Maximizing Value in the Mining Industry
New approaches for a volatile environment

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Mining companies are under pressure to achieve speed to market and get things right the first time in a world of fluctuating demand and price volatility. What is more, the increase in volatility of recent years shows no sign of abating as uncertainty in the global economy continues.
Volatility continues to be a major driver in the mining industry as price volatility in metals and mining products has increased, with rising Chinese demand and a lack of investment in supply adding pressure to prices. Further contributing to this volatility are miners themselves as companies tend to react too abruptly or too late to market signals, and struggle to ramp production down or up, resulting in missed opportunities, poor investment decisions and negative consequences to the bottom line. It is increasingly clear that this dynamic environment requires companies to rethink ways of doing business in order to make faster, better-informed operational decisions, improve agility and generate adequate returns cycle after cycle.

Mining companies are well aware of the increase in global financial, economic and price volatility in recent years. Various developments across price, demand and supply in 2012, for example, drove continued volatility. Commodity prices fell as commodity markets moved from deficit to surplus positions. Specifically, average market prices for key commodities declined in 2012 in comparison to 2011: iron ore (-23 percent), copper (-10 percent), nickel (-23 percent), aluminum (-16 percent) and coking coal (-27 percent). The S&P Diversified Metals & Mining Index declined 1.2 percent versus a nine percent gain in the cross-industry S&P 150 Composite Index. Gold prices, however, saw an annual average price increase of six percent, reflecting the economic uncertainty that affected the global financial markets throughout the year.

Demand in 2012 also fluctuated. Amid a volatile economic backdrop, Chinese GDP missed analyst expectations, averaging an increase of eight percent in 2012 (compared with nine percent in 2011). Steel demand grew by one percent as the market reached saturation. Consequently, commodity consumption fell. In 2012, copper consumption dropped 0.1 percent and seaborne iron ore demand rose 1.8 percent, compared to respective growth rates of 5.4 percent and five percent in 2011 (steel production accounts for 40 percent of mined commodity consumption). Gold demand increased in line with initial US Federal Reserve quantitative easing (QE) measures.

Regarding supply, new supply came online in 2012 amid weaker demand fundamentals, which resulted in mineral production exceeding consumption. Base metals were in surplus in 2012, as producers struggled to cut output to stabilize prices—copper production increased by three percent and aluminum and nickel production both grew six percent, leading to a market surplus of approximately one, two and three percent, respectively. In short, these activities reinforce that volatility is the new norm.

Responding to and managing operations in a volatile environment—particularly in a downturn—has become a major challenge for most mining companies. It has been said that changes in mines often happen on geologic time—very slowly. Miners then talk about how ramping up and slowing down needs to be able to happen faster. It can take months before output is realized, and by the time product arrives to the customer, the price can not only fluctuate, but also fall precipitously.

Moreover, the information miners tend to use to make production decisions is frequently from various parts of the organization and often separate from mine-operation information, all with varying degrees of delay. And the use of analytics in the industry is still low and immature. As a result, miners depend on backward-looking, lagging indicators combined with a disconnect between corporate decision makers and local operations.

Ultimately, these conditions constrain a mining company’s ability to understand its current operations, distinguish market signals, react and make timely decisions, and respond with agility. Yet, opportunity exists in all types of environments. Accenture believes mining companies can improve their ability to respond to market conditions and increase value in an ever-volatile environment by considering three actions to take: focus on core, optimize core operations and address capital inefficiencies of core activities. Our experience with mining companies around the world has shown that by doing so, miners can improve their ability to make better operational decisions and achieve short and long-term benefits—and ultimately drive sustainable high performance.
1. Focus on core

Stabilize core operations

Identifying core activities enables miners to establish a baseline. Outsourcing noncore activities enables miners to focus on developing a strategy for their core activities and processes. By taking these steps, miners can assess where they are on their journeys to becoming best in class across different areas, and establish a road map to achieve the future state. Maturity levels vary across functions, and thus stabilizing the core will help miners align roles and responsibilities to get everyone on the same page. It is important to stabilize core operations to know exactly who does what when—especially when to ramp up or down.

By stabilizing core operations with a variety of initiatives, miners can gain a better understanding of what their various locations are doing, and thus find synergies and ways to optimize operations. Stabilization can begin with understanding current issues limiting core operations, as well as addressing questions such as: How do you set your targets as a corporation? What levels are you managing to—the shift, hour or month? Is your organization working from near-real-time data? Are analytics being used?

Once a baseline is established, stabilization also involves driving to more granular levels of management of front-line supervision. Moving toward a target attainment-type of thinking focuses a company on standardization, repeatability and information to support quick decision making.

Hand in hand with establishing near-real-time and granular information is knowing what to do with it. A desired state is one of moving toward an integrated mine planning view. Too often planning is not integrated between buildings, countries and day-to-day people, resulting in missed targets and a lack of understanding of the impacts to the business. To attain greater value and increase agility, miners need to have a comprehensive view of the business. This capability can be developed by drawing on sophisticated technology and analytical techniques. Various modeling tools are available in the marketplace today that can be implemented, too.

With such a solution, miners can create models that capture the variables involved in the company’s business—from assets and resources, to current costs and commodity prices. Managers can be better equipped to link long-term forecasts with quarterly, monthly and daily schedules. Different what-if scenarios can then be explored on a real-time basis and managers can perform value analysis by determining the financial impact each scenario will have on the business.

When looking to improve the business, miners tend to focus on either increasing throughput or decreasing cost. Instead they should look at both when prioritizing improvement initiatives. Companies should begin to take a holistic view of where they can optimize costs and ramp throughput up or down. Too often operations are rogue because different groups in different countries continue to operate in their own ways. By focusing on core activities and standardizing them, miners can manage more effectively.

Mapping processes is an important element in supporting integrated planning and a comprehensive view of the business. Mapping a company’s core operations processes—across all parts of the business—helps identify who does what, and thus pinpoint synergies and ways to optimize operations.

Outsource noncore activities

For mining companies to realize value in weak markets, one place to start is to evaluate and determine which activities are core to the business, and then to consider outsourcing activities or functions that are noncore to an outsourcing business partner. This business partner can perform the functions on a mining company’s behalf, all the while supporting health, safety and environmental measures. Identifying what a company is good at increases its potential to improve revenues, decrease costs and excel in the marketplace. By outsourcing nonessential functions, a miner can increase its ability to focus on core competencies, speed time to market and reduce costs.

Today outsourcing is an essential tool for every business, and virtually every industry makes use of it. For mining, logical areas to consider outsourcing include procurement, supply chain, information technology (IT) infrastructure, finance and human resources, as well as operational excellence, continuous improvement and reliability groups. Outsourcing also can be a solution for short-term expansion projects. Experience from other industries suggests that there are benefits to be derived from the increased efficiency that comes with standardizing and streamlining processes and driving out costs. Other important benefits include access to specialized knowledge, such as global supply chain, as needed; resources, such as expert drillers; and enhanced capabilities in key competitive areas. Miners also can gain organizational flexibility and agility by repositioning the workforce as needed, with little notice when ramping up or down.

Accenture’s research across four resources industries shows that companies across the board are falling short of their targets in terms of budget, schedule and/or asset performance. At least three CEOs of major resources companies have been ousted during the past 24 months due to performance directly connected with capital project planning and execution. Focus and emphasis on project controls helps deliver greater value from projects, as well as improved capital efficiency for the entire project portfolio by enabling better control, reducing time to market, minimizing budget variances and improving asset performance.

Variabilize costs

In a downturn, fixed costs can constrain a company. To work around this, mining companies can transform fixed costs into variable costs. One way costs can be transformed is to move to a pay-as-you-go model with suppliers. Miners can, for example, negotiate for suppliers to buy back assets, such as drills, shovels and trucks; they also can arrange to pay for assets as they are used versus paying fully for them and making the investment up front. The pay-as-you-go approach also can be used for people. Consider operational excellence as an example many companies have a group dedicated to this effort, and while useful, companies have not always maximized the full value from the groups. Instead, operational excellence experts could be sourced and ‘turned on’ when needed, and ‘turned off’ when not, in this way also becoming a variable cost.

Another way to transform fixed costs is to set up commercial value-based deals. Under such arrangements, vendors get paid only once they deliver mutually agreed upon results. Thus, the company carries no cost, and the result is consistent profit. This approach is especially suitable to contracts with business partners, such as outsourcing companies, for services such as human resources, global supply chain and back-office operations. Another alternative can be for vendors to put a portion of their fees at risk and receive a premium if they deliver to mutually agreed terms.

Regardless of the market environment, by paying constant attention to the underlying cost base, miners can consistently look to improve the cost position of the organization in up or down times. It takes a clear focus on ongoing improvements in operating efficiency. This focus on cost—combined with actions to variabilize costs—helps miners to be more responsive, adaptable and agile.
Many of the challenges facing mining companies occur in core operations, which are geographically dispersed and have differing levels of maturity in different regions. Miners, however, can pull various levers to optimize core operations and create greater value. Drawing on Accenture experience, we have identified several that most organizations can pursue.

One major lever to pull is in planning. Mining companies spend a great deal of time and energy on planning, but planning in the industry can be complicated. Likewise pulling together the operational information needed to make fact-based decisions about future direction is often difficult. To a great extent, this barrier surfaces because planners lack clear visibility into the full range of business activities. This lack of visibility makes it difficult to factor in the numerous variables that affect plans and limits the ability to consider a variety of planning options. Mining companies can turn to mature analytical planning and management technology solutions to gain a more rigorous and effective approach to planning. With these solutions, executives can obtain a comprehensive view of the business and insight into what drives value in their organizations. This information can then be used to develop practical plans designed to increase operations.

A second lever gaining traction in the industry is centralizing data-primary activities through the control room, dispatch and/or war room. The control room or dispatch can be designated to automate functions, such as controlling plants and processing. War rooms, on the other hand, can help to optimize core operations by serving as dedicated spaces to visualize specific issues and continuous improvement. When an issue arises, for example, managers can look at the organization’s various data sources and run what-if scenarios. The results can help them to decide on a course of action or discuss how to achieve a certain target. A war room also can serve as the nerve center to gain deeper insight into performance, forecasting, budgeting exercises and improvement portfolio management. While many mining companies are in the early stages of developing war rooms, one Japanese mining company has brought this concept to full fruition. It has implemented state-of-the-art technology supported by a robust use of analytics.

A third area of optimization in the industry is with labor, which historically has had a significant non-value-added manual component. Labor inefficiencies can be seen as redundant positions at multiple sites that could be centralized, such as people performing fleet monitoring activities at one site for the local fleet, as opposed to monitoring the entire network’s fleet from a central location. Additional ways to optimize labor is to ‘lift and shift’ data-specific activities, such as centralizing dispatch and control rooms, and using autonomous equipment controllers to drive the use of remote labor. Since most mining areas are remote and have labor challenges, thoroughly investigating which jobs can be done remotely can help drive efficiencies and save costs. In addition, the use of fly in/fly out (FIFO) needs to be an imperative on all jobs in today’s cost-constrained environment.

A final area of optimization, and one that is challenging to address, is that of changing labor’s view of FIFO as the new normal. Steps to change cultures can involve a variety of initiatives and will vary by company, but one approach to consider is to have supervisors fly in while keeping the core operator local and then to stagger shifts. In this way, there is always the rotation of two staggered shifts, and consequently the operator works with different crews rather than the same one over and over. This approach enables a miner to supervise two groups, which has the potential benefit of greater consistency in the way companies operate, as well as objectivity toward crews.

Underpinning all operations should be standard operating procedures to optimize operations and promote becoming best in class. Even with distinct geological differences between mining locations, a core set of procedures can be standardized while still accommodating regional specifics.

2. Optimize core operations
3. Address capital inefficiencies of core activities

In general, mining core activities have been slow to change and adapt, and continue to harbor inefficiencies. A number of opportunities exist for miners to address capital inefficiencies of core activities.

One way to look at capital in relation to core activities is to evaluate how efficiently capital is being deployed. Today, most miners do not look at measuring capital in this way. The prevailing culture has been a throughput one where a goal is set and capital allocated regardless of how long it will take. As a result, output can sit around and be underutilized. Instead—and particularly in a cost-conscious world—miners can take a different approach to measuring output by taking a more financial view of measuring efficiency, from both an equipment and a people perspective. Companies need to apply much more rigor to managing their capital portfolios and making sure that investments pay off.

To help sustain capital, one major area that mining companies can look at is the asset side of the business. Miners can use benchmarks on asset capital, a component useful to validate a company’s capital framework to industry peers. Solutions supported by an online technology exist to capture and benchmark asset information, gathering all relevant asset key performance indicators (KPIs), such as mean time between repairs, mean time between failure, variable cost and fixed cost per asset type, etc., and comparing them to peers. With the tool, opportunity dollars highlight operating cost savings by improving maintenance operations. There is also the capability to add the value of lost production due to an outage, which allows much more of a risk-based approach, and is a beneficial way to sustain capital.

Managing talent differently is another opportunity area for greater capital efficiency by better leveraging existing talent. Mining companies can identify which skill sets they have and look to cross-train people to perform additional roles, helping to minimize investment in hiring additional resources. Going forward, miners need to set the stage about negotiating union contracts with this objective in mind or renegotiate existing contracts. Getting operators to be able to run more than one piece of equipment will help miners become more agile and efficient, ultimately delivering value.

Another way to make resource utilization more efficient is to consider using a service for simulation training. Mining companies can use this service as needed to up-skill their employees and enable them to maintain their new skills. Using a service or establishing simulation training in an urban area also can be a consideration. Mining companies can recruit from a bigger pool of labor resources and potentially position some employees to work remotely at more than one location.
Potential benefits

Accenture believes that mining companies could seek to achieve potential significant benefits by implementing any array of the initiatives presented in this paper. Potential benefits may include:

- **Reduction in the time needed to develop plans, as well as alignment of budgeted plans and operational plans.**
- **The ability to be more predictive, make decisions faster and more accurately with a smaller percentage of error, and ultimately respond quickly to market or business events (e.g., unplanned shutdowns).**
- **The ability to better consider a range of operational issues, which helps to better identify problems, possible outcomes and new opportunities.**
- **Improved cost management and management of capital allocations; more strategic use of capital.**
- **Improved scheduling, closer to just-in-time delivery (reduced warehouse costs, improved parts and equipment scheduling, etc.).**
- **The ability to deliver more of what the market wants and be less exposed to commodity volatility.**
- **Improved overall timing to realize benefits sooner by being in a better position to ramp up quickly when needed.**

The combination of weak and volatile global markets presents mining companies with the challenge of improving business performance by rethinking and addressing a variety of areas across the business with an eye toward maximizing value. Use of the various approaches presented in this paper are designed to help enable improvement and positive business results. By focusing on core competencies, outsourcing various functions and implementing new approaches, mining companies can help put themselves in a position to be cost efficient and agile. Waiting and watching while markets become no less forgiving or volatile is no longer an option. Those companies that take positive steps now, and implement what is appropriate for them, stand to create a foundation for sustained high performance.
About Accenture

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