When major mining projects face trouble, leaders often find it hard to determine how or when to intervene. Six key strategies can help get projects back on track.

Mark Kuvshinikov
VP, Capital Projects & Infrastructure Practice, McKinsey & Company

Piotr Pikul
Partner, Toronto McKinsey & Company

Robert Samek
Senior partner, McKinsey & Company
More than 80 percent of mining construction projects come in late and over budget—and project leaders often find it hard to determine whether, when, or how to intervene. In our experience, their biggest regrets are waiting too long to act and not going far enough when they do. The sector’s profit margins are already slim, and so is the room for error. Drawing on our global experience, we present the following six ways to help owners keep their projects on track and to intervene quickly and effectively when they don’t.

1. **Build a proven team.** Companies often try to turn projects around by parachuting in individual experts. These individuals may be accomplished leaders, but they often work in silos when what’s needed is an overall change in direction. At best, these individuals struggle to integrate their thinking as a team, and at worst they develop ineffectual plans after prolonged debate.

Instead, project owners should create teams of external and internal experts with turnaround experience, complementary skills, and a clear understanding of team missions. The team must operate as a unit, bringing integrated intelligence to focus on specific solutions for specific problems.

When a brownfield smelter project was bedeviled by cost overruns and delays, the company assembled a turnaround team of project veterans and younger professionals with deep analytical skills—all at the same location to ensure defined roles and easy information sharing. Equipped with project-control technology that tracked progress, costs, and schedules in real-time, the team established new communication channels and got the project back on track through quick identification and resolution of potential issues.

2. **Create a comprehensive view.** Distressed projects usually suffer from deep-rooted and interconnected issues ranging from contractual disputes to poor morale. Project owners often focus on one or two areas, convinced that fixing them will transform the project. But systemic problems need systemic solutions.

One way to develop a broad picture is to create a diagnostic framework that diagrams the organization of key construction activities, their supporting functions (for example, contracting and quality), and how they interact. This visualization of how issues are connected helps teams to better target where changes are needed and identify fixes likely to bring about the most significant benefits in the shortest time.

When a company’s open-pit, copper-mine project was faltering, it developed a diagnostic framework that revealed a broad picture of interconnected problems and quantified costs and delays. It decided to address productivity issues rather than overhaul operations, sensibly choosing to focus on making the plant operational and learn for the future.

3. **Address productivity.** Productivity tends to deteriorate when problems accumulate and work becomes more complex. This decline often occurs near the end of a project, when tasks are congested and multiple trades are working in the same spaces. Improving productivity is thus a key lever in turning around a project and controlling costs.
For all projects, but particularly those in remote locations, every available work hour must be well used. Construction projects ought to resemble well-run factories, one trade finishing before the next one starts, with predictable schedules and no downtime. Disparate groups must collaboratively plan workflows, sequence tasks, facilitate access of materials and people to sites, and coordinate across disciplines to manage differently skilled personnel. But such planning rarely happens.

When one coal-mine project fell significantly behind schedule, the owner figured that catching up would require 1,000 additional people. However, a field-operations analysis found that construction crews were completing only half of the planned work—which meant hiring more people would probably only add costs without addressing core productivity problems. Instead, the company focused on improving productivity by overhauling its planning operations and installing mechanisms that would ensure crews implemented the plan correctly. The changes reduced the number of new workers needed, saved money, and improved outcomes.

4. Create an information infrastructure. One of the biggest challenges at today's mining sites is that despite technological advances, critical data such as cost and schedule metrics reside in separate systems that don't communicate with each other. Comprehensive dashboards that aggregate and analyze data can act as control towers that send crucial data to management and on-site teams. Readily accessible near work sites, these dashboards should contain up-to-date progress metrics, graphs, and drawings to drive better decisions.

But nothing replaces face-to-face conversations. While daily on-site meetings are often curtailed or eliminated when projects fall behind schedule, these meetings are vital to ensure trades, project managers, and superintendents all review daily work and address issues. To supplement daily meetings, a best-practice approach is to hold weekly meetings to cover progress and remaining problems and less frequent but regular meetings that address longer-term plans for future work.

5. Manage the transition from construction to operations. Mining companies tend to be fixated on meeting construction milestones and underestimate the effort of commissioning and start up. Often, those who build a facility focus on completing the work, while those who will operate it don’t understand the design or what decisions were made along the way. It’s a case of handing over the keys without an instruction manual—and it’s a big reason why so many promising projects lurch toward disaster.

Transition planning must begin at the outset of every project and remain in the workflow until the end so the commissioning and operations teams learn about facilities as they are built. Construction and commissioning leaders must work closely to complete systems and subsystems safely. Contractors and operators need to collaborate to implement a structured system for testing each element.
While most teams agree with this approach in theory, execution often falters. Leadership should therefore establish a commissioning organization early to help plan for completion.

The owners of a new copper mine began building facilities without consulting the commissioning team, which eventually found that expensive equipment was going to be installed with no way to start it and nothing for it to do. In addition, critical tests were omitted and the people needed to begin operations weren’t in place. Because of these misalignments, the mine opened on time but the plant didn’t reach full production capacity until well after the intended start date.

6. Redefine success. When problems arise, large projects are often well into execution and contractors and managers are already invested in their decisions, practices, and actions. As a result, they encounter both momentum (ongoing activity) and inertia (resistance to change). To change the project’s direction, an articulation of clear, ambitious, and achievable targets must come from the top of the company if employees are to believe in—and feel accountable for—reaching goals. Further, the revised plans must include a significant change-management program led by people skilled at driving cultural shifts.

One underground nickel-mining project, for example, seemed economically infeasible until the sponsor set a target expressed as an internal rate of return. The new goal energized the project team. Recovering ideas previously cast aside, the team identified an opportunity to double the rate of return.

Executing complex and lengthy mining projects requires constant vigilance on the part of the project owner, from the first plans to the beginning of operations. Knowing when and how to intervene improves the likelihood of project success.

An expanded version of this article appears on McKinsey.com.

Copyright © 2017 McKinsey & Company. All rights reserved.