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## Cross-institutional collaboration through the prism of FOSS and Cloud technologies

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The AuScope Virtual Research Environment (AVRE) program's Engage activity was devised as a vehicle to promote low-barrier collaboration projects with Australian universities and publicly-funded research agencies and to provide an avenue for exploring new applications and technologies that could become part of the broader AuScope AVRE portfolio. In its second year, we developed two projects with another cohort of collaborative projects proponents from two Australian research institutions. Both projects have leveraged and extended upon previously developed open-source projects while tailoring them to clients' specific needs.

The latest projects developed under the AuScope AVRE Engage program were the AuScope Geochemistry Network (AGN) Lab Finder Application and the Magnetic Component Symmetry (MCS) Analysis application. The Lab Finder application fits within a broader ecosystem of AGN projects and is an online tool that provides an overview of participating laboratories, their equipment, techniques, contact information with a catalogue that sums up the possibilities of each analytical technique, and a user-friendly search and browsing interface. The MCS Analysis application implements the CSIRO Orthogonal Magnetic Component (OMC) analysis method for the detection of I variations in the magnetic field (i.e., anomalies) that are the result of subsurface magnetizations. Both applications were developed using free and open-source software (FOSS) and leveraged prior work and further expand on it. The AGN Lab Finder is an adaptation of the Technique Finder originally developed by Intersect for Microscopy Australia, which was redesigned to accommodate geochemistry-specific equipment and describe its analytical capabilities. It provides an indexing mechanism and a search functionality allowing researchers to efficiently locate and identify laboratories with the equipment necessary to their research needs and that satisfies their analytical capability requirements. The MCS Analysis application is a derivative product based on Geophysical Processing Toolkit (GPT) that implements a user-centred approach to visual data analytics and modelling. It significantly improves user experience by integrating with open data services, adding complex interactivity and data visualisation functionality, and improving overall exploratory data analysis capability.

The Engage approach to running collaborative projects has proved successful over the last two years and produced low-maintenance tools that are made freely accessible to researchers. The approach to engage a wider audience and improve the speed of science delivery has influenced other projects within the CSIRO Mineral Resources business unit to implement similar programs.

This case study will demonstrate the social aspects of our experience in cross-institutional collaboration, showcase our learnings during the development of pilot projects, and outline our vision for future work.