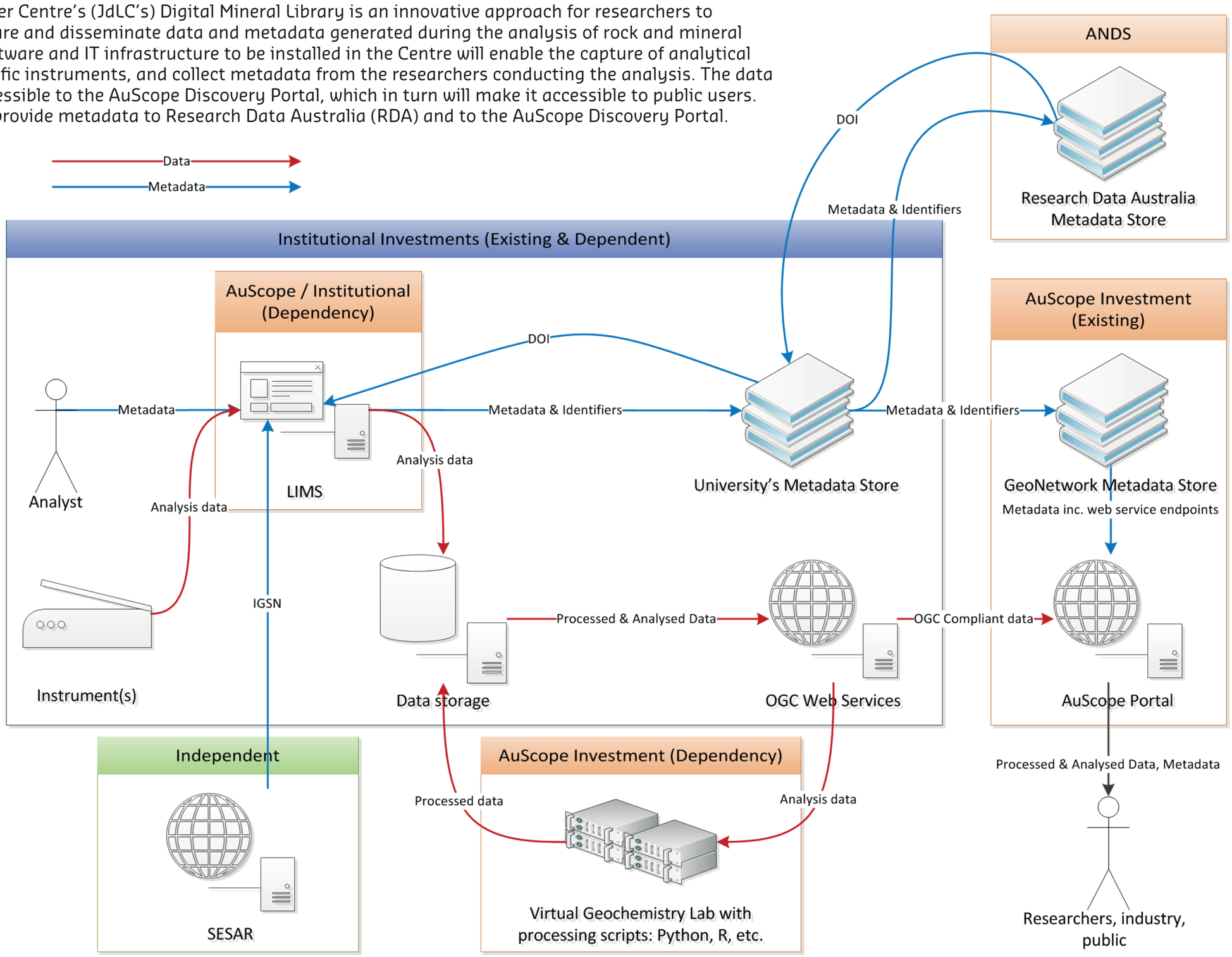
Digital Mineral Library

Adam Brown, Matthias Liffers, Brent McInnes

Curtin University

What is a Digital Mineral Library?

The John de Laeter Centre's (JdLC's) Digital Mineral Library is an innovative approach for researchers to seamlessly capture and disseminate data and metadata generated during the analysis of rock and mineral samples. The software and IT infrastructure to be installed in the Centre will enable the capture of analytical data from scientific instruments, and collect metadata from the researchers conducting the analysis. The data will be made accessible to the AuScope Discovery Portal, which in turn will make it accessible to public users. The system will provide metadata to Research Data Australia (RDA) and to the AuScope Discovery Portal.



How does it work?

Capturing Data & Metadata

A laboratory information management system (LIMS) serves as the entry point for data and metadata. This web-based system will be configured to "sweep" data files generated by the scientific instruments, which it will store in file and database servers on the same intranet. The LIMS will collect metadata about the geological samples, and aggregate this with information about the analyst and instrument setup to form a comprehensive description of each dataset and the circumstances of its creation. Additional metadata will be provided by other organisations at the request of the LIMS: RDA will provide a Digital Object Identifier (DOI) for each dataset, and the System for Earth Sample Registration (SESAR) will provide an International Geo Sample Number (IGSN) for each physical sample.

Disseminating Data & Metadata

Data captured by the LIMS and stored locally will be made externally accessible via Open Geospatial Consortium (OGC) transfer standards such as Web Feature Service (WFS). GeoServer, the open source web application which provides the reference implementation of these standards, will be used to retrieve requested data, convert it to an OGC-compliant transfer format, and send it to the requesting client.

Metadata will be stored in Curtin University Library's metadata store. It can be harvested by other metadata repositories such as RDA or AuScope's GeoNetwork. Once the AuScope Discovery Portal has access to these metadata records it can extract the uniform resource locator (URL) of GeoServer's OGC web service endpoints. This allows AuScope Discovery Portal to retrieve data via GeoServer and display it to its users.

Virtual Geochemistry Lab

The Virtual Geochemistry Lab is a proposed augmentation to the described system. It would allow automatic processing of datasets with appropriate algorithms based on the type of data it contained. The virtual lab would periodically monitor the GeoServer endpoints for any datasets that hadn't been processed with all suitable algorithms and process them accordingly. The new data would be fed back into the intranet storage and made available by AuScope Discovery Portal in the same way the raw analysis data was.

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