

# Increasing Production Systems Availability through Remote Support Discipline

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## ABSTRACT

Technology adoption in the mining industry has been steadily increasing over the past decade, driven by the need to improve operational efficiency, safety, sustainability, and profitability. As mining companies wish to implement solutions to improve mining safety and productivity, various technologies are being integrated into mining operations to enhance processes, reduce risks, and optimise resource utilisation.

Automation technologies, such as autonomous haul trucks and drilling equipment, are being used to improve efficiency in tasks like ore extraction and material transport. These technologies reduce the need for human intervention in potentially hazardous environments and automate transactional work enabling stability in operations.

Adoption of new technologies such as autonomous trucks requires a strong focus on foundational operational technology (OT) and a systems-thinking approach. OT support is critical however, OT is traditionally not considered or integrated into standard maintenance activities. Consequently, sourcing and applying service support to OT systems in real-time has posed significant challenges to date.

Neglecting the monitoring and upkeep of these operational technologies and equipment can lead to a host of adverse consequences. Operating instability becomes more prevalent, necessitating reactive measures, and the vulnerability to cybersecurity threats increases significantly. These implications, though not always apparent to mining operators, can have severe repercussions on various aspects such as safety, environmental, social, and governance (ESG) commitments, cyber risks, productivity, and asset management costs.

Remote operations support refers to real-time, 24/7 monitoring, control and support of site OT: network, production systems, maintenance systems, enterprise systems and mobile and fixed plant through a single interface remote from site.

The presence of a disciplined team, grounded in a systems-oriented approach, is of the utmost importance to remote monitoring, given the intricate interdependencies of OT systems. The ability to understand the relationships among multiple systems, coupled with the capacity to distinguish between symptoms and root causes, assumes a pivotal role in operations.

Through the diligent practice of monitoring and the astute understanding of system thresholds, remote operations support can actively identify constraints with focus around the removal or alleviation of system constraints, which, in turn, serves as the enabler for transformative advancements in technology output.



## **SPEAKER BIOGRAPHY**

Sharna has 30 years of experience in the Resources sector with her career focusing on Engineering, Technology and People. Her career has involved working in large global mining corporations to now being the co-founder and CEO of Imvelo.ai. This diverse career allows for lessons learnt in the adoption of technology at the minesite to be shared for the success of others. Imvelo has grown under Sharna's stewardship since its formation four years ago and has a team of mining engineers, automation and OT specialists that create resource value through the design and delivery of autonomous, connected and electrified digital mining operations.

Sharna holds a PhD doctorate in Engineering, a first-class double degree in Chemical Engineering and Science. Sharna was previously awarded the Technology Woman in Resources Awards for Queensland. Sharna is a Non-Executive Director of ASX-listed company Queensland Pacific Metals, and a Non-Executive Director of CarbonLink.