

You're so vein – cognitive bias in the resource estimation process

D.A. Sims¹

1. Director, Dale Sims Consulting P/L, Bolwarra NSW 2320. Email: dalesimsconsulting@gmail.com

Keywords: mineral resource estimation, cognitive bias, judgment.

ABSTRACT

Resource estimation is a human endeavour, complete with our innate foibles and frailty. As geoscientists we are trained in the 'scientific method' to some extent, yet as our personal experience and professionalism develop, we adopt different perspectives and practices which guide our approaches to estimation and its related geoscientific problems. Sound and valid judgement is at the core of competence, yet how do we recognise our own abilities or shortcomings, as well as assess the validity of our decisions?

Cognitive biases are mental errors and reasoning faults caused by our simplified information processing strategies. The geological profession relies on interpretation of mineralisation domains as part of the estimation process, and the opportunities for cognitive bias are abundant in domain development. This paper focuses on the interpretation of high-grade domains and their continuity, and case studies are presented from vein or lode dominant gold and base metal deposits.

Opportunities for mitigating the potential impact of cognitive bias on projects are discussed, although fundamental issues relating to how our industry functions stands in the way of significant progress. A desired outcome of this submission is to build wider awareness of the factors influencing cognitive bias in our estimates and broaden the consideration of their potential impacts.