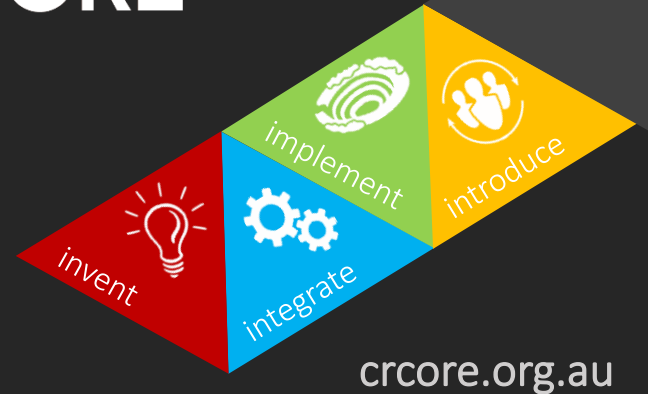


DEVELOPING A RISK MANAGEMENT MODEL TO SUPPORT NEW TECHNOLOGY ADOPTION IN THE MINING INDUSTRY

Project number: P4-009
 Program Coordinator: Greg Wilkie
 Project Leader: Tim Rose
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 Participants: QUT, CRC ORE



PROJECT OUTCOMES

With a particular focus on ‘pioneering’ companies, the results provided input into the development of the Model of New Technology Adoption Risk (MoNTAR). This Model (Figure 1) formed part of a ‘toolkit’ to assist mining companies navigate the uncertainty and risks associated with new technology adoption.

In summary, the research findings highlight *Pioneers or Early Adopters* of new technology tended to:

- apply more comprehensive and integrative risk management practices at a company-wide level; and use a wider array of risk management methods more frequently.
- perceive technical risks pertaining to the performance, fit and function of the new technology as the most critical when deciding whether to proceed with a new technology.
- possess greater managerial ‘bandwidth’ to consider externally focussed risks (such as reputational risk) at the earlier stages of the adoption process, and the alignment to long-term business objectives and opportunities.

By applying risk management methods (both qualitative and quantitative) in an integrative way, these pioneering companies obtain a clearer picture of their exposure to risk throughout the technology adoption process and identify how they can reduce sources of uncertainty to improve risk control.

The research emphasises a need for mining companies to develop a customised approach to managing new technology adoption risk (considering its systemic nature), greater strategic focus on long-term research and development, improved collaborative efforts with suppliers and technology vendors, and increased technology diffusion from outside the mining sector to maximise the benefits of technology adoption.

BACKGROUND TO THE PROJECT

The successful adoption of step-change technology requires a different approach to risk management to effectively respond to dynamic levels of complexity and uncertainty. This is particularly relevant to the mining industry, which is characterised by features that can pose obstacles to the creation and capture of value from new technologies, including cyclical market conditions; high capital costs in new mining investment; operational uncertainties; rapid changes to regulatory and reporting requirements; and integration challenges across the mining value chain.

Project P4-009 aimed to investigate on how mining companies can improve the management of risk and opportunity throughout the new technology adoption process, in a systemic and integrative way. This project contributes to CRC ORE’s Program 4 objective of developing management systems to support organisational change to “ensure the benefits of disruptive new technologies can be sustained in what are often entrenched operating cultures”. Program 4 recognises that the mining industry can be reluctant to adopt new technology due to misaligned organisational systems and processes, including risk management; compounded by high levels of complexity and uncertainty throughout the new technology adoption process.

The research was conducted over two stages. Stage 1 consisted of an interview program with 26 senior representatives from mining companies operating in Australia. Stage 2 of the research was an international comparative survey of 207 executives, directors and managers from both the mining and automotive manufacturing sectors, to identify best practice in enhancing the technology risk management capability.

Figure 1. Model of New Technology Adoption Risk (MoNTAR) Best Practices

