Research Office
12 December 2022

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA
CREATE CHANGE

National Interest Test Writing Guide – Version 4

For grant rounds commencing after 1 December 2022

Contents

Introduction

The Australian Research Council (ARC) National Interest Test Statement (NIT) is a requirement of all ARC applications under the National Competitive Grant Program (NCGP). The NIT should demonstrate, in plain English, the societal benefits (social, commercial, economic, environmental, cultural) of the proposed research **beyond the benefits to academia**. A good NIT is a simple, cohesive statement that communicates to the general public how the proposed project is of value to Australia.

Additionally, the statements provide an opportunity for applicants to promote the value of their research to the broader community.

NIT Assessment

On 1 December 2022 the ARC announced key changes to the NIT and how it will be assessed. These changes only apply to ARC funding rounds that have opened after 1 December 2022.

The NIT is provided to assessors as part of the application, and it will be considered as an input into the assessment criterion of Benefit which is worth 15%.

The NIT Statement will be provided to the Minister who makes the final decision on grant funding.

There will be no chance to revise your NIT following submission of your application.

For the most up to date guidance about the NIT please refer to the ARC website: https://www.arc.gov.au/funding-research/national-interest-test-statement/how-do-i-write-national-interest-test-statement

General Principles

The ARC requests that NITs should be addressed to the general public in an accessible style “suitable for publication in popular publications and media”.

As such, we would recommend:

- Using clear, direct language.
- Keep sentences short with a single point.
- Avoid technical terms, scientific terms unknown to the general public, or even unusual/uncommon words (e.g., molecule is OK, but polymer might need to be defined in context)
- Don’t overstate the outcomes of the project – be realistic about what a project will achieve
- Make it interesting – why should the reader care about your project?

If possible, you should run your NIT past friends from non-research backgrounds for their opinions ***– do they have a big picture of understanding of what you are doing and how it will benefit Australia?***

Structure

The NIT can be a maximum of 1500 characters inclusive of spaces (~200 words).

The NIT must address the following questions:

- 1. What is the project about and what research gap is it addressing for Australia?
- 2. How could the research benefit Australians (economically, socially, environmentally, commercially, or culturally)?
- 3. How might you promote your research outcomes beyond academia to maximise understanding, translation, use, and adoption of the research in the future?

All of these questions must be addressed concisely in a cohesive statement; however, they do not need to be answered in this order.

Our advice is that your NIT should form a coherent progression where you have:

- provided an overview or context to the project,
- set out the problem the project aims to solve,
- established potential outcomes,
- and linked those outcomes to the national interest.

The Statement

1. What is the project about and what research gap is it addressing for Australia?

These questions should be answered in the opening section of your NIT. Keep a big picture approach – you should have enough detail that the reader knows what you are working on and what you will achieve, but don't go into complex detail about HOW you will do it.

If your project directly addresses a government target or priority (e.g. Aging, Closing the Gap, Climate Change, Smoking, etc), you can start with articulating the priority. After doing so however, you should continue to define the specific problem and how you will address it, do not skip straight to the impact of the project.

Consider the following structure:

a) give an overview for the lay person of what is interesting/relevant about this area of research,

b) describe what specific problem the project is addressing

c) describe what solving the problem will do/look like (outcome)

A good opening sentence will capture the reader's attention and motivate them to read further. For example:

- Urgent action is needed for X…
- The field of X is undergoing a revolution…
- In the last X years, Australia has spent $Y on Z…
- X underpins Australia's Y industry…
- Recently, the importance of X on Australia has been made clear by….
- According to Australia's X roadmap, Y is vital…
- X Australians are impacted by Y each year…
- The Australian Government has announced a priority of X

The next sentences should establish the specific problem and your intended solution. For example:

- However, little is understood about this field/area. Our project will elucidate this through…
- Yet, there is a major bottleneck in… We will address this through…
- The current approach is expensive/time consuming because... Therefore, we intend to use X approach for the first time…
- Our project aims to transform this through producing X/establishing Y…

Examples:
The life of an organism relies on the timely birth and death of its cells. It is also crucial for cells to die in an appropriate manner, so that they prevent or ignite immune responses. However, currently little is understood about precisely how cell death can spark immune responses.

OR
Australia's rapidly growing robotics industry produces robots for healthcare, hospitality, education, and the home, and are now far more prevalent than just a few years ago. Yet, the development of these "social" robots has not fully considered the psychology of human-robot interaction. Thus, many potential users reject or are openly hostile to robots in their everyday lives because they view them as threatening to humans.

2. How could the research benefit Australians (economically, socially, environmentally, commercially, or culturally)?

The goal here is to connect your outcomes with the benefits to Australia. HOW will solving the problem you have described in the opening help Australia, or what will its impact be on the average Australian? (*Note this is not the same as how you will solve the problem*).

These should be tangible benefits, and where possible you should provide specific examples e.g., "This project will offer government agencies and river basin authorities a tool for designing, implementing, monitoring, and evaluating stakeholder engagement in river basin governance…", rather than "outcomes for our project will generate economic benefits"

Medical or health benefits, when explicitly positioned in the future and outside of the scope of the proposal can be included here e.g. *Such fundamental knowledge of how cell death instructs immunity may be harnessed in future assay design and drug development program to generate new commercial products, such as research tools, diagnostics, and immune-modulatory drugs.*

Reminder that the ARC knows that there will be academic benefits from your project and has specifically asked that the NIT statement reaches beyond these. As such, we recommend against using benefits like increased intellectual capacity etc.

Examples:

This project lays the scientific foundations to develop a novel, commercial biotechnology to recover nitrogen from wastewater to generate environmentally friendly fertiliser for agricultural use. This work will support the Australian water and agricultural industries in achieving more sustainable management of soil and water, and positions Australia as a leader in circular economy innovation.

OR

This new technology with low cost and high solar-to-electricity efficiency will have strong commercial potential in the burgeoning stationary energy storage market and help reduce electricity costs and propel the Australian government's investment in clean energy.

3. How might you promote your research outcomes beyond academia to maximise understanding, translation, use, and adoption of the research in the future?

The ARC is looking for evidence of translation/adoption. Not all projects will have clear short-term translation or adoption pathways. In these cases, you should be able to make a link between the problem you are solving and the future impact on Australia. Researchers are not expected to provide a timeline for the translation or adoption of their research. Rather, the statement should describe in general terms, how this project could be adopted, translated, or commercialised. Who will you share your research with to ensure it has the benefits you listed under question 2, and how will you share it with them? Consider the following:

- Is there a path to commercialisation? Explain the steps towards this. It doesn't matter if commercialisation is many steps into the future: they want to see that you have considered the options and have processes in place for when this becomes a possibility.
- Are you looking for uptake in the relevant sector? Describe how you will promote the technology/process/knowledge to those who can apply it in real world situations. You could mention contacts you already have in the sector, or existing pathways of which you could take advantage. Dissemination via industry publications or practitioner conferences could also be mentioned.
- Are you looking to impact a certain policy? Explain the steps toward this.

If your project is fundamental or blue-sky research, it is acceptable to discuss the pathway to potential applications of the knowledge in the future.

Examples:

The findings can also be integrated into education to improve learning outcomes to create social benefit by investing in a smarter workforce.

OR

Sustainable industrial and economic growth requires new separation technologies that are energy- and resource-efficient. Advances will be rapidly deployed through existing industrial collaborations and licensing of emerging technologies, ensuring rapid uptake of new technologies.

OR

The findings and guidelines will be shared in industry publications, Management and HR practitioner conferences, and a project website for wide dissemination.

Common Pitfalls

Common pitfalls in articulating national interest include:

- Focusing on benefits to academia
- Making sweeping remarks about broad benefits that do not appear directly related to the project
- Using language that is not clear to the general public (an average person with no background in the field)
- Not including a clear path to translation (how and/or with who you will share you research to potentially enable its adoption.)
- Not including practical examples of benefits/applications

The ARC has provided some extracts from NITs that do not meet ARC requirements:

- This project will generate significant new academic knowledge. Results will be published in high quality journals and other academic outputs, leading to good research citations. Innovative methods from the project will be disseminated to other Australian researchers in the discipline. The CI will ensure that any value of the project is identified and commercially exploited for the partner organisation. The project will generate a good quality academic workforce.
- Project findings will enhance Australia's reputation for scientific research. The research will generate knowledge to develop commercial products that will have major economic benefit for Australia, and generate important intellectual property for academics. It will lead to further research endeavours that will generate significant benefits to the Australian community.

- The project will harness Australia's strong research capacity in the relatively new field of engineering. The outcomes – the scientific foundation for new generation of materials – are expected to give our partner, a significant market edge in the expanding global market for high-tech solutions.
- The emerging team-members will receive intensive industry–university cross-training in a unique combination of disciplines, providing valuable skillsets for Australia's hi-tech sector, universities, and government.
- Results will be published in high quality journals, discussed at national conferences, and presented at our annual research retreat.
- Novel findings will be considered for patenting or licensing and through the CI's network will generate a commercial value.
- As a team, we are experienced in research and the creation of new knowledge. Our track records demonstrate the potential for success in this project and the economic value to Australia.

Some examples of comments/questions the ARC have provided on NITs:

- Consider the intended audience - an average person with no background in this field
- Describe how the project will benefit Australia
- Clarify the project, the pathway to adoption and how it will benefit Australia
- Include an example of the potential application
- Consider using examples to help describe the problem you are seeking to address and examples of the benefits
- Consider using practical examples to demonstrate how the project might be of benefit to a member of the public or the community.
- Consider how and/or with who you will share you research to potentially enable its adoption.

The complete statement

Below we have included some specific examples from the ARC. These may be updated from time to time, so we recommend checking the ARC website: https://www.arc.gov.au/national-interest-test-statements

We also suggest reviewing successful NITs from previous rounds. Please only review newly awarded grants (i.e. from DE23, FT22, FL22, DP22 onwards) as the guidance was different prior to these rounds.

Example 1:

Australia is a major agricultural producer, with >300,000 jobs directly in agriculture and 1.3 million additional jobs in the associated supply chain. This sector represents 3% of our GDP and a gross value of $60 billion. This project aims to develop new molecules to protect our crops from pests and thus safeguard our agricultural industry. In the first instance we focus on one of the most destructive pests in the world, the Fall armyworm, which reached Australia in 2020 and is rapidly spreading. The class of molecules we are developing are more specific for killing target pests and safer for the environment than traditional crop protection chemicals. Thus, in addition to benefits to the Australian economy through the protection of our agricultural industry there will be benefits to our environment. The environment is an important source of revenue for Australia, with the tourism industry worth 3% of GDP and is also important for our well-being and way of life. We have an Australian industry partner ready to translate our research findings into products. (Prof David Craik, DP230100590)

Example 2:

Urgent action is needed for understanding cancer growth and infections. However, an essential part of our immune surveillance and defence, the enigmatic process by which cells 'drink and eat' by 'gulping' fluid, is only partially understood. While this process is essential to life, it also provides nutrition for the rapid growth of cancer cells, and is a path for infectious bacteria and viruses to enter cells. Our project will measure the mechanics of this cellular-level interaction using super-resolution microscopes and optical tweezers, a device that can manipulate a single molecule. This research generates new knowledge of these processes to better understand how mechanics affects cellular life. The research will benefit Australia economically and socially, by providing new knowledge on the interaction between cells and fluids, and as a result will provide better approaches to the understanding of immune system functions. This research is essential for the development of new tools for the diagnosis and treatment of infections that affect large numbers of people. (Prof Halina Rubinsztein-Dunlop, DP230100675)

Example 3:

Many problems faced by Australia involve the accurate monitoring of data and effective decision-making using data. For example, estimating traffic volume for city planning; business analytic predictions of prices and inventory quantities; economic estimation of interest rates, and inflation; and climate predictions and forecasting. However, often datasets for these activities are too large for conventional methods of analysis. This project aims to develop new frameworks for constructing algorithms that allow for rapid, accurate, and robust inference of large, complex datasets. Such tools will support practitioners such as logisticians, business analysts, economists, and meteorologists to make fast decisions with greater confidence. The algorithms developed will be universal and can be applied in many data analytic settings, from monitoring of bushfire spreads via spatial imaging to monitoring and forecasting electricity loads. Our algorithms will be developed so that they can be distributed widely throughout Australia via convenient and adaptable software in open-source repositories for plug-and-play usage. (Dr Hien Nguyen, DP230100905)

Example 4:

Spin-crossover (SCO) molecules can be switched between magnetic and non-magnetic states by temperature, pressure, chemical environment, or irradiation by light. Building on two recent breakthroughs in modelling SCO materials, this project will design and make new smart materials that can detect and react to their environment. This will enable new chemical sensors and more efficient gas separations. Chemical sensors have applications from monitoring air quality to detecting explosives at airports. Gas separation is vital to Australian industry. Uses include purifying natural gas; separating oxygen from air for medical use; carbon capture and storage; and producing hydrogen for use as a carbon-neutral fuel. Current separation processes are inefficient, consuming 15% of the world's total energy production. Sustainable industrial and economic growth requires new separation technologies that are energy- and resource-efficient. Advances will be rapidly deployed through existing industrial collaborations and licensing of emerging technologies, ensuring rapid uptake of new technologies. (Prof Benjamin Powell, DP230100139)

We would also like to thank the following DP23 awardees for permission to include extracts from their NIT Statements:

Professor Paul Dux
Assoc Professor Martin Edwards
Assoc Professor Jianhua Guo
Dr Bin Luo
Professor Kate Schroder
Assoc Professor Eric Vanman

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

Contact details

Research Office
ARCfellowships@research.uq.edu.au
ARC-discovery@research.uq.edu.au

CRICOS Provider Number 00025B