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Submission in response to the National Science and Research Priorities by the Department of Industry, Science and Resources

The University of Technology Sydney (UTS) welcomes the opportunity to make a submission on the draft of the new *National Science and Research Priorities* (the Priorities) released by the Department of Industry, Science and Resources which will shape a long-term vision for the Australian science system.

Background and Context

UTS is the top-ranked young university in Australia. The University has a bold vision to be a leading public university of technology, recognised for its global impact, with a strong commitment to supporting connections, knowledge exchange and fostering meaningful collaborations with industry, key stakeholders, and government. As a university of technology, it is our role to ensure our science graduates shape the future of science and research with skills that will be needed, both in Australia and overseas. Through the collaborative efforts of university executives across the STEM faculties including Science, Design Architecture and Building, Engineering and Information Technology and Health, the University provides this consolidated feedback on the draft priorities.

Reflection and Recommendations

1. Reflection of the key challenges and opportunities for Australia

The University views the Priorities as balanced and believes that they adequately respond to the key challenges and opportunities for Australia. However, UTS proposes reform of the following aspects of the Priorities:

- a) Greater focus on technology impact and significance in our modern society, particularly in relation to artificial intelligence (AI). There is no reference to artificial intelligence (AI) and usability of technology for an aging population in the Priorities, which presents both a major threat and opportunity for science and research in Australia.
- b) Inclusion of indigenous perspectives as a standalone priority which would appropriately recognise the value of Indigenous knowledge on the science landscape in Australia.
- c) Refinement of the Priorities with a focus on multinational engagement, the leveraging of government procurement, the establishment of a net zero coordination committee and explicit reference to key areas, such as critical minerals, food security and energy security.

2. Valuing First Nations' knowledge and knowledge systems

UTS commends the acknowledgement that there is a need to ensure that Aboriginal and Torres Strait Islander people's knowledge and systems are to be reflected throughout the Priorities. There is a strong need to interweave Indigenous knowledge in the Priorities, as Indigenous knowledge is not just an enabler of wider Australian science and research objectives, it is the bedrock on which our country's knowledge is built. It is what makes Australia – and our science and research priorities – unique.

The UTS Indigenous community is disappointed that elevating and investing in Indigenous perspectives in STEM has been omitted from this draft as a standalone priority. A standalone priority focused on First Nations' knowledge and knowledge systems is essential in recognising the significance of Indigenous perspectives in shaping our understanding of science and research in Australia. It would be a strong indication to the research community and the nation that this is a core work for Australia – and central to our national science, technology, and research ambitions. Furthermore, it would be a powerful signal to Australia's research funding agencies to invest in Indigenous people and perspectives in research, science, technology, and innovation. This crucial signal would help to transform Australian STEM – and start a deeper investment in supporting more Indigenous people and priorities into our national science and research effort. It would also be a remarkably positive legacy for all the generations of Australians to come.

3. Further refinement of the Priorities

Priority 1: Ensuring a net zero future and protecting Australia's biodiversity

- a) Net zero and decarbonisation is a global issue, therefore, by having **mechanisms for multinational engagement**, this would ensure that Australia is not re-inventing the wheel with a smaller budget. UTS proposes that support be built into the Priorities for multinational partnering for cleantech development with global leaders in countries with similar interests, such as the United States (US) and European Union (EU). This point may also be inferred in the recognition that international partnerships are important (Priority 3).
- b) A focus should be placed on **leveraging government procurement** to enhance establishment of new Greentech manufacturing companies. Government procurement contracts will help to secure VC funding for startups, with a similar system implemented in the US.
- c) UTS proposes that a **net zero coordination committee** be established across all government agencies to ensure that all science and research opportunities are maximised to their full potential. The model utilised by the US can be referred to for the establishment of this committee.
- d) Net zero and low carbon technology are intimately linked to biomanufacturing, which crosses over with **critical minerals, food security and energy security**, however, these sectors are not referred to in the draft priorities. Explicit reference to the links to other key areas should be made within the Priorities. For example, circular economy is mentioned, but this could be extended to be circular bioeconomy to include biomanufacturing.

Priority 2: Supporting healthy and thriving communities

- a) A key challenge for Australia in the next 10 years will likely be supporting healthy and thriving communities, by **addressing the population challenges of an increase in homelessness, poverty and chronic disease, poor mental health** (anxiety and stress-related illness) and an **ageing population**.
- b) The **usability of technology for an ageing population** will be another key challenge for Australia in improving the health and wellbeing of Australians. For example, the use of smartphones for access to health care makes appointments difficult to navigate for elderly people who do not navigate technologies efficiently and with confidence. The touch screen is also not often a feasible option for very elderly people with increasingly complex chronic diseases, such as debilitating arthritis, or age-related hearing loss.

Therefore, the usability of technologies for an ageing population with complex chronic diseases need to be at the forefront of initiatives to ensure an affordable, inclusive, culturally appropriate, and integrated preventive health system for Australia.

- c) **Artificial Intelligence (AI)** presents one of the most critical threats and opportunities for Australia and is not referred to at all in the draft priorities. The increased importance of AI internationally is emphasised in the 2025 Whitehouse Research Priority Listing, with Trustworthy AI, the 14th Five Year Plan from China and listing AI as a critical technology in both the EU and UK. On a domestic level, Australia has committed to AI through the National AI Strategy and the Federal Government's budget commitment of \$42.2 million to support the responsible deployment of AI across Australia. Given this large investment in AI, it should at least feature as a key strand or cross-cutting element of the existing priorities, given the potential opportunities to be unlocked by effective deployment of AI with the Priorities and the potential harms implicit in unregulated, unrestrained and/or unethical uses of AI, particularly for marginalised and vulnerable communities. There is a need for Australia to better focus on AI in our science agenda, or our commitments and efforts are likely to remain diffuse, disconnected and lacking in scientific rigour.

4. The implementation of the National Science and Research Priorities

- a) To successfully implement the Priorities at UTS, we would need to ensure that industry takes research and development innovations to scale. To do this, UTS proposes that funding be leveraged where industry co-invests in developing the lower Technology Readiness Levels (TRL), which will speed up implementation and leverage government investment.
- b) Time should also be invested in developing roadmaps for each priority, which will help guide industry and research agencies and identify divergence from other national plans. These roadmaps should be developed in consultation with a broad group of stakeholders to ensure adequate consultation is undertaken and there is sufficient representation from stakeholder groups.

In closing, UTS appreciates the opportunity to contribute to the Priorities and would welcome any future consultation and engagement to ensure that the Priorities provide an accurate and timely long-term vision for the Australian science system, with consideration of the key current and emerging issues which will shape our nation's current and future scientific needs.

Please do not hesitate to contact my office should you wish to discuss the submission in further detail.

Yours sincerely



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