

Long-term funding is the missing piece of the Research Infrastructure puzzle: IRU's response to the 2016 Draft National Research Infrastructure Roadmap

The *2016 National Research Infrastructure Roadmap* identifies the priority research infrastructure for the coming decade in nine focus areas that will underpin research in which Australia excels. This should deliver long-term national benefit and foster strategic international partnerships for Australia.

IRU supports the Draft Roadmap's nine overarching recommendations and the nine identified national research infrastructure focus areas. Two issues remain.

- 1. Long-term funding is the missing piece of the Research Infrastructure puzzle. For this Roadmap exercise to be meaningful, the Government must resolve the funding issue. The \$3.7 billion from the Education Investment Fund (EIF) should be part of the equation.**
- 2. Hosting for world-class research infrastructure should intentionally be spread across Australia.**

This entire exercise has confirmed the case for investing in research infrastructure is strong and that excellent research requires excellent research infrastructure. Addressing Australia's research infrastructure needs at a national scale in a collaborative manner, is the most efficient and productive way.

As the Chief Scientist Alan Finkel argued in his first [speech](#) to the Press Club, powering science will in turn fuel industry and push Australian innovations out to the world.

The 2016 Draft Roadmap and its recommendations

The nine focus areas make sense

The draft Roadmap identifies nine focus areas namely Digital data and e-Research platforms, Platforms for Humanities, Arts and Social Sciences (HASS), Characterisation, Advanced fabrication and manufacturing, Astronomy and advanced physics, Environmental systems, Biosecurity, Complex biology and Therapeutic Development. IRU supports these foci which are a better reflection of Australia's needs than the capability focus areas identified in the original Issues Paper.

With an increasing focus on STEM in other areas of government policy including PhD internships, the focus on platforms for Humanities, Arts and Social Sciences (HASS) including the harmonisation of platforms for indigenous research is important. Digital data, biosecurity and environmental systems are important inclusions, which the IRU had highlighted in its submission. IRU also supports the switch from the health and medical research area to therapeutic development.

Strategic direction by the National Advisory Group

Establishing a Research Infrastructure National Advisory Group (Recommendation 2) would address the current lack of coordination between different levels of state and federal government, different bodies and stakeholders. The Advisory Group should be able to give strategic direction with the ability to review the existing National Infrastructure Database. The Advisory Group should be set up as a matter of urgency.

Flexibility to accommodate parallel initiatives while safeguarding existing landmark facilities

The roadmap must be flexible enough to accommodate any additional parallel initiatives that might be needed in its ten-year timeframe. As the report outlines, new initiatives (such as the Medical Research Future Fund) will require new infrastructure (Recommendation 4) and must be considered as an integral part of any roadmap investment plan. At the same time, the draft Roadmap rightly acknowledges that existing landmark facilities such as the Australian Synchrotron will require ongoing investment. Other existing facilities such as the Terrestrial Ecosystem Research Network (TERN) and the Australian National Fabrication Facility (ANFF) should also be added to this list.

Taking the lead in international engagement

IRU strongly supports the recommendation to implement a coordinated approach to international engagement, an issue that the IRU has advanced regularly. Beyond the immediate advantages of cost effectiveness, removing duplication and reaching economies of scale, Australia could use its diplomatic network to enhance its position as a leader and partner in international engagement.

IRU continues to argue that Australia should take the lead in the setting up of [an Asian research and Innovation zone](#) which would include a research infrastructure strand.

Broadening the awareness of national research infrastructure

Raising awareness of national research infrastructure with the end users of research such as industry and business (Recommendation 8) is crucial. Outreach activities should also be extended to the general public which would benefit from being aware of the outcomes of the government's investment in research infrastructure underpinning the excellent research from which they all benefit.

The missing piece of the puzzle

Committing to long-term funding for critical research infrastructure

To be meaningful, this Roadmap needs to address the funding issue. The current practice of ad hoc funding through the annual budget cycles is not optimal and money earmarked for research infrastructure should be ring-fenced potentially through legislation. The 2011 Roadmap exercise failed to reach its potential precisely because the funding issue was not addressed.

The past two years have seen a number of reviews and consultations focusing on various aspects of Australia's research infrastructure. In addition to this Roadmap process, two other reports namely the *Research Infrastructure Review (2015)* and the report of the *Higher Education Infrastructure Working Group (HEIWG)* have been released. Collectively, these three reports provide an updated snapshot of the current higher education and research infrastructure in Australia and provide a solid basis to make recommendations to underpin the 2016 Roadmap.

Despite the signature investment in December 2015 by the Turnbull government, NISA only covers the NCRIS facilities. **Currently there is no government commitment to further investment in new or significantly upgraded research infrastructure facilities. As the *Research Infrastructure Review* report recommends, the Government should establish a national research infrastructure fund for the sole purpose of investing in national Research Infrastructure.** The latter report further recommends that there should be a \$3.7 billion up-front capital injection into this fund.

IRU agrees that the remnant \$3.7 billion in the EIF, should continue to be earmarked for enhancing Australia's Research Infrastructure. As the *HEIWG* reports, the EIF fund was designed to assist

universities to build world class transformative facilities and to take Australian institutions to another level. This can still be achieved.

Intentional national coverage: National Research Infrastructure Principles

The report outlines a number of principles that should inform decisions on future national research infrastructure investment. An additional principle should be included in the list namely:

Host or funded institutions should be spread across Australia with an intentionally national approach to the distribution of national research infrastructure.

As one of the suggested Roadmap principles rightly states, infrastructure funded under the 2016 Roadmap and NCRIS funded facilities and projects, “should serve the entire research and innovation system, not just the host or funded institutions”. To a certain extent this is already happening with researchers across Australia able to access resources based in other institutions. The reality is however that Australia’s research infrastructure is based predominantly in Australia’s major five cities and their inner suburbs. This means that researchers based in Australia’s regional or outer metro universities tend to always be the ones needing to access resources remotely.

The 2016 Roadmap is an opportunity to redress this balance. Based on the principle that all research infrastructure should serve the entire system, more research infrastructure should be based in outer metro Australia with city-based researchers perfectly able to access.

Making national spread a key principle of national research infrastructure will contribute to creating numerous research clusters across Australia. Australia is already benefitting from a number of university-led research clusters usually located in the main cities. In fact, as IRU argues in [Building Regional Research Systems Across Australia](#), only 12% of Australia’s currently-funded research infrastructure is located in remote or rural parts of Australia.

This is a missed opportunity. It is critical that public investment in research infrastructure stimulates innovation across Australia and not just in the major cities. This requires each region to have an effective research system capable of supporting research, linking it to industry and other users through research. One way of doing this is through an intentionally national approach to research infrastructure. The vision, which also ties in with the argument of the Industry, Innovation and Science Minister Mr Hunt for university-led precincts around Australia is one where there would be multiple research-intensive clusters spread around Australia.

The government should take advantage of Australia’s network of universities to drive this vision forward. By placing the hubs of critical research infrastructure in outer metro and regional Australia, there is the potential of attracting industry and other stakeholders to build regional research systems. The 2016 Research Infrastructure Roadmap is an opportunity to make this happen.

An abridged version of this document was submitted by the IRU to the consultation on the 2016 Research Infrastructure Roadmap.

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