

Australia's mining industry has a plan to address the challenges of exploring in areas of cover



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We are all aware of the downturn of the minerals industry and its effect on

the Australian economy, but some may not be aware of, or fully appreciate the implications of, the structural decline that is associated with the fact that we are not replacing the reserves we are currently mining. It is not only that average head grades are decreasing and the remaining ore is becoming more complex and thus more energy and water intensive to process, more importantly we are simply not finding enough high quality ore.

The reason for this is not because companies are spending less on greenfield exploration, although there is that, the

underlying reason is simply that in the more mature areas of the world most, if not all, of the world class deposits that were either at or near the surface have been found. The focus of exploration has largely been in these areas; however, in

Australia this only represents about 30% of the landmass.

There is an incredible opportunity if we can manage to reduce the uncertainty and risk in exploring in areas

of cover. This is where the Australian Mineral Industries Research Association (AMIRA) International Roadmap for Under Cover Exploration: Unlocking Australia's Hidden Potential comes in.

More than 200 exploration personnel contribute to a Roadmap via AMIRA

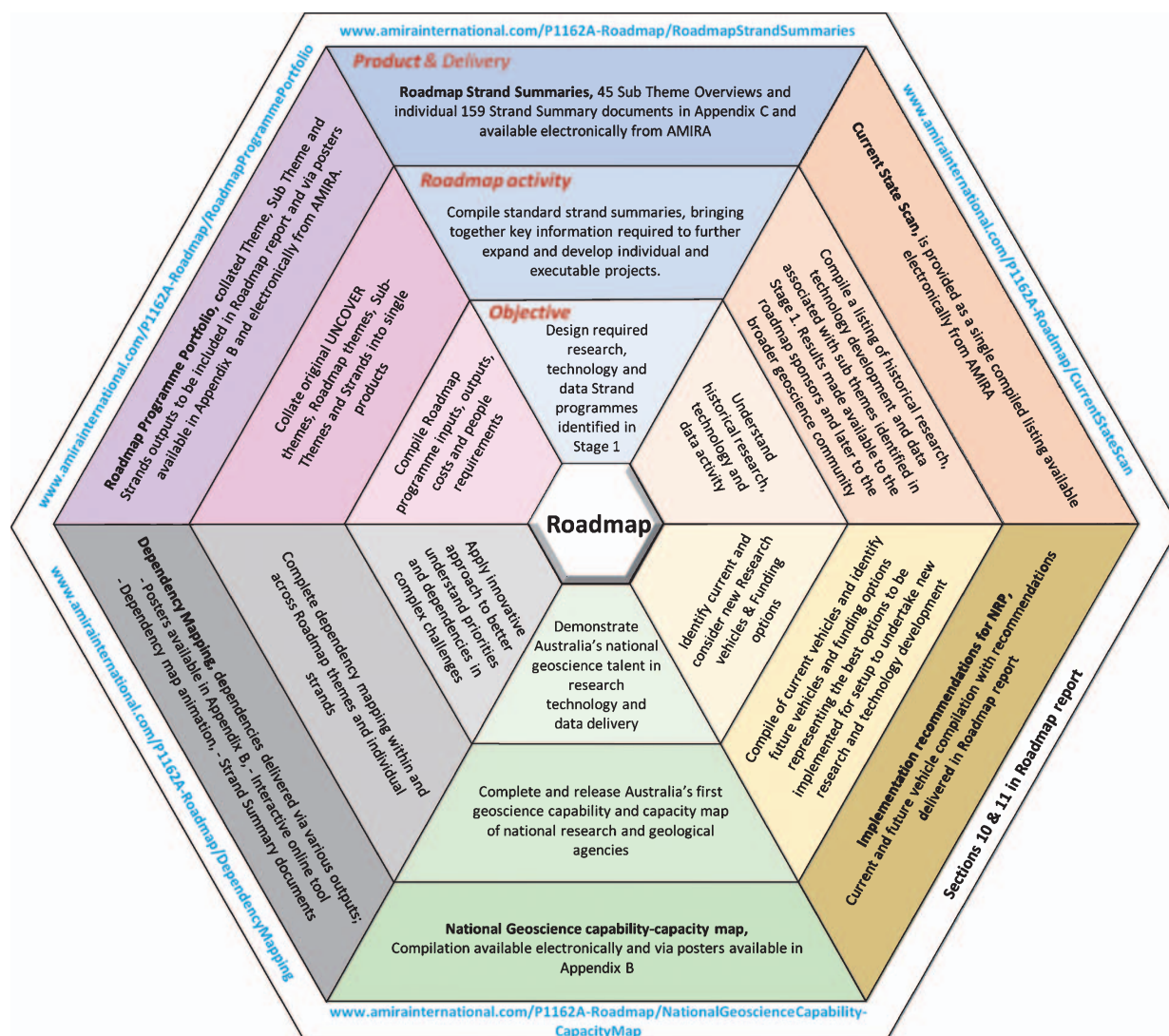
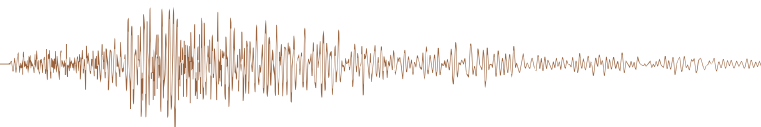


Figure 1. AMIRA International Roadmap for Under Cover Exploration: Unlocking Australia's Hidden Potential.



The Roadmap builds on the UNCOVER Initiative, and provides a badly needed blueprint not only on what needs to be done but also on how it can be achieved.

The Roadmap (Figure 1) is the result of an unprecedented collaboration over the last three years facilitated and managed by AMIRA International. A total of 53 organisations contributed financial support but more importantly 203

personnel representing exploration and mining companies (majors, mid-tier and juniors), METS suppliers, the research community and industry peak

bodies contributed to the construction of the Roadmap. This is one of many industry Roadmaps that AMIRA International has developed over the years.

As the Roadmap outlines, to lower the uncertainty and risk associated with exploration in areas of cover, new data, new knowledge, new tools, new approaches and new skills will be required. The potential prize is huge – perhaps the next Olympic Dam, Mount Isa, Broken Hill or Kalgoorlie's Golden Mile, hidden under cover and waiting to be discovered. Such a discovery would provide a huge fillip to job creation, regional infrastructure, not to mention future mineral exports, and to exports of technology and services. We must also not forget that in developing solutions to the challenges outlined by the Roadmap, we will be enhancing Australia's research capability and training the next generation of industry leaders, operators and researchers.

The AusIMM has reported that the mining industry directly employs some 240 800 people and, with the METS sector, contributes some \$236 billion per annum to Australia's economy. We will not be able to grow this, let alone maintain it, unless we start finding new world class deposits. Considering the length of the lead times to discovery and then to production, well we had better start pretty soon.

History tells us that it can take up to 10 years to make an economic discovery

and up to 15–20 years to put it into production – statistics that are likely to get worse in areas of cover. In order to avoid the so called 'production cliff' in non-bulk mineral reserves in the near future we need to speed up discovery and of course accelerate the development time. As Richard Schodde has reported, half of the current mines in Australia are likely to stop producing in the next 15 years, and furthermore two thirds of current reserves, at least for gold, will have been depleted.

The exploration tool kit and business models that have been successfully used, and indeed improved upon, since the advent of modern exploration in the 1950s in Australia are not going to be adequate to overcome the challenges of exploring under cover. Success requires change, doing things differently, and critically embracing a new collaborative paradigm by all sectors of industry, governments and the research community.

With real collaboration and co-investment from the various stakeholders along with a planned and unified approach to the implementation of the Roadmap, it is possible to boost Australia's economic mineral inventory.

The Roadmap calls for an investment in excess of AU\$900m over 15 years in addition to the continued funding of incentives and programmes currently in place by the Australian Federal, States and Territory agencies. This funding is for new research, enhancing existing technologies, including geophysical, as well as developing new ones, and also to accelerate existing pre-competitive data acquisition programmes. Geophysics is going to play an even greater role in exploration under cover, as will better integration of data and knowledge aimed at improving our understanding of mineral systems which will enable improved prediction and detection of economic ore systems at a range of scales.

The Roadmap identifies some 'low hanging fruit', i.e. activities the results of which will provide impact in the short term:

- Understanding the type, ages and depth of cover leading to the production of 3D geology and palaeosurface maps and layers,
- Characterising and mapping major mineral system 'foot-print' signatures through compilation of geological, geochemical and geophysical data, and
- Improving the understanding of mineral systems across scales for different deposit types and commodities.

The next 12 months is going to be important; we need to bring together an Implementation Task Force, a representative group of senior personnel from key stakeholders, who will be tasked to make some decisions on the way forward presented in the Roadmap. Agreement on the funding model, and the nature of entity required to execute the R&D programmes are going to be key outcomes. The latter, which we have called the Australian Centre for under cover Exploration (ACE), will require a new collaborative model, one that is laser-focussed on developing the solutions in the most optimal and timely way. This means bringing together the best brains trust to address each of the research and technology development challenges, perhaps via a DARPA style operating model. AMIRA International stands ready to help to make this happen.

We encourage all geoscientists to get behind this; we all should contribute anyway we can by lobbying, by encouraging our leaders whether in our companies, or in governments, to support this endeavour so that consensus can

be reached and we can start the important work the Roadmap describes and truly UNCOVERING Australia.

To register for a copy of the AMIRA International Roadmap please visit www.amirainternational.com or go to AMIRA International Roadmap.

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