Australian Government
Department of Education

Software – Summary

Targeted Discussion Series (September 2024)

Summary

The consultation identified several key considerations and potential investment priorities for digital research infrastructure:

Sustainability and maintenance: Ensuring long-term support and maintenance of key software for various research communities. This includes addressing issues like operating system changes, library incompatibilities, and the need for software to evolve with hardware.

Integration: Emphasising the integration of software with hardware, data, and people. This includes ensuring that software can move from one environment to another and that different models can communicate with each other.

Software as a service: Making software easier to use for researchers without extensive coding knowledge – moving from high code expertise requirements, to low or no code expertise requirements. This also involves providing support for modern authentication and authorisation infrastructures.

Software engineering capability: Establishing a software engineering capability where experts in software engineering collaborate with research domain experts, data experts, and systems/hardware experts to achieve significant advancements. Access to this capability could be through merit allocation, and one suggested use case could be optimising researcher-created code with high potential value to improve reusability.

Upskilling workforce: Investing in the upskilling of the NDRI workforce to operate and maintain the software infrastructure. The impact of AI/large language models (LLMs) is not completely clear, but it is critical that Australia has the expertise to deal with these new approaches.

Operational support: Providing operational support on the ground, working with researchers on their research problems to make best use of the NDRI available to them.

Community support: Supporting existing software communities and building new ones where they do not exist. Suggestions included:

- integrating and building communities by learning from the experiences of existing communities and bringing different communities together
- creating repositories where researchers can contribute their software and ensuring that these repositories are well-documented and maintained
- providing resources and training to help researchers transition from writing code for their specific needs to creating more robust and widely usable software
- embedding research software engineers within research communities and facilities to provide expertise and support for software development, maintenance, and optimisation.

Recognition of software as a research output: Ensuring that software is recognised as a ‘first-class’ output of research, alongside research publications and data.

In summary, these investments would aim to enhance the overall research infrastructure in Australia by ensuring that software remains functional, sustainable, accessible, and integrated with other research components.

If you'd like to provide any additional comments or feedback on the above summary, you're invited to provide these views via the online NDRI Investment Plan Consultation Survey, which can be found on the department's NDRI webpage.