - e. travel expenses for LCIs may be considered by the ARC if the Proposal clearly demonstrates that such expenses are not covered by a Special Studies Program, that the research to be undertaken directly relates to the project, and is a Special Condition.
- 6.4.3 Financial assistance will not be provided to projects which, in the opinion of the ARC, are more appropriately funded from other ARC or Commonwealth Government funding sources.
- 6.4.4 The following items will not be supported under LASP:
- a. Medical and Dental Research;
 - b. activities leading solely to the creation or performance of a work of art, including visual art, musical compositions, drama, dance, film, broadcasts, designs, and literary works. These areas are generally covered by other Australian Government funding agencies;
 - c. production of teaching materials, even though some research may be involved in their production;
 - d. compilation of data, unless this is an integral part of a project, in which case the Proposal must include a statement indicating the research objectives to which the data would contribute;
 - e. development of research aids and tools (including computer programs), unless they form an integral part of the Proposal, in which case the Proposal must include a statement indicating the research objectives to which these activities would contribute;
 - f. capital works and general infrastructure costs (in whole or in part);
 - g. International students' fees and Higher Education Contribution Scheme (HECS) and Higher Education Loan Programme (HELP) liabilities;
 - h. the Administering Organisation must ensure the provision of the following basic facilities (where relevant to the Proposal), which will not be funded:
 - i. accommodation (e.g. laboratory and office, suitably equipped and furnished in standard ways);
 - ii. access to workshop services (e.g. machine tools and qualified technicians available to each member of staff, according to need, for research);
 - iii. access to film or music editing facilities;
 - iv. access to a basic library collection;
 - v. standard reference materials or funds for abstracting services;
 - vi. provision of computers, including laptops (excluding access to high-performance computers or other specialised applications) and basic computing facilities such as printers, word processing and other standard software; and
 - vii. use of photocopiers, telephones, mail, fax, email and internet services.
 - i. costs not directly related to a project.

6.4.5 If the ARC considers that a Proposal seeks funding for a project that involves any of the items not permitted under Section 6.4, then to that extent part or all of the Proposal will not be recommended or approved for funding. However, if the ARC considers that other parts of the proposed project remain worthy of support, the ARC may recommend that a reduced amount of funding be approved for the Proposal.

6.5 Number of Proposals and funded projects

6.5.1 Each Eligible Organisation may submit up to two Proposals in this funding round.

6.5.2 Only one Proposal may be submitted to LASP in respect of a particular project in the same funding round. The ARC reserves the right to determine whether Proposals are duplicates or sufficiently similar to warrant one or more Proposals being not recommended for approval.

7 Organisational types, roles and eligibility

7.1 Eligible Organisations

7.1.1 A Proposal may be submitted only by an Eligible Organisation, through their Research Office.

7.2 Collaborating Organisations

7.2.1 A Proposal may identify one or more Collaborating Organisations to be involved in the proposed projects.

7.3 Partner Organisations

7.3.1 Proposals involving one or more Partner Organisation(s), such as government research organisations and businesses, must demonstrate a significant contribution of cash, in-kind or other material resources from the Partner Organisation(s) having regard to the total cost of the project and the relative contribution of each PI.

8 Roles and eligibility for researchers

8.1 Researcher roles and eligibility

8.1.1 Roles that may be undertaken by researchers under LASP are:

- a. LASP Chief Investigator (LCI); and
- b. Partner Investigator (PI).

All LCIs and PIs must satisfy the eligibility criteria for their nominated role as specified in Sections 8.1, 8.2 and 8.3.

8.1.2 A Proposal must nominate at least one researcher as a LCI.

8.1.3 The first-named LCI on a Proposal will be considered the 'Project Leader' of the project.

8.1.4 A researcher nominated in a Proposal as a LCI or PI must take significant intellectual responsibility for the proposed project, its conception, and any strategic decisions called for in its pursuit and the communication of results. The

researcher must have the capacity to make a serious commitment to the project. The ARC reserves the right to determine whether a person has the requisite capacity to perform the role.

- 8.1.5 Notwithstanding a researcher's eligibility under the criteria in Sections 8.1, 8.2 and 8.3 a researcher undertaking undergraduate or postgraduate studies is not eligible to be a LCI or PI, unless those studies lie outside the scope and area of the research proposed in the Proposal.
- 8.1.6 If the ARC considers that a researcher nominated in a Proposal as a LCI or PI does not meet the eligibility criteria in Sections 8.1, 8.2 or 8.3 for the role which that researcher is to perform the Proposal will not be recommended or approved for funding.

8.2 Eligibility Criteria for LASP Chief Investigators

- 8.2.1 A researcher nominated on a Proposal as a LCI must meet at least one of the following three criteria as at 1 January 2009, and for the full term of her/his participation in the project:
- a. be an employee of, and derive at least 50 per cent of her/his Earnings from, an Eligible Organisation listed in Appendix 1; or
 - b. have a formal agreement in writing with an Eligible Organisation which establishes an ongoing association with the Eligible Organisation; or
 - c. be a Fellow, Corresponding Member, Royal Fellow, Honorary Fellow, Foundation Fellow, Foreign Fellow or Overseas Fellow of, or hold equivalent status with, an Eligible Organisation.
- 8.2.2 The LCI must reside predominantly in Australia for the full term of her/his participation in the project.
- 8.2.3 At the time of the submission of a Proposal all obligations regarding previously funded projects involving the nominated LCIs on the Proposal must have been fulfilled to the satisfaction of the ARC. Such obligations include the provision of satisfactory progress and final reports.
- 8.2.4 If a Proposal has been approved for funding and any or all of the LCIs are at any time during the project no longer able to participate on the project, the project may be continued under replacement LCIs provided that:
- a. approval is obtained from the Minister for the change in LCI; and
 - b. a replacement LCI meets the criteria stipulated in Sections 8.1 and 8.2 when he/she is nominated as a replacement and for the full term of her/his participation in the project:

8.3 Eligibility criteria for Partner Investigators

- 8.3.1 A researcher nominated on a Proposal as a PI, at the time of her/his nomination and for the full term of her/his participation in the project must:
- a. not meet the eligibility criteria specified in Sections 8.1 and 8.2 for a LCI; and
 - b. meet the eligibility criteria specified in Sections 8.1 and 8.3.
- 8.3.2 If a Proposal has been approved for funding and any or all PIs are at any time

during the project no longer able to participate on the project, the project may be continued under replacement PIs provided that:

- a. approval is obtained from the Minister for the change in PI; and
- b. a replacement PI must:
 - i. meet the eligibility criteria specified in Sections 8.1 and 8.3 at the time of her/his nomination and for the full term of her/his participation in the project; and
 - ii. not meet the eligibility criteria specified in Sections 8.1 and 8.2 for a replacement LCI.

9 Applications

9.1 Proposals

9.1.1 A Proposal should be submitted as a mature research plan ready for implementation. The Proposal must contain all the information necessary for its assessment without the need for further written or oral explanation, or reference to additional documentation, unless requested by the ARC.

9.1.2 All details in the Proposal must be current at the time of submission.

9.1.3 In submitting a Proposal, the Administering Organisation and the LCIs and the PIs nominated in the Proposal are consenting to the Proposal's being assessed under the ARC's peer assessment procedures and agree to the release of the Proposal to third parties for assessment.

9.2 Application process

9.2.1 The Administering Organisation's Research Office must submit one electronic copy by email (attachment in Microsoft Word) and two paper copies of a Proposal to the ARC using the "LASP Application Form for Funding Commencing in 2009" available on the ARC's Web Site.

9.2.2 All paper copy Proposals must be signed by the Administering Organisation's President, Chief Executive Officer or similar officer who has the power to make and vary contracts on behalf of the Administering Organisation. The paper copies must be otherwise identical to the copy submitted by email.

9.2.3 The Administering Organisation must obtain the agreement, attested to by handwritten signatures and certifications, of all relevant persons and organisations necessary to allow the proposed project to proceed. These agreements, certifications and signatures are to be retained by the Administering Organisation which must provide them if requested by the ARC. A form is available for this purpose on the ARC's Web Site.

9.2.4 Formal eligibility exemption and eligibility ruling processes do not apply to Proposals for LASP.

9.2.5 If a proposal fails to meet any format and content requirements the ARC may in its absolute discretion decide to not recommend the Proposal for approval.

9.3 Closing Time for Proposals

- 9.3.1 Subject to subsection 9.3.2 the paper copies of a Proposal must be received by the ARC, and the electronic copy of the Proposal must be submitted to the ARC, by **5.00 pm (AEST) Friday 19 September 2008**.

By mail, to:

Scheme Coordinator
Linkage Learned Academies Special Projects
Australian Research Council
GPO Box 2702
CANBERRA ACT 2601

Or, by courier, to:

Scheme Coordinator
Linkage Learned Academies Special Projects
Australian Research Council
1st Floor
8 Brindabella Circuit
CANBERRA AIRPORT ACT 2609

By email to:

pcg@arc.gov.au

- 9.3.2 If a Proposal is received by the ARC after **5.00pm (AEST) Friday 19 September 2008** the ARC may, in its absolute discretion, decide to not recommend the Proposal for approval. In deciding whether to recommend or not recommend such a Proposal the ARC may take into account whether:
- a. in the opinion of the ARC, exceptional circumstances apply, and
 - b. the Administering Organisation is able to provide evidence to the satisfaction of the ARC that all documents were despatched by the Administering Organisation sufficiently in advance of the closing time for the documents to have been delivered to the ARC by the closing time in the normal course of events.
- 9.3.3 Proposals may be withdrawn but additions, deletions and modifications will not be accepted after submission, unless invited by the ARC.

9.4 Format

- 9.4.1 The Proposal must be submitted using the “LASP Application Form for Funding Commencing in 2009”, available on the ARC’s Web Site. If the Application Form is altered, including additions and/or deletions the ARC may in its absolute discretion decide to not recommend the Proposal for approval.
- 9.4.2 All documents must be written in English and must comply strictly with the format and submission requirements.
- 9.4.3 All pages of additional text should be in black type, use a single column and 12-point font size on white A4 paper, be printed on one side only and unbound, with

all margins being at least 2 cm on each side. As Proposals are scanned electronically, a highly legible font type must be used, such as Arial, Courier, Palatino, Times New Roman and Helvetica. Variants such as mathematical typesetting languages may also be used. References may be reproduced in 10-point font size. Colour graphs or colour photographs may be included but they will be reproduced in black and white and the reproduction quality may not be optimal. Finely detailed graphics and grey scale may also not be precisely reproduced.

9.4.4 All pages of the Proposal must be numbered consecutively starting from page 1.

10 Selection and approval process

10.1 Selection criteria

10.1.1 All LASP Proposals which meet the eligibility criteria set out in these Funding Rules will be assessed and merit ranked using the following criteria:

- a. the extent to which the Proposal capitalises on the unique capabilities of one or more of the Eligible Organisations;
- b. the extent to which the Proposal assists programs of research undertaken by organisations;
- c. the extent to which the Proposal may be expected to have results of broad benefit for research and scholarship in the natural and applied sciences, technological development and applied technology, the social sciences and/or the humanities;
- d. the merit of the Proposal in relation to its:
 - i. goals and potential outcomes;
 - ii. conceptual framework, design, methods and analyses;
 - iii. budget justification and value for money; and
- e. the potential for the research to contribute to issues of national significance and the relevance of the Proposal to the National Research Priorities.

10.2 Assessment and Selection Process

10.2.1 Assessment of Proposals is undertaken by the ARC, which reserves the right to make recommendations solely on the basis of its expertise and which may:

- a. assign assessors, from the ARC and/or a range of organisations, to review Proposals;
- b. seek comments on assessors' reports from the parties involved in the Proposal;
- c. merit rank each Proposal relative to the others on the basis of the Proposal, any assessors' reports, and/or any response to those assessment reports;
- d. prepare funding recommendations for the Minister as required by the ARC Act.

- 10.2.2 Where an actual or perceived conflict of interest exists or arises in relation to the assessment of a Proposal, the ARC has established procedures for managing the conflict and for enabling individuals to withdraw from the assessment process for particular Proposals.
- 10.2.3 Administering Organisations may provide written notification to the ARC naming any person or persons whom they do not wish to assess a Proposal. The notification must contain detailed justification and be submitted using the “Request not to Assess” form available on the ARC’s Web Site through the Administering Organisation’s Research Office. This notification must not accompany the Proposal. The notification must be received by the ARC by the closing time for submission of Proposals, **5.00 pm (AEST) Friday, 19 September 2008**, and be sent to the postal or courier address at subsection 9.3.1.
- 10.2.4 The ARC will consider the request to exclude any person as an assessor, but may choose not to give effect to such a request.
- 10.2.5 The ARC reserves the right to negotiate amendments to a Proposal if it believes the Proposal or project outcomes will be improved by such changes. An Administering Organisation is not obliged to accept amendments, but the ARC may decline to recommend funding assistance whether or not amendments are made.

11 Exclusion of Proposals

- 11.1 The ARC will not recommend for approval, and the Minister will not approve for funding, any Proposal that fails to satisfy the eligibility criteria set out in these Funding Rules, including:
- a. if the Proposal is not for a program of research or a program that supports the conduct of research of a type specifically referred to in subsections 4.3.1 and 4.3.2;
 - b. if the ARC considers that the application is more appropriately funded from other ARC or Commonwealth Government funding;
 - c. if the ARC considers that the Proposal seeks funding for projects of the type referred to in subsection 6.4.3, or for any of the items listed in subsection 6.4.4, and the ARC considers no other part of the proposed project remains worthy of support;
 - d. if the ARC determines that the proposed project falls within the area of Medical and Dental Research (subsection 6.4.4.a);
 - e. if the Proposal was not submitted by an Eligible Organisation through their Research Office (Section 7.1);
 - f. if the ARC considers that a researcher nominated in the Proposal as a LCI or PI does not meet the eligibility criteria as specified in Sections 8.1, 8.2 or 8.3 for the role which that researcher is to perform; or
 - g. if a Proposal has not been signed by the Chief Executive Officer or similar officer (subsection 9.2.2).
- 11.1.1 The ARC may in its absolute discretion decide not to recommend for approval a

Proposal if:

- a. in the opinion of the ARC, any researcher nominated in the Proposal as a LCI or PI has caused or has significantly contributed to the failure of an organisation to meet its obligations under any current or previous funding agreement with the ARC (subsection 4.1.5);
- b. in the opinion of the ARC, the Proposal duplicates or is likely to duplicate research already being funded, or which is likely to be funded, by the Commonwealth (subsection 4.4.2);
- c. in the opinion of the ARC, any party involved in or associated with the Proposal has failed to disclose any conflict of interest (subsection 4.4.2);
- d. the limits on the number of Proposals submitted are exceeded (subsection 6.5.1);
- e. the ARC considers that the project described in the Proposal is the same as or similar (in whole or in part) to a project described in another Proposal that is submitted in the same funding round (subsection 6.5.2);
- f. the electronic copy of the Proposal is submitted, or the paper copies of the Proposal are received by the ARC, after the closing time (subsection 9.3.1);
- g. the Proposal fails to meet any format or other submission requirements (Section 9.4); or
- h. the ARC considers that incomplete, inaccurate, false, or misleading material has been provided in relation to the Proposal or if the Administering Organisation and/or researchers nominated in the Proposal as a LCI or PI have provided the ARC with incomplete, unsatisfactory, inaccurate, or misleading information in relation to the provision of advice relating to, or in the reporting of progress of, a funded project (subsection 15.5.2).

12 Recommendations

- 12.1 The ARC's recommendations will be submitted in accordance with the ARC Act to the Minister for Innovation, Industry, Science and Research (the Minister) for consideration. The Minister determines which Proposals will be approved and the amount and timing of financial assistance to be paid to Administering Organisations for approved Proposals.
 - 12.1.1 Under the ARC Act, the Minister may not approve for funding any Proposal that fails to meet the eligibility criteria set out in these Funding Rules.

13 Offer of funding

- 13.1 Administering Organisations whose Proposals are approved will be:
 - a. notified in a letter of offer that will indicate the financial assistance to be offered; and
 - b. provided with a copy of a Funding Agreement for signing.

14 Appeals process

- 14.1 Appeals will be considered only against administrative process issues and not, for example, against committee recommendations or assessor ratings and comments.
- 14.1.1 Appeals must be submitted on the appeals form available from the ARC's Web Site. The form must be lodged by the Administering Organisation and must be authorised by the President, Chief Executive Officer or equivalent. Appeals must be received within **28 days** of the date on the letter notifying the outcome of Proposals.
- 14.1.2 Appeals must be addressed to The Appeals Officer and sent to the postal or courier address at subsection 9.3.1.

15 Reports

- 15.1 Administering Organisations are required to submit reports to the ARC concerning funded projects, in the format and by the due dates detailed in the Funding Agreement.

16 Other Matters

16.1 Applicable law

- 16.1.1 The ARC is required to comply with the requirements of the *Privacy Act 1988* and the *Freedom of Information Act 1982*.

16.2 Confidentiality

- 16.2.1 The ARC will treat information contained in a Proposal as confidential. However, the ARC may disclose information contained in a Proposal, or otherwise provided to the ARC, to the extent that the information:
 - a. is disclosed by the ARC to its advisers (including external assessors), officers, employees or other third parties in order to assess, evaluate or verify the accuracy or completeness of a Proposal;
 - b. is disclosed to the ARC's personnel to enable effective management or auditing of LASP or any Funding Agreement;
 - c. is disclosed by the ARC to the Minister;
 - d. is shared by the ARC within the ARC's organisation, or with another Commonwealth Department or agency, where this serves the Commonwealth's legitimate interests;
 - e. is authorised or required by law to be disclosed;
 - f. is disclosed in accordance with any other provision of these Funding Rules or the Funding Agreement; or
 - g. is in the public domain otherwise than due to a breach by the ARC of any obligation of confidence.
- 16.2.2 Where information contained in a Proposal is made available to third parties for evaluation or assessment purposes the ARC will require the third parties to

maintain the confidentiality of the material.

- 16.2.3 Notwithstanding the above, and in addition to the exemptions listed at subsection 16.2.1, the ARC may publicise and report offers or awards of funding, including information about the proposed research; the name of nominated LCIs and/or PIs and their organisations; the name of the Administering Organisation and any other parties involved in or associated with the project; the title and summary descriptions of the project and its intended outcomes (including the national/community benefits that are expected to arise from the research); and the level and nature of financial assistance from the ARC. Administering Organisations should ensure that information contained in the project title and summaries would not, if released, compromise their own requirements for confidentiality (such as future protection of intellectual property).

16.3 Project description

- 16.3.1 In making public information about a Proposal which has been approved for funding, the ARC may use a project description, including title and summary, which may differ from that provided in the Proposal.

16.4 Intellectual property

- 16.4.1 The ARC does not claim ownership of any intellectual property in a Proposal or which is created or developed from the conduct of a project funded under LASP.

- 16.4.2 However, all Proposals become the property of the ARC on submission. Administering Organisations submit their Proposals on the basis that the ARC may copy, modify and otherwise deal with information contained in a Proposal (and allow any external assessor or other third party to do the same) for any purpose related to:

- a. the evaluation and assessment of Proposals;
- b. verifying the accuracy, consistency and adequacy of information contained in a Proposal, or otherwise provided to the ARC;
- c. the preparation and management of any Funding Agreement; or
- d. the administration or management of the NCGP.

- 16.4.3 If a Proposal contains information belonging to a third party, the Administering Organisation must ensure, prior to the Administering Organisation's submitting its Proposal, that it has in place all necessary consents to allow the ARC to deal with that information in accordance with these Funding Rules,

- 16.4.4 Except with written approval from the ARC, all Proposals and ARC-funded research projects must comply with the *National Principles of Intellectual Property Management for Publicly Funded Research* (available on the ARC's Web Site) and accord with any intellectual property policies of the researchers' organisations.

16.5 Incomplete or misleading information

- 16.5.1 It is a serious offence to provide false or misleading information to the Commonwealth.

- 16.5.2 If the ARC considers that a Proposal is incomplete, inaccurate or contains false or misleading information, the ARC may in its absolute discretion decide to not

recommend the Proposal for approval. If an Administering Organisation and/or researcher nominated in a Proposal as a LCI or PI has provided the ARC with incomplete, unsatisfactory, inaccurate or misleading information in relation to any Proposal, or in the provision of advice relating to, or reporting of progress of, a project funded by the Commonwealth, the ARC may in its absolute discretion decide to not recommend the Proposal for approval and/or terminate projects involving that organisation/person if funded and require the Administering Organisation to repay some or all of the funding.

16.5.3 If the ARC considers that omissions, or inclusion of misleading information, are intentional, or if there is evidence of misconduct, the ARC may refer the matter for investigation with a view to prosecution under Commonwealth criminal law.

16.5.4 Examples of misleading information and misconduct include, but are not restricted to:

- a. providing fictitious track records; or
- b. making false claims in publications records (eg describing a paper as accepted for publication when it has only been submitted); or
- c. failing to disclose to the ARC the existence, and nature, of actual or potential conflicts of interest of any of the parties involved in the Proposal/project (eg any affiliations or financial interest in any organisation that has a direct interest in the matter or outputs of the project).

16.6 Insurance and liabilities

16.6.1 Administering Organisations are subject to the liability, indemnity and insurance provisions of the Funding Agreement.

Appendix 1: Eligible Organisations

Academy of the Social Sciences in Australia

Australian Academy of the Humanities

Australian Academy of Science

Australian Academy of Technological Sciences and Engineering

National Academies Forum

Appendix 2: Administration of funding

1. Funding Agreement

- 1.1 All parties involved in a Proposal should familiarise themselves with the draft Funding Agreement, but only the Administering Organisation and the ARC will be parties to the Funding Agreement. Parties involved in a funded project must accept the terms of the Funding Agreement and the Administering Organisation must sign the Funding Agreement before the ARC will commence payments.
- 1.2 Projects must commence as required by the Funding Agreement. Failure to do so may result in termination of the Funding Agreement.
- 1.3 Administering Organisations should note that the Funding Agreement covers post-award management, including reporting requirements and financial management. The draft Funding Agreement can be viewed on the ARC's Web Site.

2. Varying the Funding Agreement

- 2.1 Requests to vary the Funding Agreement must be forwarded in writing by the Administering Organisation's Research Office to the ARC. Forms are available on the ARC's Web Site. Amendment of any clauses of the draft Funding Agreement will be at the ARC's absolute discretion.

3. Varying the Funding Approval

- 3.1 Requests to vary the funding approval must be forwarded in writing by the Administering Organisation's Research Office to the ARC.
- 3.2 The Funding Approval may be varied by varying the amount of financial assistance, the period of financial assistance, the name of the person leading the research project and/or the name of the organisation receiving financial assistance.
- 3.3 The Minister may vary the funding approval if:
 - a. any of the organisations involved in the project end, or substantially change, their involvement with the project;
 - b. the research project changes so that it is no longer consistent with the description in the funding approval as previously approved or as otherwise varied;
 - c. the desirable period of funding for a project is not consistent with the period in the funding approval as previously approved or as otherwise varied;
 - d. the person nominated in the funding approval as the person leading the research project, or any such replacement person approved by the Minister, ceases to lead the project; and/or
 - e. the ARC considers and recommends that the particular circumstances of the project warrant variation of the funding approval, providing such variation is reasonably justified upon the facts of the case and any variation or change to the project accords with the *Linkage Learned Academies Special Projects* objectives.

4. Reporting Research Outputs

- 4.1 If a LASP researcher is not intending to deposit the data arising from a research project in a subject and/or institutional repository within a six-month period, he/she should include the reasons in the project's Final Report. Any research outputs that have been or will be deposited in appropriate repositories should be identified in the Final Report.

Appendix 3: Descriptions of National Research Priorities and Priority Goals

Research Priority 1: An Environmentally Sustainable Australia

Transforming the way we utilise our land, water, mineral and energy resources through a better understanding of human and environmental systems and the use of new technologies

Natural resources have traditionally fuelled our national and regional economies. They have the potential to generate further wealth and employment opportunities in the future. But our natural resources and biodiversity must be used on a sustainable basis so that the benefits continue to be enjoyed by future generations.

Australia faces significant environmental challenges:

- Efficient and sustainable water use is a critically important issue for our economic and social development;
- Significant land degradation issues, such as salinity, need to be arrested to underpin our agricultural production systems;
- Climate change can be expected to have complex, long-term consequences for the environment, for our agricultural and marine production systems and for communities; and
- The cleanliness and efficiency of our energy production systems should be enhanced.

There is substantial effort underway to develop more efficient water utilisation practices, to protect our rivers and groundwater resources, and to protect and remediate our fragile soils.

Our agricultural and mining industries are being transformed through the adoption of new technologies, and the development of new types of foods.

This will help to revitalise our regional communities and generate substantial export earnings for the nation over the coming decades.

The Government is committed to meeting the greenhouse gas emissions target set for Australia at Kyoto.

Australia is well placed to take an international lead in developing new and improved energy technologies and in capturing and ‘sequestering’ carbon dioxide.

Other opportunities lie in managing and using our unique, rich land- and marine-based biodiversity, and in developing our deep earth resources.

Australia has a strong record of achievement in research in fields in the natural sciences, such as agriculture, natural resource management, climate change, horticulture, forestry, mining, energy, and marine sciences, as well as in the social sciences and humanities.

We must build on these strengths to improve our competitive advantages while enhancing our understanding of natural systems and the interplay of human activities.

In particular, there needs to be an increased understanding of the contributions of human behaviour to environmental and climate change, and on appropriate adaptive responses and strategies.

To understand and manage these complex interactions better will require significant collaboration within the research community and with other stakeholders.

Priority goals for research fall in the seven areas of water utilisation, transforming resource-based industries, overcoming land degradation, developing cleaner, more efficient fuels and energy sources, managing biodiversity, deep earth resources and responding to climate change and variability.

Priority Goals

- **Water – a critical resource**

Sustainable ways of improving water productivity, using less water in agriculture and other industries, providing increased protection of rivers and groundwater and the re-use of urban and industrial waste waters.

Australia is one of the driest continents and is dependent upon access to freshwater supplies for economic and social development. It has a complex geological structure, a highly variable climate, unique ecosystems, flora and fauna and a distinctive indigenous and settler history. Enhancing our understanding of the links between these factors and water availability will result in a better understanding of sustainable water management practices.

- **Transforming existing industries**

New technologies for resource-based industries to deliver substantial increases in national wealth while minimising environmental impacts on land and sea.

Resource-based industries underpin much of Australia's prosperity and have the potential to do so in the future. For example, Australia remains highly prospective for minerals discoveries and highly attractive for the development of new era foods from agricultural and marine sources. Our competitive advantage and national well being will depend on research and on the development and adoption of new technologies.

- **Overcoming soil loss, salinity and acidity**

Identifying causes and solutions to land degradation using a multidisciplinary approach to restore land surfaces.

The Australian landscape is fragile: soil salinity, acidity, and nutrient levels pose significant, long term challenges for agriculture and the environment. Research is helping to find solutions to these problems. For example, the National Land and Water Resources Audit shows the extent of salinity, soil erosion and soil acidification in the Australian environment and illustrates Australia's leading edge in national mapping of critical resource data. Further multidisciplinary effort is required to develop sustainable land management practices that are appropriate for Australian conditions and mitigate major land degradation processes and increase biodiversity.

- **Reducing and capturing emissions in transport and energy generation**

Alternative transport technologies and clean combustion and efficient new power generation systems and capture and sequestration of carbon dioxide.

Australia is well positioned to produce world class solutions to reduce and capture greenhouse gas emissions and the Government is committed to meeting the emissions target set for Australia at Kyoto. We are also well placed to develop alternative energy technologies and ecologically sustainable transport and power generation systems.

- **Sustainable use of Australia’s biodiversity**

Managing and protecting Australia’s terrestrial and marine biodiversity both for its own value and to develop long term use of ecosystem goods and services ranging from fisheries to ecotourism.

Australia has a unique and rich flora and fauna. Many of our complex ecosystems – on which our agricultural, fisheries and tourism industries depend - have adapted to events such as drought and fire, and have been shaped by indigenous and settler management practices. There is a need for a more comprehensive understanding of these natural systems and the interplay with human activities, and the effects of management and protection measures.

- **Developing deep earth resources**

Smart high-technology exploration methodologies, including imaging and mapping the deep earth and ocean floors, and novel efficient ways of commodity extraction and processing (examples include minerals, oil and gas) while minimising negative ecological and social impacts.

Many of Australia’s known mineral assets may be nearly exhausted within the next decade. New land-based deposits are believed to be buried deeper in the crust and the deep marine areas surrounding Australia are also largely unexplored. New technologies, such as remote sensing, indicate scientists are on the brink of being able to ‘see’ inside the earth and identify deeply buried deposits.

- **Responding to climate change and variability**

Increasing our understanding of the impact of climate change and variability at the regional level across Australia, and addressing the consequences of these factors on the environment and on communities.

Australia already has a highly variable climate, and climate change can be expected to have further significant impacts. It is important to enhance our understanding of the consequences of climate change and variability at the regional level across Australia, and the implications for the environment and for communities. It is also important to explore beneficial adaptation strategies to climate change and variability to ensure ongoing social, economic and environmental well being.

Research Priority 2: Promoting and Maintaining Good Health

Promoting good health and well being for all Australians

Average life expectancies have increased markedly in recent decades. Australians also expect to lead longer and healthier lives in the future, and to remain productive and independent over an extended period.

Enabling individuals and families to make choices that lead to healthy, productive and fulfilling lives will yield economic and social benefits and add materially to national well being.

Australians expect that their children and grandchildren should have a healthy start to life.

Developing strategies to promote the healthy development of young Australians, and addressing the causes and reducing the impact of the genetic, social and environmental factors which diminish their life potential will be critical.

A revolution is also underway at the other end of the life cycle. Australia, like many other developed nations, is undergoing a major demographic shift involving significant growth in the aged population.

To meet this challenge, it will be important to promote healthy ageing by developing better social and medical strategies to ensure that older Australians enjoy healthy and productive lives.

Informed insights into the causes of disease and of mental and physical degeneration will contribute to the achievement of this goal.

All Australians stand to benefit from preventive healthcare through the adoption of healthier attitudes, habits and lifestyles.

Evidence-based preventive interventions may help reduce the incidence and severity of many diseases, including major health problems such as cardiovascular and neurodegenerative diseases, mental ill-health, obesity, diabetes, asthma and chronic inflammatory conditions. These could include interventions that reduce exposure to contamination of the physical environment (eg air pollution).

Improvements in the health and well being of the young, of older Australians and in preventive healthcare will be underpinned by research.

However, while Australia has an enviable record in health and medical research, the research effort is spread across the many universities, hospitals and health and medical research institutes, resulting in critical mass only in limited areas of research.

There is also a need to draw on multidisciplinary approaches that include research contributions from the social sciences and humanities.

This priority is designed to promote health and prevent disease through a more focused and collaborative effort.

Priority goals for research fall in the four areas of a healthy start to life, ageing well, ageing productively, preventive healthcare and strengthening Australia's social and economic fabric.

Priority Goals

- **A healthy start to life**

Counteracting the impact of genetic, social and environmental factors which predispose infants and children to ill health and reduce their well being and life potential.

Human health in the developing foetus and in early childhood is critical to the future well being of the adult. Research shows that health and well being in early childhood is predictive of later positive outcomes, and that health in middle and late childhood is also crucial. This goal supports the Government's National Agenda for Early Childhood initiative.

- **Ageing well, ageing productively**

Developing better social, medical and population health strategies to improve the mental and physical capacities of ageing people.

Australia's population is ageing, with a significant projected increase in the number of people aged over 65 and over 85. While Australia is relatively well placed compared with many OECD nations, major shifts in cultural expectations and attitudes about

ageing are necessary to respond constructively, at both an individual and population level. A healthy aged population will contribute actively to the life of the nation through participation in the labour market or through voluntary work. This goal supports the Government's National Strategy for an Ageing Australia.

- **Preventive healthcare**

New ethical, evidence-based strategies to promote health and prevent disease through the adoption of healthier lifestyles and diet, and the development of health-promoting products.

Preventive healthcare research will improve the prediction and prevention of disease and injury for all Australians through the adoption of healthier behaviours, lifestyles and environments. Research will generate an improvement in the design, delivery and uptake of programmes such as exercise-based rehabilitation. There are several major disease targets amenable to immediate study, such as cardiovascular health, neurodegenerative diseases, mental ill-health, obesity, diabetes, asthma and chronic inflammatory conditions. Research on prevention will emphasise interdisciplinary approaches, including research on ethics, drawing on contributions from the social sciences and humanities, as well as from the health and medical sciences. It will also focus on developing new health promoting foods and nutraceuticals. This goal supports the Government's Focus on Prevention initiative.

- **Strengthening Australia's social and economic fabric**

Understanding and strengthening key elements of Australia's social and economic fabric to help families and individuals live healthy, productive, and fulfilling lives.

Living in today's society involves a complex web of choices, yet many of the traditional support structures are weaker than they have been in the past. Enabling people to make choices that lead to positive pathways to self reliance and supportive family structures is more important than ever. The interactions between the social safety net, social and economic participation, financial incentives and community and private sources of support are critical in helping people maximise their potential and achieve good, healthy, lifetime outcomes. In the decade ahead, it will be vital to understand and support the drivers for workforce participation and the broader social and economic trends influencing Australian families and communities. This goal supports the Government's welfare reform and participation agendas. Research in this area will emphasise interdisciplinary approaches, drawing on contributions from the economic, behavioural and social sciences

Research Priority 3: Frontier Technologies for Building and Transforming Australian Industries

Stimulating the growth of world-class Australian industries using innovative technologies developed from cutting-edge research

Progress and wealth often derive from the unforeseen application of new discoveries. Australia must be at the leading edge if it is to stay abreast of international developments and take advantage of opportunities.

Our national capabilities in emerging sciences and their underpinning disciplines determine our capacity to develop and implement new technologies. Australia has a strong base of expertise, skills and technological capacities in the fundamental sciences and key technologies.

Our strengths are in a wide range of areas such as biotechnology, material sciences, information and communications technology (ICT), photonics, nanotechnology and sensor technology.

ICT is currently the critical enabling technology and is a major contributor to national productivity and growth.

But breakthrough science underpins technological advancements in many areas and Australia needs to foster an environment that stimulates creativity and innovation.

Applications for frontier technologies are potentially very large. Australia has the capacity to exploit niche markets for new products and services.

Australia also has an enviable track record as an innovator and developer of advanced materials and must grasp the opportunity to stay ahead.

Smart information use involving improved data management, intelligent transport systems and digital media to develop creative applications for digital technologies provides huge opportunities to improve the performance of key Australian industries.

Australia needs to invest in this research area as it is fundamental to our future competitiveness and well being.

This priority will help to strengthen the capacity of Australian researchers to participate in new areas of research, enhance Australia's international scientific reputation, stimulate local expertise, and help create vibrant new industries.

A better understanding of the conditions that are conducive to innovation will ensure that Australia's investment in research will maximise the benefits for Australia.

Enhanced research effort will also be achieved through initiatives that develop a critical mass of researchers in key areas.

Priority goals for research fall in the five areas of breakthrough science, frontier technologies, advanced materials, smart information use, and promoting an innovation culture and economy.

Priority Goals

- **Breakthrough science**

Better understanding of the fundamental processes that will advance knowledge and facilitate the development of technological innovations.

Breakthrough science underpins technological innovation across a range of industries critical to maintaining Australia's position as a developed country. Some examples include bio-, cultural- and geo-informatics, nano-assembly and quantum computing. Technological advances are often unexpected and a strong foundation in mathematics and the fundamental sciences will provide an environment that fosters creativity and innovation. Early participation in leading edge areas of research will enable Australian researchers to benefit more fully from international developments.

- **Frontier technologies**

Enhanced capacity in frontier technologies to power world-class industries of the future and build on Australia's strengths in research and innovation (examples include nanotechnology, biotechnology, ICT, photonics, genomics/phenomics, and complex systems).

The potential applications of frontier technologies across a range of industries in Australia are vast. Australia has significant capacity to exploit niche markets for new products and services emerging from frontier technologies. Australia has world-class research expertise in many such areas. Some examples include nanotechnology, biotechnology, ICT, photonics, genomics and phenomics. Also important are advanced frameworks such as complex systems in which these technologies are applied. Future directions in this priority area need to target the cutting-edge science critical for each emerging technology.

- **Advanced materials**

Advanced materials for applications in construction, communications, transport, agriculture and medicine (examples include ceramics, organics, biomaterials, smart material and fabrics, composites, polymers and light metals).

The development of advanced materials will underpin growth in many areas of industrial and economic activity in Australia. Australia has substantial infrastructure in this area and an enviable track record as an innovator and developer of advanced materials. The era of advanced materials is just beginning, in spite of the tremendous progress in recent years. Substantial scientific and technological challenges remain ahead, including the development of more sophisticated and specialised materials. Some examples include ceramics, organics, biomaterials, smart materials and fabrics, composites, polymers, and light metals.

- **Smart information use**

Improved data management for existing and new business applications and creative applications for digital technologies (examples include e-finance, interactive systems, multi-platform media, creative industries, digital media creative design, content generation and imaging).

ICT applications are providing huge opportunities to deliver new systems, products, business solutions, and to make more efficient use of infrastructure. Examples include e-finance, multi-media, content generation and imaging. Improved data management is central to the future competitiveness of key industries such as agriculture, biotechnology, finance, banking, education, transport, government, and health and ‘infotainment’. The ability of organisations to operate virtually and collaborate across huge distances in Australia and internationally hinges on our capabilities in this area. The media and creative industries are among the fastest growing sectors of the new economy. Research is needed to exploit the huge potential in the digital media industry.

- **Promoting an innovation culture and economy**

Maximising Australia’s creative and technological capability by understanding the factors conducive to innovation and its acceptance.

Understanding the factors that lead to highly creative and innovative ideas and concepts, and the conditions that lead to their introduction, transfer and uptake is critical for any nation that aspires to lead the world in breakthrough science, frontier technologies, and in other forms of innovation. Promoting an innovation culture and economy requires research with a focus on developing and fostering human talent, societal and cultural values favourable to creativity and innovation, and structures and processes for encouraging and managing innovation.

Research Priority 4: Safeguarding Australia

Safeguarding Australia from terrorism, crime, invasive diseases and pests, strengthening our understanding of Australia's place in the region and the world, and securing our infrastructure, particularly with respect to our digital systems.

The importance of security and safety to Australia has been underscored by recent events.

Australia has to be capable of anticipating and tackling critical threats to society, strategic areas of the national economy and the environment.

The threats can potentially come from within and outside Australia.

The world is now characterised by the widespread and rapid movements of people, digitally coded data, goods and services, and exotic biological agents.

Critical infrastructure in Australia is increasingly dependent on digital technology for its management and integration.

Information protection and the integrity of security systems are now more important than ever before.

It is also necessary to protect the status of Australia as a nation free of many of the diseases affecting primary production around the world.

Terrorism has emerged as a very real global threat and crime is taking a significant toll on Australian society and economy.

Maintaining the operational advantage of Australia's defence forces through superior capabilities is also fundamental to our national security.

Enhancing our nation's understanding of social, political and cultural issues will help Australia to engage with our neighbours and the wider global community and to respond to emerging issues.

Leading edge research in Australia is already yielding high dividends and as a national research priority will improve the effectiveness of that contribution.

Stronger research capabilities will ensure that solutions are tailored to Australia's unique circumstances, reflecting its geographic features and small population.

Greater collaboration within the research community and with other stakeholders will allow us to better understand and manage potential threats to Australia.

Harnessing the knowledge and capabilities across Australia offers us the best chance of developing innovative and rapid solutions to serious threats.

Australia's international relations and its regional influence will be strengthened through new collaborative approaches and new science and technologies that enhance security and safety.

The heightened interest in personal and electronic security across the world also provides opportunities for Australian solutions.

Priority goals for research fall in the five areas of critical infrastructure, understanding our region and the world, protecting Australia from invasive diseases and pests, protecting Australia from terrorism and crime, and transformational defence technologies.

Priority goals

- **Critical infrastructure**

Protecting Australia's critical infrastructure including our financial, energy, communications, and transport systems.

Protecting our critical infrastructure is important to national security and to the social and economic well being of Australia. An important aspect of this priority goal is e-security which is an enabler of e-commerce. Maintaining a critical mass of research in e-security will be essential in providing Australia with the tools to protect our way of life.

- **Understanding our region and the world**

Enhancing Australia's capacity to interpret and engage with its regional and global environment through a greater understanding of languages, societies, politics and cultures.

Social, cultural and religious issues are of growing significance due to the insecurities of globalisation and the increasing role of non-state players in the security environment. Australia's capacity to interpret and engage with its regional and global environment will be substantially improved by enhancing its research base in apposite languages, societies and cultures. An approach that enhances Australia's capacity to interpret itself to the rest of the world is also needed.

- **Protecting Australia from invasive diseases and pests**

Counteract the impact of invasive species through the application of new technologies and by integrating approaches across agencies and jurisdictions.

Australia is free of many of the pests and diseases affecting primary production around the world. This status needs to be protected as the introduction of exotic species has the potential to adversely affect our exports and the environment. Australia already has strong skills and expertise in this area of research and further work will offer immediate benefits to the community. A greater level of coordination of our research effort will mean that Australia can more effectively develop innovative and rapid solutions to serious threats.

- **Protecting Australia from terrorism and crime**

By promoting a healthy and diverse research and development system that anticipates threats and supports core competencies in modern and rapid identification techniques.

Protecting Australia from terrorism is now more important than ever before in light of recent events and our involvement in the 'war on terror'. The new threat requires a more sophisticated response which should harness Australia's research capabilities, and which will focus on all phases of counter-terrorism; prevention, preparedness, detection, response and recovery. Crime takes a significant toll on Australian society and economy. The June 2000 report from the Prime Minister's Science, Engineering and Innovation Council estimated that crime costs Australia at least \$18 billion per annum. Personal identification, information protection and the integrity of security systems are fundamental towards ensuring the national security of Australia. An effective solution will include building on Australia's existing strengths in rapid detection using new analytical technologies and managing significant data collections.

- **Transformational defence technologies**

Transform military operations for the defence of Australia by providing superior technologies, better information and improved ways of operation.

Australia has a small defence force to protect a large continent and a substantial maritime region of responsibility. Its operational advantage has been maintained through a superior capability which is dependent on leveraging innovative technologies. Although some benefits can be gained from overseas research, Australia has to conduct its own research to address uniquely Australian demands. A systems approach which harnesses the research capabilities of all stakeholders is essential to the successful development and introduction of innovative technologies.