QMASTOR Coal and Mineral Supply Chain Management

OPTIMIZATION / PLANNING / EXECUTION
QMASTOR Overview

THE COAL AND MINERAL MINING SUPPLY CHAIN SOLUTION
QMASTOR software solutions manage the tonnage, quality, and value of coal and mineral supply chains from “pit” to the point of export, import, or consumption. QMASTOR solutions are currently contracted to manage over one billion tons of bulk commodity movements per year in coal, iron ore, copper, nickel, bauxite, lead, oil sands, mineral sands, molybdenum, silver, and gold. QMASTOR clients include BHP Billiton, Rio Tinto, Vale, Anglo American, Xstrata, and Peabody Energy.

The Leading Solution:
• Ensure geologists, mining engineers, metallurgists, marketers, logisticians, accountants, and planners work together with a single view of the supply chain
• Forecast stock volume and quality accurately
• Promise available stocks with confidence when locking in vessel laycans, scheduling processing plants, or determining transport schedules
• Analyze actuals versus forecast versus budget across the supply chain
• Improve mining model predictions (e.g. densities, moisture), chemical/metallurgical analysis, stockpile models, ROM and plant feed stockpile qualities, plant quality and yield estimates, and train and vessel quality forecasts

CLARITY FROM COMPLEXITY
It is impossible to have optimized, efficient, and effective coal and mineral supply chain operations when using spreadsheets and siloed systems. A sophisticated solution is required to handle complex supply chains that include multiple mines, stockpiles, transport legs/mode, ports, and processes. In addition, grade and quality variability need to be tracked. Studies have shown that over 75% of complex spreadsheets contain errors. Bad data leads to bad decisions and leaves organizations critically exposed to competitors with better information systems.

Key Benefits
• Reduce operational, logistical, marketing, and commercial costs
• Curtail quality penalties and lost revenue
• Ensure contracts are delivered on-time and within specification
• Optimize resource allocation and delivery of consistent product quality
• Minimize end of month adjustments and inventory write-downs
• Provide appropriate business controls on key corporate processes
• Streamline daily, weekly, monthly, and adhoc reporting
• Reconcile material and metallurgical accounting to understand losses and improve recoveries
• Automate routine processes such as data entry, invoice, and laytime calculations

Manage mineral supply chains from “pit” to point of export, import, or consumption.
“By applying this leading edge technology, the Australian mining industry gains a competitive advantage through improved mining practices, reduced costs and increased productivity. This competitive advantage in turn underpins growth in the Australian mining industry, and places the industry (MTS) in a strategic and competitive position within the world market.”

— ABARE eReport “Mining Technology Services”

Pit to Port® – Coal and Mineral Mining Supply Chain Management

Pit to Port is a decision support system that enables management to plan, record, track, optimize, account, reconcile, and report the tonnage, quality, and value of materials from mine to the point of export or consumption. The system synchronizes operations, logistics, marketing, and commercial functions providing a clear and transparent view of export, import, and domestic supply chain operations.

Pit to Port has peer products — Pit to Plant and Port to Plant — that provide advanced functionality from mine to refinery/smelter/power plant operations and from port to processing plant operations.

PIT TO PORT MODULES

- Supply Chain Planning – pit to customer material delivery
- Budgeting – forecast stocks based on quality and tonnage
- Mining – from geological model to coal & overburden movements
- Stockpile Management – balances, adjustments, modeling
- Processing – plant production management
- Transportation – rail, barge, truck, conveyor, pipeline details, & scheduling
- Shipping – shipment details and schedules
- Dispatch / Demurrage – automated laytime statements
- Contract Management – commitments, terms, & conditions
- Companies, Businesses and Contacts – base setup
- Invoicing – automated invoicing
- Commercial – cash flow, revenue, and marketing cost accounting
- Reporting – configurable reporting, exporting, emailing
PortVu®
Port & Terminal Management

PortVu is an integrated bulk terminal management system that manages the complexities of inter-modal transportation, stockyards, and vessels while ensuring equipment is scheduled and utilized effectively. PortVu integrates the terminal operations with suppliers, customers, transport providers, agents, laboratories, and other supply chain partners through the use of a common platform. PortVu can be interfaced to a terminal control system to provide necessary information on stockpile positions for yard equipment instructions; task and route management; vessel load and hatch plans; and belt weightometers for accurate data reconciliation and reporting.

Horizon™
Advanced Planning, Scheduling, and Optimization

Horizon is an advanced supply chain planning, scheduling, and optimization system that models, plans, and schedules complex supply chains simply and efficiently. Horizon provides optimized planning and scheduling decision support by utilizing a business rules based engine coupled with both manual and automated scheduling mechanisms. Horizon's heuristics based solving engine provides optimized results for the fulfillment of export, import, and domestic commodity demand; shipping and berth scheduling; terminal stockyard asset utilization; transportation scheduling (e.g. rail, truck, barge); mine product stockyard; and process plant efficiency (e.g. Wash plants, Crushers, OBP). Horizon delivers optimal schedules and plans based upon site specific, business driven sets of strategies and weighted key performance indicators.

Optimize complex, end-to-end supply chains efficiently and effectively.

HORIZON ADVANCED PLANNING, SCHEDULING AND OPTIMIZATION

- Delivers rule & constraint based scheduling & planning
- Handles processing, transportation & shipping operations
- Employs linear programming and heuristics based solver
- Provides a configurable business rules engine
- Generates multi-criteria, KPI based schedules & scenarios
- Uses manual and automated schedule generation & partial re-generation
- Integrates seamlessly with Pit to Port & PortVu
**SMS3D®**

*3D Stockpile Management*

SMS3D tracks and visualizes parcels of material in three dimensional space. It dynamically models stockpile tonnage, grade, and value in real time to enable proactive grade management and optimize process plant configuration, blend planning, and reclamation/load planning. SMS3D delivers extremely accurate tonnage and quality forecasts. It simplifies blend planning to ensure commodity deliveries are within specification.

**Metallurgical Accountant™**

*Metallurgical Accounting & Mass Balancing for Process Plants and Smelters*

Metallurgical Accountant automatically collects process data from historical and real-time databases or from online instrumentation. Metallurgical Accountant automatically detects plant configurations, reconciles production data, and performs mass balance computations. Metallurgical Accountant identifies the sources of measurement variances in the process: sensors, samples, production units, and controllers.

**Bilmat™**

*Data Reconciliation & Mass Balancing Engine*

Bilmat reconciles production data and adjusts measurements according to a statistical model. Bilmat produces information that is used to improve the quality of process variable values in metallurgical accounting systems, process surveys, process simulation projects, and the evaluation of daily key performance indicators. It is a building block of the Metallurgical Accounting Solution.

**QMetrics®**

*Performance Management Tool*

QMetrics is a business intelligence decision support solution that enables the visualization and analysis of key performance metrics through charts, graphs, and dials. It provides decision makers with the information required to better run their organizations.
ABOUT TRIPLE POINT TECHNOLOGY, INC.

Triple Point Technology® is the leading global provider of software to manage commodities and enterprise risk. The company provides innovative solutions to competitively address the complex commodities value chain: mining, buying, selling, trading, and procurement; enterprise risk management; scheduling and logistics; storage; processing; and settlement and accounting. Triple Point’s Commodity Management platform enables over 300 customers in 35+ countries to profitably manage exposure to energy and raw materials across industries, including energy, metals, minerals, agriculture, transportation, shipping, consumer products (CP), discrete manufacturers, and big box retailers. Triple Point was named a “Leader” in Gartner’s ETRM Magic Quadrant for its completeness of vision and ability to execute in 2009, 2010, and 2011. Founded in 1993, the company employs over 700 staff in 16 offices and support centers around the globe. www.tpt.com

How to Get Started

To learn how Triple Point’s Commodity XL software solutions can benefit your supply, marketing, procurement, hedging, or trading activities, please contact us at: info@tpt.com

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