



10 METRICS THAT MATTER: KPIs FOR OPERATIONAL SUCCESS IN THE MINING INDUSTRY

What's Covered

Understand the key indicators of efficiency, productivity, and quality, and how to track them across teams and departments.

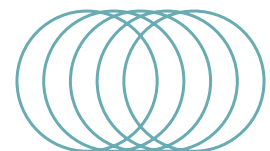




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MEASURING WHAT MATTERS

Strengthening Mining Operations Through Better Internal Performance

High-performing mining operations improve results when the systems behind the work operate reliably—when planning stays ahead of demand, procurement moves quickly, warehouses issue the right parts, and suppliers meet commitments. From the pit to the processing plant and shipping yard, performance depends on how well these interconnected systems function day to day. Internal metrics reveal where breakdowns occur and where delays, stockouts, cost volatility, or coordination gaps are forming long before they disrupt production.

KPIs give leaders a clear, objective view into these systems. They connect daily activities—

drilling, blasting, hauling, crushing, processing, and maintenance—to broader outcomes such as equipment availability, recovery rates, cost control, and safety performance. When grounded in structured goal-setting frameworks like SMART objectives, KPIs provide clarity and accountability across teams, helping operations distinguish between isolated issues and systemic constraints.

Used effectively, these metrics do more than report performance; they guide action. By focusing on the systems that frontline teams rely on every day, mining operations can turn operational data into a practical tool for improving reliability, productivity, and overall site performance.



Building Better Goals With the SMART Framework

Meaningful KPIs start with clear, structured goals. In mining (where ore grade, recovery rates, equipment utilization, and safety incidents directly impact productivity, cost, and compliance), the SMART framework helps translate complex, multi-site processes into measurable, actionable outcomes.

Specific, Measurable, Attainable, Relevant, and Time-bound goals help align extraction, processing, and logistics teams, reduce variability, improve throughput, and ensure operations consistently meet production, safety, and environmental targets.



SMART Breakdown

Specific:

Define precisely what success looks like. For example, “increase ore recovery from the flotation circuit by 5%” provides more direction than “improve efficiency.”

Measurable:

Use quantifiable indicators—such as tons of ore processed, recovery rate percentage, or equipment downtime—to track progress and validate results over time.

Attainable:

Set targets that stretch performance but remain achievable with current equipment, staffing, and technology (e.g., reduce conveyor downtime by 10% following maintenance schedule improvements).

Relevant:

Align metrics with broader organizational goals, such as maximizing resource extraction, maintaining equipment reliability, ensuring safety compliance, or controlling operational costs.

Time-bound:

Set a clear timeline for evaluation, such as achieving a target reduction in downtime or safety incidents within a quarter, to maintain urgency and accountability.



THE METRICS THAT MAKE A DIFFERENCE

These 10 KPIs provide a clear view of how well a mine's internal operations and supply chain support reliable execution. They highlight the processes that directly influence downtime, schedule compliance, cost stability, and maintenance readiness. For decision-makers, these metrics reveal where constraints form, strengthen accountability across teams, and focus improvement efforts on the systems that keep operations moving safely and predictably.

1

Critical Spares Availability (%)

Critical Spares Availability (%) = (Critical Spares Available ÷ Total Critical Spares Required) × 100

Critical spares availability measures how reliably essential components are on hand to support planned, corrective, and emergency maintenance. This includes wear materials, drivetrain assemblies, hydraulic units, electrical modules, and long-lead OEM components. Strong availability depends on accurate demand forecasting, disciplined inventory practices, supplier responsiveness, and efficient procurement processes. In mining, where equipment uptime is tightly linked to production targets, consistent access to these parts underpins predictable execution.

Why it matters:

Missing critical spares delays maintenance, increases downtime, and forces crews into making reactive decisions. Expedited freight fees, spot buys, and last-minute workarounds drive up costs and disrupt schedules. High spares availability reduces variability, strengthening an operation's ability to meet equipment, maintenance, and production commitments without unnecessary risk.

How it's tracked:

Operations, maintenance, and supply chain teams monitor availability against defined criticality tiers, using the data to assess stocking policies, supplier reliability, and lead-time performance. Consistent tracking highlights gaps in planning or vendor support that threaten maintenance execution and operational stability.

2

Inventory Accuracy (%)

Inventory Accuracy (%) = (Correct Inventory Records ÷ Total Inventory Records Checked) × 100

Inventory accuracy measures how closely system records align with what's physically on hand across warehouses, laydown yards, and point-of-use locations. It reflects the discipline of core inventory activities, including receiving, issuing, returns, staging, labeling, and data entry. When these fundamentals are executed consistently, maintenance and operations teams can trust the system, plan work confidently, and support kitting, scheduling, and execution without hesitation.

Why it matters:

Bad inventory data slows work down. Maintenance is delayed, emergency purchases increase, excess stock accumulates, and productivity suffers. Teams waste time searching for parts, placing duplicate orders, or building manual workarounds to compensate for inaccurate data. Strong inventory accuracy restores confidence in planning, reduces unnecessary spending, and improves day-to-day operational flow.

How it's tracked:

Inventory accuracy is typically monitored through cycle counts and physical audits, with results segmented by warehouse, material type, or criticality. Supply chain and warehouse teams analyze discrepancies to identify root causes, such as process gaps, labeling issues, or transaction errors. Over time, this metric helps operations strengthen discipline and maintain reliable system data that supports maintenance and production demands.

3

Maintenance Delays Caused by Material Issues (%)

Material-Related Maintenance Delays (%) = (Maintenance Work Orders Delayed Due to Material Issues ÷ Total Scheduled Maintenance Work Orders) × 100

This metric tracks how often maintenance work is delayed due to missing, incorrect, incomplete, or improperly staged materials. At its core, it reflects how well maintenance planning, warehousing, procurement, and suppliers are coordinated. Strong performance depends on clear bills of material, disciplined staging and kitting, dependable supplier delivery, and well-defined planning windows.

Why it matters:

When materials aren't ready, wrench time drops, downtime stretches, and overtime increases. Expediting eventually becomes routine, while costs rise. These disruptions erode preventive maintenance programs, forcing teams into reactive work, pushing jobs out of sequence, and undermining confidence in the schedule. The result is reduced equipment availability and higher operating costs.

How it's tracked:

Maintenance planners and supervisors typically flag work orders that have been delayed due to material constraints, with reasons categorized (missing parts, incorrect items, late deliveries, or incomplete kits). Supply chain and maintenance teams review trends by asset class, job type, or supplier to identify recurring breakdowns. Tracking this metric over time highlights where planning accuracy, staging processes, or supplier performance must improve to support reliable maintenance execution.

4

Procurement Cycle Time (Purchase Requisition → Purchase Order → Delivery)

Procurement Cycle Time = Avg. Time From Purchase Requisition Creation to Material Receipt on Site

Procurement cycle time measures how long it takes for a purchase requisition to move through internal approvals, convert to a purchase order, and be delivered to site. Often tracked in days and broken into sub-stages (PR approval time + PO processing time + supplier lead time). It reflects the efficiency of internal decision-

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