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Abstract

**The critical need for accelerating innovation in the mining sector**

The mining sector is facing many challenges in delivering minerals to market given rise in demand especially for key renewables related mineral supply.

Some of the big “hairy” challenges are reflected in the difficulties around getting permits and the social licence to operate especially given climate change and the energy intensity of the mining industry.

Accelerating innovation and collaborating together has never been so critical. Open innovation systems are more important than ever to achieve this.

Gekko Systems has always had a particular focus on reducing energy intensity and increasing energy efficiency. This has resulted in a focus on new flowsheets, pre-concentration, reducing treatment of gangue/waste, utilising low energy technologies as well as being instrumental in the establishment of not-for-profit CEEC International – the Coalition of Eco-Efficient Comminution. Increasingly, mining companies are looking to reduce their energy footprint and to utilise renewable / low carbon energy sources which will place further pressure on designing low energy and flexible mineral processing facilities.

The capacity to successfully deliver new innovation is still problematic for the mineral processing sector and mining industry which still has many barriers including high capital investment risk, low risk profile of engineers by nature, influence of investors,etc. Many mineral processing flowsheet designs are designed to minimise risk not energy. Timelines/budgets no longer allow for pilot studies. The sector must find new pathways to accelerate collaboration, knowledge sharing and innovation and a number of new pathways to market are being trialled and established. However, it is also critical for the innovation to take place across the whole value chain of mining to eliminate waste and maximise efficiency – including accessing and sharing data across the pillars of geology, mining and metallurgy.