National Science and Research Priorities, September 2023

The Australian Academy of the Humanities (AAH) thanks the Department of Industry, Science and Resources, and the Chief Scientist for the opportunity to respond to the draft National Science and Research Priorities (NSRPs).

The AAH engaged in the first 'conversation starter' and subsequent roundtable consultations with the Department and Chief Scientist. We are pleased to see the evolution of the priorities in response to these consultations – which showed that **Australians want our national spend on research to deliver a cohesive, healthy, and resilient society, transformation-ready, and in tune with our environment**

On balance the AAH thinks that the four research priority areas are sound because they reflect Australians' concerns as heard in the Chief Scientist's consultations.

That said,

- **Priorities and pathways for social and cultural research are not yet explicit** or expressed in ways that make them intelligible or actionable for stakeholders (researchers, universities, policymakers, or industry).

- The **priorities do not yet capture critical research areas needed to drive a 'step change' for effective multidisciplinary collaboration**.

Science and technology alone cannot deliver effective research impact. The challenges we face require complex, reasoned changes to attitudes and behaviour. Changes in technology, generative AI, climate change, and geopolitics will continue to put pressure on the way we arrive at shared interests, and thus on the viability of representative democracy. Humanities, arts and social science (SHAPE[1]) disciplines, are integral to generating new ideas and reform agendas. Bringing the human and social element invites a more mature national conversation.

Below, we respond to the consultation questions and **outline improvements needed to the scope of the priorities, implementation principles, and critical pathways to achieve effective multidisciplinary collaboration**.

Consultation Questions

1. *The draft priorities intend to identify specific challenges facing the country that will require multidisciplinary and multisector efforts to address. Do they achieve this objective? How can we improve them?*

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[1] https://shapefutures.com.au

For the most part, yes, but there are improvements needed to ensure multidisciplinary uptake, and to drive the social and cultural research needed to meet the challenges.

The **draft priorities** get the broad principles right:

1. The NSRPs are broadly conceived 'science <u>and</u> research' priorities and not narrowly focused on science, technology, engineering and mathematics (STEM) disciplines.

2. The document recognises the range of outcomes and benefits from research – including social, environmental, economic, and community.

3. The document recognises that the NSRPs are not a definitive or exhaustive list – and by extension that they should not drive the whole system.

4. Humanities, arts, and social sciences research (SHAPE) is vital to the success of each of the priorities – however this is not yet explicit and needs to be (see below).

5. First Nations research is at the fore which will help to drive concerted effort. Indigenous Knowledge systems do not separate humans, cultures, and environments; this is an important enabler of a more holistic approach to research from which the entire system stands to benefit.

But these principles need to be better oriented towards practice.

Areas for improvement we recommend:

1. The priorities and pathways for social and cultural research are implicit, but need to be drawn out and made explicit so they are intelligible and actionable for stakeholders (researchers, universities, policymakers, or industry).

2. The priorities do not yet capture critical research areas needed to drive the 'step change' multidisciplinary collaboration needed. The critical paths section in each of the priority areas needs attention. See at Q.3 below for our suggested edits/improvements [refer to marked up copy]

3. The final version needs to give a clear signal as to how and when the priorities should be applied. As the consultation document says, the NSRPs are not designed to drive the whole of the research system. See at Q.4 below for further comments on this. Good program design and research assessment processes will have a role in ensuring the selective and appropriate implementation of the NSRPs in ways that drive strategic work in these challenge areas but not at the cost of fundamental research.

2. *Feedback stressed the need to work in partnership with First Nations people to embed First Nations knowledge and knowledge systems in the way we address national challenges. How might governments and the science and research sector best work with First Nations people to achieve this objective?*

We **recommend prioritising First Nations knowledge and knowledge systems throughout in each of the four priorities objectives.**

To embed First Nations knowledge and knowledge systems, we **support sectoral work on the machinery of self-determination**. We also need **mechanisms for convening with, co-designing and partnering with Indigenous research at a strategic level**.

It is the Academy's view that there needs to be much better representation and integration/communication on **existing leadership and advice structures.** The highest level of science advice to government, the National Science and Technology Council (NSTC), does not have an Indigenous member, which impacts the credibility and authority of its advice in this area. Humanities, arts, and social sciences expertise is also left to chance. Professor Genevieve Bell AO FAHA FSTE is the only current member with a SHAPE background alongside four STEM members. Going forward, we recommend standing representation from SHAPE and from Indigenous Knowledge.

Building on existing concentrations of strength will be important. The new humanities and Indigenous-led ARC Centre of Excellence for Indigenous and Environmental Histories and Futures (CIEHF) is one such exemplar, led by Distinguished Professor Seam Ulm FAHA and Professor Lynette Russell FAHA.[2]

3. *The draft priorities provide a range of critical research paths. How could we refine these research paths, for example, to address immediate challenges?*

As noted above, we agree that the draft **NSRPs need to explicitly drive multidisciplinary and multisector research**. To achieve desired outcomes in "emissions reduction" and "mental and social wellbeing", or to learn and apply lessons of Indigenous approaches to land and sea management we will need to incentivise and mobilise SHAPE and Indigenous research at scale.

To take one example in more detail – Energy Transition – the International Energy Agency's report on Australia[3] recently cited evidence that while Australia's performance is very good in science, engineering, and technology-related energy research we need uplift in arts, social science, and humanities – because **successful energy transition "must be more people-centred, focusing on communities, jobs, skills and livelihoods**".

Another area we need to develop sustained and deep capability is on Asia. On the geopolitical front, we could pay a serious price, including missed opportunities, for lack of joined up knowledge infrastructure on China and Asia capability. Our report on *Australia's China Knowledge Capability* illustrates the case. **The decline in national capability on Asia has been iterative, largely unnoticed, and is impacting our sovereign ability to know and understand our neighbours in the region**.[4] This is an

[2] https://www.jcu.edu.au/news/releases/2022/november/new-$89m-national-research-centre-at-jcu
[3] https://www.iea.org/reports/australia-2023
[4] https://humanities.org.au/our-work/projects/australias-china-knowledge-capability/

omission in the current draft and most appropriately fits into Priority 4: Building a stronger and more resilient nation.

We suggest that explicit, focused priorities are most appropriately implemented and developed through funding programs, as per international approaches – as noted in the Appendix to the consultation paper. The draft priorities document **should not be too prescriptive or granular but focus on the strategic agenda setting.**

4. *How would you implement the priorities in your organisation or setting? What mechanisms would support implementation?*

The NSRPs are an applied set of priorities so it is appropriate they come into play in applied programs. Applied research complements investment in **fundamental research** (supported through the ARC, for instance). Fundamental research sustains discipline-based knowledge which

- gives the research and innovation system its core capacity

- provides the platform for multidisciplinary approaches to problem-based research

- and ultimately enables Australia to identify emerging opportunities in its global engagements and to prepare for and respond to unforeseen societal challenges.

It is important that national science and research priorities deliver **for a range of government portfolio areas beyond Industry and Science** – including Foreign Affairs and Trade, Social Services, and Communications.

Looking at current programs and levers in the system, Australia has work to do in building multidisciplinary capability. **Bringing SHAPE and Indigenous research to bear on big challenges will require policy signals, incentives structures, and co-designed strategic grant programs.**

We would point to the example of transformations needed in AI research – including the capability in our research workforce and beyond – which is by no means a science and technology agenda, but deeply reliant on new cultural and social research, new business systems, and informed regulation and standards.[5]

The **NSRPs need to effect transformational change to ensure we develop systems for AI and automation with high-trust across society**, in our education sectors, and in government service delivery and decision-making. We have some stand-out examples of world-leading research, such as the ARC Centre of Excellence for Automated Decision-making and Society (ADM+S), which is a humanities-led research concentration.[6] We need more.

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[5] https://www.chiefscientist.gov.au/sites/default/files/2023-06/Rapid%20Response%20Information%20Report%20-%20Generative%20AI%20v1_1.pdf
[6] https://www.admscentre.org.au

A ten-year time horizon for the NSRPs is long, so we **stress the need to be flexible, allowing for uplift over the short term** in areas we need to rapidly respond. And ensure baseline capability to underwrite system responsiveness. We suggest that **a five-year time horizon would allow outcomes to roll into a next iteration of the priorities to build**.

5. *The National Science Statement will explain the role our science systems will play in delivering the priorities and maximising the benefits from science for Australia. How can the following best support the priorities:*

    a. *Science agencies*

    b. *Science infrastructure*

    c. *Australian government science programs*

    d. *Domestic and international science relationships.*

More thought needs to be given to the relation between national science and research priorities and a National Science Statement. Clarity is needed on how other research agencies come into frame here – the ARC and NHMRC, for example, or national research infrastructure schemes. To take the National Collaborative Research Infrastructure Strategy (NCRIS) example, successive roadmaps have developed 'de facto' national priorities in areas that are vital but not well served by earlier NSRPs – including investment in the HASS Research Data Commons and Indigenous Data Capability program.[7] The system needs this capacity to respond to priorities outside the NSRP envelope.

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[7] https://ardc.edu.au/hass-and-indigenous-research-data-commons/