

Submission Template

2016 National Research Infrastructure Roadmap

Capability Issues Paper

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Question 1: Are there other capability areas that should be considered?

The National Research Infrastructure Capability Issues Paper appears to have largely neglected the future research infrastructure needs of the Geosciences research community. Rio Tinto Exploration (RTX) and parent companies have actively explored the Australian continent for new mineral resources for more than 50 years and currently maintains its commitment to mineral exploration in Australia. RTX have enjoyed considerable success from a sustained exploration effort in Australia but the task of discovering new mineral resources is becoming increasingly difficult given more than three quarters of Australia has extensive post-mineralisation cover which effectively conceals the prospective rocks from the eyes and many of the tools of the modern explorer. Exploration through post mineral cover is higher risk and higher cost and history is already telling us, success rates decline significantly. There is a critical need to collect new data and complete new research to support future exploration success on the Australian continent. Without these data and new techniques, exploration companies will eventually be forced to focus efforts in other parts of the world where there is less post-mineral cover and greater chances of success.

UNCOVER is an Australian Academy of Science initiative to directly address the issue of declining discovery rates as a result of post-mineral cover on the Australian Continent, as a matter of great urgency. This initiative aims to align the research and data collection priorities of State and Federal geoscience agencies, (including Geoscience Australia and all State Geological Surveys), geoscience research institutions (including CSIRO and Universities) and industry to ensure the right data are collected and the right research is done over the next 2 decades to effectively reverse the declining discovery rate. UNCOVER represents an unprecedented level of alignment and cooperation between government, research and industry geoscientists across Australia, but access to the appropriate data collection and research infrastructure will be critical to the long term success of the initiative.

Through the excellent efforts of AuScope, Australia is very fortunate to have excellent geoscience infrastructure. But there are serious concerns that without a sharp focus on geoscience in the current round of National Research Infrastructure prioritisation, the existing infrastructure will be inadequate to support the challenges

Australia faces if we are to maintain a diversified and productive mineral industry into the future. An ongoing initiative from AMIRA International in collaboration with UNCOVER, industry, suppliers, research organisations and government agencies is developing a comprehensive Roadmap of the data and research programmes required to sustain exploration success in Australia. Phase one of this project is complete and phase two is underway, but already it is clear that the geoscience community in Australia will require ongoing research infrastructure support and that as we face the challenge of post-mineral cover, the type of infrastructure required will change over the next decade. Geophysical and geochemical technology to collect data on the structure, composition and age of the Australian continent beneath post-mineral cover will become critically important. Continental-scale arrays of geophysical sensors and vast numbers of samples collected from drill holes through cover will be required. The data from these geophysical and geochemical arrays will provide critical long-term infrastructure for the research and industry geoscientists to build the understanding of the cover itself and the rocks it conceals over the next 2 decades.

Base-line continental scale geophysical, geochemical and mineralogical data constitutes one of the most valued forms of infrastructure the Australian nation can put in place to support long term geoscience research capability, which will in turn support new insights and tools to drive future exploration success on our continent. It is a critically important national priority to ensure that the physical assets and human resources required to collect these data are considered in the national research Infrastructure priorities and that the data itself is considered fundamental infrastructure to support ongoing research in Australia.

Rio Tinto Exploration has also contributed to submissions from UNCOVER, AMIRA International and AuScope, all of which we fully support.