

The Opportunity for Miners

Unprecedented Challenges Require Innovative Solutions

Mining companies face an unprecedented series of challenges that threaten their long-term success and, in some cases, even their viability. These new, complex challenges demand more than the traditional, short-term responses to prior industry downturns.

The Mining Industry Today

A variety of forces have driven up cost, time and complexity of building and operating mines, fewer significant new discoveries that are more expensive to find and lack local infrastructure to develop; declining ore grades and productivity; shortages of talent; government unpredictability and intervention (sometimes to the point of outright nationalization) and increasing community activism concerning social and environmental impacts.

Despite continued long-term increases in demand, short-term fluctuations in market prices—on top of unsustainable yet persistent increases in CapEx and OpEx costs and declining productivity—are scaring away investors and causing project deferrals and cancellations.

The traditional responses to such difficulties will no longer work. Higher capacity equipment won't sufficiently increase productivity. Making acquisitions and cost cutting to meet short-term profit goals—including pressuring suppliers and abandoning research and innovation initiatives—simply pushes the fundamental problems down the road. Building bigger walls to keep out the community only adds to genuine grievances. High-grading current mines and shelving projects until prices bounce back will only create the marginally profitable mines of the future.

There has been progress and some success but too often this is at a company/project level. By and large, mining companies are reverting to short-term approaches and for the most part applying the methods of the past without addressing the root causes of the current challenges.



When Miners...	They Say That...	In Reality...
Build Mines	<ul style="list-style-type: none"> • It's too expensive • It's too risky • There's too much government intervention 	<ul style="list-style-type: none"> • The approach to social, environmental & engineering design is broken • The private/government relationship is win-lose
Run Mines	<ul style="list-style-type: none"> • It's too expensive • There's declining productivity and grade • They're uneconomic in the face of price declines 	<ul style="list-style-type: none"> • The current mining methods are outdated, unsustainable and not scalable (i.e. diminishing returns)
Engage with Rest of World	<ul style="list-style-type: none"> • Activist NGOs are unfairly attacking their practices without regulation • Communities and governments want too much • Mining is the easiest to blame • Environmental impact isn't that severe or broad • Mining is misunderstood • At least we're not as bad as 'those guys' 	<ul style="list-style-type: none"> • There is a lack of shared purpose with all stakeholders • There is no mutual understanding or respect for communities • Life of mine plans are used instead of 100-year regional development plans • The focus is on corporate profits • The approach is on engineering vs. systems • There is no true engagement with all stakeholders to ensure an effective and equitable investment of the wealth generated by resource projects

Whether a CEO of a mining company believes the industry is in a deep trough in the super cycle (often referred to as a saw tooth cycle) or the beginning of a bust, the imperative remains the same—to bring innovative solutions to these intractable challenges and arrest and reverse unsustainable trends. Certain leading mining companies have made progress but the industry as a whole lags.



A New Approach to Mining

There are significant opportunities for mining companies to move from being thought of as an “extractive industry” to sustainable “resource development partners” that are substantively collaborating with key stakeholders to create long-term value (rather than short-term cost and production orientation). The miners of the future will no longer be focused on “inside the fence” operational islands of semi-automated machines but rather will be managers who are meaningfully engaged with local knowledge and employ a rich variety of fully-optimized automated, networked capabilities.

Consider how the Oil and Gas industry’s investment in technology and capabilities enabled the Digital Oil Field of the Future concept, which, along with other innovations, is generating enormous value for the industry by addressing many of the same challenges.

Hence the opportunity exists to:

- Move from Cost Reduction to Value Creation (become a Resource Development Partner)
 - Provide solutions that don’t just reduce costs but improve long-term economic, social and environmental sustainability of the mine and surrounding region and dramatically improve productivity
- Leverage Big Data, Analytics and Integration
 - Discover powerful insights from integrating and analyzing a tremendous amount of data being produced by myriad of geological systems, equipment, and industrial control across the mine
- Focus on Key Components of the Value Chain
 - Allow service providers to take over specialized mining functions on behalf of mining companies
- Develop Next Generation Mining Methods
 - Move directly from mechanical to a network approach and positively impact costs and productivity, instead of plodding through a cycle of processes: labor intensive to mechanical, then to automated and finally to a network approach

It is time to act decisively and boldly. The situation demands a radical reshaping of how mining companies secure and maintain their operational and social licenses. There must be a true step change in how mining is conducted, change that addresses the root causes of the fundamental problems facing the mining industry.



How Clareo Can Help Develop Your Strategy & Approach

Whether you are an established top-tier mining company or a junior, Clareo's combination of domain knowledge, full ecosystem engagement, and growth and innovation strategy expertise can provide you with a range of services to successfully grow your company. This includes:

- Developing approaches to innovation to smartly address your short-term challenges of cost and productivity
- Designing strategies and roadmaps to pinpoint where and how you are best positioned to play in the evolution of the mining industry
- Planning to make sustainability core to your strategy to reduce risks, strengthen financial stability and improve investor confidence
- Building a runway and capability for innovation initiatives and actionable steps towards becoming the Mining Company of the Future

About Clareo

At **Clareo**, our mission is simple: we help businesses grow.

We help leaders create new ways to grow—core, adjacent and new business—and build the plans and capabilities needed to get there. We also have deep expertise in creating strategy and operating models for the design and launch of corporate venture groups.

We do all this with our clients, not just for them so that the outcome is buy-in and an actionable road map, not just a book or set of slides that sit on the shelf. When needed, we'll even come alongside to help our clients achieve their plans.

Our clients look for Clareo when they're looking for bold new ideas, outside-in thinking fueled by a network of leading global experts, and plans that lead to action and results.

To find out more about Clareo, visit: www.clareopartners.com

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