

# Unlocking Value: The Role of Ore Body Knowledge (OBK) in Mining

## Why OBK Matters

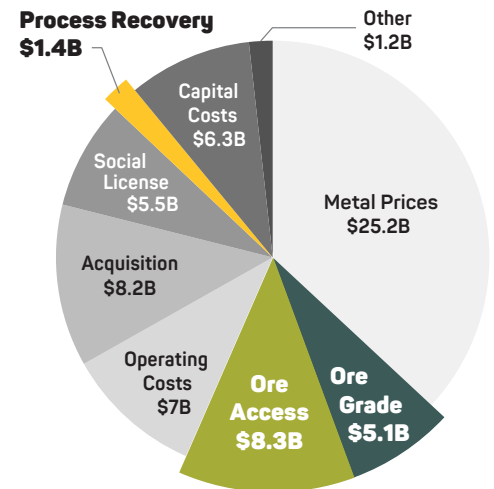
Mining companies often face financial losses due to geoscientific challenges, leading to mineral asset impairments. Studies show that **30% of these impairments** (accounting for 20% of total financial losses) are linked to issues such as **ore grade, ore access, and process recovery** (pie chart; Gillis et al., 2023, 2024). Therefore, understanding the **value of OBK** is crucial for reducing risk and improving economic returns.

## OBK Project and the Value of Information (VOI)

This project aims to **quantify financial and environmental risks** associated with poor OBK and develop **innovative data-driven solutions** to enhance decision-making in mine planning and development.

## Key Questions We Address

- What is the **financial impact** of good vs. poor OBK on mining?
- What **data types** are essential for sufficient OBK, and how do we evaluate them?
- **When** should different datasets be collected throughout the mining cycle?
- **Who** collects OBK data, who funds it, and who benefits?
- What is the role of **emerging core sensing technologies** in improving OBK?



*Categorised value of impairment events declared by TSX-listed mining firms between 2002 and 2015. Modified after Gillis et al. (2024, Resources Policy).*

## Ongoing Projects Related to OBK and VOI

### The Internet of Geosensing Map (IoGMap)

Mapping the flow of the information to create the internet of geosensing map. The goal of this work is to identify key domains, activities, and processes that rely on geological data and show how this data is used to create geological and geometallurgical models.

### Monte Carlo Modelling of Ore Body Surfaces

Modelling compiles tested and unfalsified geological hypotheses conditioned on available data. Its primary objective is to guide actionable strategies. Informed decisions require uncertainty quantification, achievable via Monte Carlo sampling.

### Density in Mineral Resource Estimation

Quantifying bias and uncertainty in density measurements. Mineral resources depend on grade, volume, and density, but density errors impact ore tonnage estimates and often receive less attention than geochemical assays.

**Visit our booth #436 in the PDAC Exhibit Hall to find out more or follow online at [www.mdru.ubc.ca](http://www.mdru.ubc.ca)**

## Meet The Team

**Project Leads:** Dr. Shaun Barker | Dr. John Steen | Dr. Dave Lawie | Dr. Doug Schouten | Dr. Cassidy Harraden | Dr. Lindsey Heagy  
**Postdoctoral Researchers:** Dr. Jacob Forshaw | Dr. Xiaolong Wei  
**Graduate Students:** Carolina Marin Suarez | Rossana Borelli

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