Industry View

THE IMPERATIVE FOR INNOVATION Peter Bryant, Clareo, USA

The case for innovation in the mining industry has never been more compelling. Whether you believe the industry is in a sharp dip in a significant 'sawtooth' cycle or in the midst of a bust – the imperative is the same. Despite record production levels and still above-average prices compared to the lows of 2000, the industry is struggling to make profits and provide the returns on capital that investors are seeking. This represents a large-scale destruction of value over the last 15 yr.

The last 10 yr have seen a sustained rise of OPEX and CAPEX costs and a rapid decline in productivity. This trend is unsustainable especially against other key structural challenges and forces shaping the future of the industry:

1. Despite short-term fluctuations, there is long-term sustained demand for commodities.
2. Environmental concerns continue to mount.
3. Geopolitical pressures and community activism are growing.
4. Finding, building, operating and closing a mine keeps getting harder.
5. Despite enormous challenges, the industry has consistently underinvested in technology and innovation.

Those wanting to reverse the negative impact of these trends and begin to capture the full value of their investments will need to make important transformations in their business systems including: rapid and accurate characterisation of ore bodies; faster development of mines; a faster, modular and more flexible method of extraction; and improved recovery rates and mine planning. The degree of transformation required can only be realised if we discover a new approach to opencast and underground mining.

The Mining Company of the Future is the transformational paradigm that serves as the focus for this innovation. Several mining companies have developed approaches to the Mining Company of the Future. Rio Tinto, the most notable example, recognised the beginning of this supercycle in 2006 and invested accordingly. The results: Rio Tinto has dramatically increased its output of iron ore, earning the company record profits. However, while Rio Tinto focused on the necessary area of optimising and automating current mining methods, it did not pursue truly innovative approaches and processes; indeed, the company recently made significant cuts to its innovation team.

The innovation deficit is real and the long-term underinvestment in innovation, currently around 0.5% of revenue (compared to 2% – 2.5% of the oil and gas industry), has placed the mining industry in a difficult situation that demands a renewed focus on both technology and business-model innovation.

For technology innovation, we need to look at a two-part model:

1. Knowledge-based analysis and planning.
2. A new operating platform.

The former drives value creation, while the latter turns value potential into reality. These are complementary activities that require different skills and management approaches. Also, an analysis by Clareo of energy efficiency and OPEX in a sample mining company shows that opportunity for significant operational efficiencies exists, even when those improvements are not immediately apparent.

The benefits of technology-driven improvements are evident. The reality, however, is that many mining companies do not have the knowledge or resources to implement dramatic technological solutions. Therefore, open innovation – through collaboration and alliances with world-leading partners in key areas – is needed to achieve rapid and effective change. Open collaboration and alliances can help companies more rapidly develop and implement a new production, knowledge and planning platform. Furthermore, as more companies successfully adopt Mining Company of the Future initiatives, alliances will be further strengthened as member companies become more competitive.

Business-model innovations that result in more effective ways to secure rights to resources, including the social license to operate, are an important part of the Mining Company of the Future concept and also influence the direction of technology innovation. The Kellogg Innovation Network (KIN) Catalyst for Mining generated the creation of the multi-stakeholder Development Partner Framework. The DPF calls for mining companies to move from extraction companies to true development partners, focusing on the three pillars of shared purpose, thriving ecosystems and competitive companies, communities and countries.

To build a competitive advantage, reverse the trends of the past and set the industry on a new course, mining companies must begin taking the necessary steps towards transformative change today. By opening dialogue with world-class leaders, especially those from outside the mining ecosystem, companies will drive rapid and effective change. Embracing technology and business model innovation is no longer an option, but an imperative.

About the Author

Peter Bryant is a partner at Clareo, a strategy-consulting firm designed to inspire and achieve transformational change, and a senior fellow at the Kellogg Innovation Network.