

UNSW Submission – National Reconstruction Fund

Thank you for the opportunity to comment on the implementation of the National Reconstruction Fund (NRF).

Overall, UNSW Sydney welcomes the creation of the NRF, and believes it will be a valuable program for Australia, boosting our national prosperity. As well as supporting job creation and driving economic growth, it will also help to create sovereign capability in key sectors and position Australia as a world leader in these industries.

Key recommendations

UNSW would like to propose the following recommendations:

- 1) The Fund should include a focus on areas that are underserved by existing investment markets or funding sources.
- 2) Specially, the NRF should have an explicit mandate to support investment in early-stage technologies and companies. This is aligned to the purpose of the Fund in being transformative, and making a major impact in the Australian ecosystem (i.e. high reward and higher risk opportunities).
- 3) Early stage investment should include spinout and startup companies emerging from research organisations and universities.
- 4) Decisions around investment that consider 'value add' should also consider the broad benefit to the Australian public, and should ensure that investments support the creation of self-sustaining ecosystems that will succeed over the long term.
- 5) A broad and flexible approach should apply to investment decisions around how they fit within the designated priority areas.
- 6) The NRF should operate as part of an integrated innovation support system, for example alongside *Australia's Economic Accelerator*, the CRC program, and the ARC Industry transformation program. These schemes are aimed at different technology readiness levels (TRLs) and commercial readiness levels. Ensuring they are co-ordinated will provide a pathway to develop new technologies, overcoming the 'valley of death', to commercial success.
- 7) The priority sectors should consider the "whole of life" supply chain for investment eligibility, including end-of-life recycling.

About UNSW

UNSW is one of the world's leading research and teaching-intensive universities, known for innovative, pioneering research and high-quality education with a global impact. Since our foundation in 1949, our aim has been to improve and transform lives through excellence in research, outstanding learning and teaching and a commitment to advancing a just society.

UNSW is ranked in the top 50 universities globally with more than 65,000 students and a 7000 plus research community. Many of our researchers are world leaders in their fields, with their research making a difference to people's lives, informing policy and expert commentary on a wide range of issues, and underpinning the development of new technologies that create economic opportunity and the jobs of the future.

Role of the National Reconstruction Fund

UNSW supports the desire, outlined in the discussion paper, to modelling the NRF on the Clean Energy Finance Corporation (CEFC), managed at arms-length from government. We also support the NRF making investments rather than grants, and encourage that any awarding of grant funding be channelled through existing agencies.

At present, Australia's R&D across the early TRLs is largely undertaken by research institutions such as universities with the support of government, while later stage R&D is undertaken by industry. However, there is a 'valley of death' across the mid-range TRLs, with a critical need to acknowledge and bridge this stage of technology development. Furthermore, while the recent focus on research translation is to be applauded, it is nevertheless important that foundational research at the early TRLs is not overlooked for support.

The NRF has the potential to support a broad range of investment opportunities including an allocation to R&D at early stage TRLs, overcoming the 'valley of death' stage where many Australian technologies and companies suffer. This will strengthen the Australian economy through building sovereign capability in products, technologies and supply chains.

Response to consultation questions

In response to the questions asked in the consultation paper, we provide the following advice:

What types of projects or investments should the Government direct the NRF to focus on, or not invest in, within each of the seven priority areas to achieve the NRF's purpose?

As highlighted above, investments made under the NRF should cover a range of TRLs, commercial readiness and risk levels to maximise the level of overall R&D output into commercial applications.

The Fund should include a proportion of early-stage funding to support the establishment of startup and new companies, and their accelerated growth. To ensure that the Fund has its greatest impact in supporting new technologies come to fruition, consideration should be given to the specific approach the NRF takes to investing alongside other investors, such as venture capital (VCs), angel investors and institutional investors.

In terms of the type of investments the Government should direct the NRF to focus on within each of the seven priority areas, we believe the focus should be on projects and investments that have high potential for success, but are not well served by existing funding sources. These projects and investments are likely to carry higher risk and reward.

How should industry ‘transformation’ and ‘diversification’ be defined and measured for each of the seven priority areas?

To be truly transformative, the Fund should prioritise investments in areas that the broader investment market might be less inclined to commit to, such as early stage enterprises or other ventures at lower TRLs.

We believe there is great value in an explicit link between the NRF and other funding programs that link research and industry partners. These include the ARC Industry Transformation Program,, the CRC program and the Accelerating Universities Research Commercialisation Program. These programs all serve similar aims, but do so at different TRLs. For potential industry partners, the number of different programs with similar aims risks being confusing to navigate. While the discussion paper specifically acknowledges that the NRF will complement existing programs, that complementarity needs to be actively considered and promoted, with a view to creating a seamless experience for industry and researchers alike.

How should ‘value add’ be defined and measured in relation to relevant priority areas?

Some important considerations for defining ‘value add’ include:

- Commercial returns on the activity
- Benefits to the Australian economy
- Creation of public amenity, whereby the activities undertaken broadly create benefits for the Australian public
- Levels of adoption in Australia
- Developing new export markets
- Creating self-sustaining ecosystems

The discussion paper also asks how to “encourage stronger pathways for Australian developed innovation and research’. Some suggestions for consideration include using funding mechanisms for industry and other partners to prioritise or provide better terms for:

- Projects built on intellectual property developed in Australia
- Projects built on intellectual property or technology developed in partnership with Australian publicly funded research institutions (for example, universities or CSIRO)
- Projects build on intellectual property or technology developed through one of the other, earlier TRL government programs such as the ARC Industry Transformation Program, the CRC program or the Accelerating Universities Research Commercialisation Program
- Projects with an active, ongoing investment in an R&D program. Successful technology enterprises maintain significant and ongoing investments in future technology to ensure they remain sustainable.

How much detail should be provided on each of the priority areas? How should greater detail and the need for flexibility be balanced?

There is a risk of being too prescriptive in the detail of each fundable priority area. A better solution would be to leave the topics broad, with NRF investment decision makers able to decide on the best projects to invest in. This will create more space for participants to innovate, and to avoid having to exclude a project that does not neatly fit within a detailed definition, that nevertheless could be of great benefit to Australia. Furthermore, the specific details on each priority area will change over time as the underlying science and technology evolves, and the leadership of the NRF or the government of the day

should be in a position to fund other endeavours as they become important. For example, the paper mentions hydrogen electrolyzers, but not other unsolved issues or new innovations relating to hydrogen.

The NRF should also have flexibility to invest in technologies beyond the seven identified priority areas included in the discussion paper where they are of critical importance to Australia's prosperity and success (both economic and non-economic). Some examples we suggest for consideration include:

- **Digital technologies and other 'high tech'**. While they are listed as enabling the other priorities, they are an industry in their own right and should be acknowledged as such. Companies such as Atlassian are rightly celebrated as Australian success stories. Australia need more locally created enterprises of scale in this sector, both to enable other priorities, and to realise the significant economic and job creating potential of this sector. Similarly, Australia is currently a leader in the race to build the world's first quantum computer, and other 'high tech' sectors such as quantum computing have significant potential for Australia to lead and capitalise on.
- **Decarbonisation technologies more broadly**. While the nominated priority areas includes renewables and low-emissions technologies, there are other areas relating to decarbonisation where Australia has the opportunity to excel and develop new industries. For example, reducing emissions from infrastructure development through new cement manufacturing technologies.
- **Sustainable environmental protections**. An important element of climate change adaptation is the adoption of new technologies that allow communities to be better protected against natural disasters, such as bushfire or flooding (for example). Further development of these technologies could allow Australia to be a world leader in a field that will be in strong demand, while also providing sovereign capability to meet our own requirements.

Conclusion

Thank you once again for the opportunity to comment on the implementation of the National Reconstruction Fund. As an institution with a significant research output, we look forward to working with partners to ensure the NRF's success, and to seeing research undertaken at UNSW improving the lives of people within Australia and around the world.

Should you wish to discuss any issue raised in this submission, please do not hesitate to contact our Head of Government Relations, Mr Robin Schuck, on 0411 124 258 or r.schuck@unsw.edu.au.