# Data driven models

PROJECT P4-001

To analyse recorded real-time data from ore processing plants to improve operations.

The needs and opportunities of industry were analysed, a road map of further research constructed, and a systematic method to separate the influence of processing variables on processing outcomes was developed.

This project led to development of a project to provide extended analysis that continues into 2018.
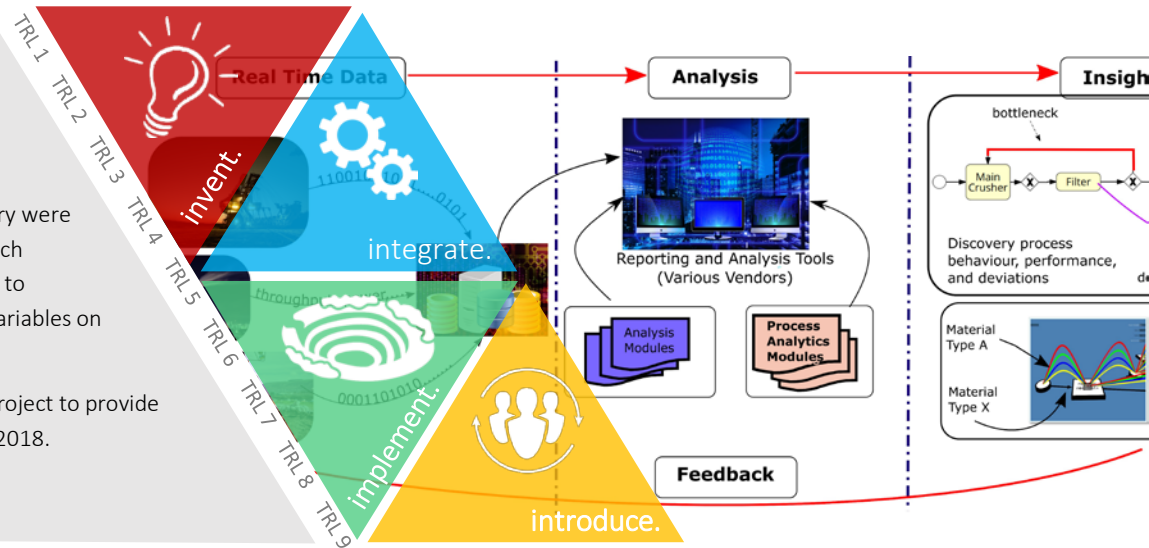
Project Scope

In this project, a team of data scientists and mathematicians from the Queensland University of Technology (QUT) is collaborating with CRC ORE to analyse recorded real-time data from ore processing plants to improve operations.

With 20 members in total, the QUT's Business Process Management and Applied and Computational Mathematics discipline, together are internationally recognised as one of the world's leading research groups on business process modelling, automation and analytics, and computational mathematics. The disciplines have established a number of strong international collaborations and regularly attract international visitors to enrich the research environment. Further, the disciplines are well-connected to a substantive and diverse network of partner organisations, including major Australian organisations such as Suncorp, Brisbane Airport Corporation, and the Queensland Government.

The team members involved in this project are Prof Arthur ter Hofstede, Prof Kevin Burrage, Dr Moe Wynn, Dr Suriadi Suriadi and Sander Leemans.

Project Manager:	Paul Revell, CRC ORE
Project Leader:	Prof. Arthur ter Hofstede and Prof. Kevin Burrage, QUT
Timing:	July 2016 – December 2016
Participants:	QUT, CRC ORE

Image: Supplied by QUT.

Background & aims

To remain competitive in today's challenging global economy, the ability to achieve more with less is critical for mining companies. Mining operations record large amounts of data from multiple sources, such as block models and online plant control systems. This project aims to use this data to optimise resource extraction.

The key challenge in this project lies in the development of robust and effective data analytics that fully exploits the inherent richness of information contained in real-time data. Such an endeavour is challenging due to high level of variability in the process of minerals extraction, inherent uncertainty in the estimation of rock properties, and high-level of noise in the data itself (e.g. inaccurate data and missing data).

Focus on outcomes

- To communicate to industry the potential of modern data analytics techniques.
- To find industry partners interested in exploring the application of these techniques to their data.
- Determine the suitability of some existing data analytics and machine learning technology for application in the mining domain.
- Present initial outcomes of data analyses.
- Explore the potential of the application of data analytics to business process improvement in the domain of mining.

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