

National Reconstruction Fund consultation

3 February 2023

The Australian Technology Network of Universities (ATN) welcomes the opportunity to provide a submission to the Department of Industry, Science and Resources on the National Reconstruction Fund (NRF).

Universities are at the centre of research, innovation, translation and commercialisation and the contributions they can make to securing Australia's future industries - especially in renewable energy, resources, space and critical minerals.

The main aim of the NRF should be to further the economic and social progress of Australia by developing our research, industrial and skills capacity in partnership with universities. The focus should be on supporting projects which will need, and create, industries with a highly skilled workforce with opportunities for progression, reskilling and upskilling.

The NRF can form a vital part of the research ecosystem and stimulate investment in all stages of research and development by providing tangible and achievable pathways for research, the relevant workforce, startups and scaleups.

To inform the NRF, the Government should undertake a capability mapping exercise in collaboration with university and research sectors and industry groups to understand our current and emerging capacity and capabilities.

The NRF must link with other Government programs and sources of capital to ensure there is continuity and sustainability in investment across every stage of the research, development and commercialisation pathway.

Universities are key linkers, transformers and translators across the research and development pipeline – we play a valuable facilitative and generative role in this ecosystem.

To build long-term investment there must be mechanisms to continue or expand support for successful investments, as well as seeking new projects. Universities are a great resource of both proven ideas and new innovations and the NRF must make the most of successes like the Trailblazer Universities.

Creating highly skilled work and people is an important part of the NRF, so it must work in conjunction with other reforms and initiatives which seek similar aims – such as the Universities Accord, Employment White Paper, Jobs and Skills Australia and migration reform. Universities are a vital part of all these reforms.

Recommendations

1. The National Reconstruction Fund (NRF) must encourage investment in universities and the research output they generate.
2. The NRF should use universities as the key linkers and enablers of research and skills.
3. The NRF should build on new ideas and existing successes by providing scalable and sustainable support for successful ventures from initiatives such as Trailblazer Universities.
4. The Government, through the NRF and other investments, should develop a comprehensive and cohesive research strategy which aligns Government priorities with community benefit.

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Key points

- Australia's Economic Accelerator program, industry PhDs and industry fellowships, along with the Trailblazer Universities Program are significant investments in research commercialisation and industry engagement. They need to part of a series of scalable and sustainable investments in research to ensure Australia's prosperity.
- Scalable means that the investment can change and grow with the success of the research and its output. Sustainable means that long-term investments from Government, universities and industry are enabled and encouraged. Together, these two factors will ensure that we can recognise, reward and maintain successful and productive research.
- The Australian Government is providing \$362.5 million over four years (from 2022-2023 to 2025-2026) under the Trailblazer Universities Program to build new research capabilities, drive commercialisation outcomes and invest in new industry engagement opportunities. When these Trailblazers create new products, innovations and partnerships, the Government must be ready to build on this success with support from initiatives like the National Reconstruction Fund.
- ATN universities are leading four Trailblazers in key future industries for Australia – resources and critical minerals, recycling and renewable energy, and space technology. These Trailblazers support important research and industry partnerships, but their full impact and legacy will be through the jobs, skills and opportunities they create in Australia.
- The impact and legacy of these Trailblazers and other research and innovation initiatives, relies on having the local expertise and capability needed to adapt, translate and operationalise Australian and overseas solutions and innovations. We must develop emerging and future industries and jobs, as it develops the people with the skills to ensure that they will thrive in them.
- Developing and diversifying Australia's economy and workforce will require ongoing investment in skills, research and people. That way, we can develop, and make the most of, our own skilled workforce, deliver on national priorities, and build our national knowledge and innovation base.

Further information raised in the Discussion Paper

Priority areas

Within the seven priority areas, investment should be concentrated in projects that take advantage of Australia's existing and emerging research and development capacity. The NRF can form a vital part of the research ecosystem and stimulate investment in all stages of research and development by providing tangible and achievable pathways for research, the relevant workforce, startups and scaleups.

The main aim of the NRF should be to further the economic and social progress of Australia by developing our research, industrial and skills capacity in partnership with universities. The focus should be on supporting projects which will need and create industries with a highly skilled workforce with opportunities for progression, reskilling and upskilling.

To achieve that aim will require coordination and alignment between employment, industrial, educational and research policy. This will ensure that there are pathways for the ideas and innovations being generated by our research and development, as well as the skilled people need to capitalise on them locally. The NRF should work in hand with agencies like Jobs and Skills Australia to enable this.

The Government, NRF and other stakeholders need an over-arching understanding of Australia's current and emerging capacity and capabilities, including:

- Areas in which Australia has (or can develop) a competitive advantage
- Existing and potential strategic partnerships
- The nature and extent of sovereign risks; and,
- Areas where international collaboration is necessary.

To understand the current capabilities, partnerships and risks, the Government needs to undertake a capability mapping exercise in collaboration with the university and research sectors and industry groups. ATN recommended this capability mapping in relation to the List of Critical Technologies – the scope can be broadened to cover all seven priority areas.

This capability mapping exercise will be a valuable way for the Government to articulate its priorities and Australia's needs (including workforce and infrastructure development), for universities to demonstrate their existing and potential capability and networks, and to coordinate our collective investment and development.

The capability mapping can inform investment in research and innovation while also helping all partners to plan and develop the skills pipelines needed to generate that research and take advantage of the opportunities created for job creation, translation and commercialisation. This will, by necessity, include post-school foundational pathways and lifelong learning.

Investment needs and opportunities

The investment mandate should encourage alignment with existing and emerging research strengths as outlined in the capability mapping described above and in projects which have the potential to create more skilled jobs and develop the skills of the existing workforce. Universities are a vital bridge of new ideas through research and developing skills through education.

This workforce development can be both direct and indirect – arising from employment in that project or in associated and related industries and organisations. It is important that Australia has, or can, develop a workforce ready to capitalise on emerging innovations, products and services. This will create a highly skilled and advanced economy able to foster a beneficial cycle of investment, research, development, innovation and commercialisation.

The NRF – given its explicit requirements to produce a positive rate of return and not distribute grants – cannot meet the needs of every stage of research, development and commercialisation. This is why it is crucial that it link with other Government programs and sources of capital to ensure there is continuity and sustainability in investment.

The NRF must be part of a connected-up ecosystem of funding, investment and support including universities and programs such as Australian Research Council (ARC), National Health and Medical Research Council (NHMRC), Medical Research Future Fund (MRFF), Trailblazer Universities, Australia's Economic Accelerator and Cooperative Research Centres (CRCs). Universities are key linkers, transformers and translators across the research and development pipeline – we can play a valuable facilitative and generative role in this ecosystem.

As part of its broader mission of ensuring the development of high quality, sustainable industries and jobs, the NRF should ensure that the benefits and opportunities it generates are shared across communities. Achieving sustainable industries and jobs and ensuring the strength and resilience of the economy and workforce means ensuring that innovation benefits all segments of society.

Returns, financial instruments and working with other investors

Different maturity levels across the priority areas and related industries inherently means different levels of risk and the need for varying levels of risk appetite. This differentiated approach will be needed to ensure that opportunities are spread across all priority areas and investment is not overly concentrated in a few areas.

Different risk appetites, expected levels of return and investment timeframes, will also be needed if development is to be encouraged in under-represented and disadvantaged regions and communities. A balance of economic and social priorities is needed to ensure all Australians can benefit from the increased opportunities the NRF will create – this will result in a more complex, more sustainable and more resilient country.

Areas where Australia has a competitive advantage are likely to attract co-investment, especially from international capital. Building up a long-term track record around these areas will ensure that the development of related and spinoff industries can occur and we can foster educational pipelines and a growing skills base.

Building this long-term investment is why there must be mechanisms to continue or expand support for successful investments, as well as seeking new projects. Universities are a great resource of both proven ideas and new innovations and the NRF must make the most of successes like the Trailblazer Universities.

Complementary reforms

As creating highly skilled work and people is such an important part of the NRF, it must work in conjunction with other reforms and initiatives that seek similar aims – such as the Universities Accord, Employment White Paper, Jobs and Skills Australia and migration reform. Universities are a vital part of all these reforms.

The investment landscape will benefit from consistency, coordination and strategic direction in Government policy. The adoption of the listed seven priority areas across multiple Government initiatives and policies is a welcome start.

The \$1 billion earmarked for critical technologies and the ongoing work on the List of Critical Technologies is an important example of this integrated approach. We welcome the focus on critical technologies and further investment in these key capabilities and ideas.

It is also important to understand that to continue our supply of ideas and expertise to industry and communities, a broad range of research is needed including discovery research and research in the humanities, arts and social science (HASS) which is vital for understanding our world and the people in it. HASS research is vital for our society's understanding of, and interaction with, science and technology.

Further enquiries should be addressed to:

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