

CASE STUDY OF IMPACT

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# Supporting leading-edge research facilities

The Advanced Resource Characterisation Facility (ARCF) delivers high quality and accurate information to improve the understanding of mineral resources

## The challenge

Mining, exploration, and mineral processing require high quality, accurate, mineral resources characterisation and composition data.

At key stages in the exploration, mining, processing, and metal production value chain, availability of such data can make a substantial impact to the viability and productivity of a mining operation.

Often this data can only be produced by specialists using highly advanced equipment or through services customised to a company's specific needs.

## The response

SIEF has provided a \$12.4 million grant as part of the Research Infrastructure Program to support the establishment of a new Advanced Resource Characterisation Facility (ARCF) in Perth as part of the National Resource Sciences Precinct (NRSP).

The ARCF provides a global hub for metre to atomic scale analyses through an advanced workflow involving the measurement and interpretation of multi-scale compositional analyses for the research community, industry, and

The ARCF has a range of state-of-the-art analysis and characterisation equipment, which is applied across the minerals value chain from exploration to processing.

government geoscience agencies. SIEF funding has enabled the purchase and installation of :

- the Maia Mapper, hosted by CSIRO (for core-scale chemical mapping);
- the NanoSIMS, hosted by UWA (for sub-micron elemental and isotopic mapping); and
- the Geoscience Atom Probe, hosted by Curtin University (for sub nanoscale characterisation).

Combined with the partners' existing equipment, and data management, processing, and integration made possible by the Pawsey Centre supercomputer, the ARCF will provide a multiscale approach to the characterisation of geological materials unmatched anywhere in the world.

## → The impact

The suite of instruments run by the ARCF allows the research partners to generate a workflow of minerals research activity that can progress research outcomes gained from the use of one instrument to further research on another instrument. It allows for a high degree of collaboration and synchronisation in the research process by bringing the research together in a 'one stop shop', meeting the resources sector's growing need for increasingly detailed information.

Although the project has yet to reach a point where it is possible to explore the nature and scale of potential benefits, the leading-edge nature of the facilities is gathering interest both nationally and internationally.

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This case study was developed by ACIL Allen and CSIRO in 2016 as part of an overarching review of SIEF's Impact.