



ADAPTIVE SUPPLY CHAIN MANAGEMENT IN THE PRIMARY METALS INDUSTRY

Transforming Traditional Supply Chains to Meet Today's Challenges

To meet the demands of a rapidly changing marketplace, primary metals manufacturers are turning to adaptive manufacturing with its integration of enterprise resource planning systems, manufacturing execution systems, and extended supply chains. The mySAP™ Supply Chain Management solution, a key part of adaptive manufacturing, provides the visibility and collaboration that allow mills to transform their supply chain processes into an adaptive supply chain network that flexes to meet changing conditions.

The primary metals industry is going through a period of sweeping change triggered by the introduction of new manufacturing and materials technologies, the rising costs of raw materials, industry consolidation, and foreign competition. To succeed in this environment, primary metals manufacturers must adapt their existing business processes to meet the demands of a new marketplace – one that is global in nature, extremely competitive, and characterized by highly demanding customers. In addition, the business processes are changing due to the increasing possibilities in a growing enterprise.

Global competitive pressures and tighter margins may be forcing your company to lower manufacturing costs at the same time your customers are becoming more specialized and demanding greater levels of services. Automotive customers, for example, want the flexibility of just-in-time delivery and vendor-managed inventory.

Like many people involved in mill industry operations, you may be working with a hybrid system of make-to-order, make-to-stock, and configure-to-order processes. But to meet the needs of a workflow that is becoming increasingly demand-centric, you need these processes to be highly visible. You also need to implement innovative and flexible manufacturing and supply chain processes that allow you to respond to rapidly changing order, market, or production environments.

Velocity is critical. Faster time to market, time to volume, and time to scale are essential to success, but achieving these goals requires a high degree of visibility into your business processes. And the combination of shifting production requirements and interdependencies requires tight process integration – from the top floor to the shop floor.

In most mill companies today, shop-floor automation and control systems and other layers at the manufacturing execution system (MES) level are not integrated with enterprise resource planning (ERP) systems and processes. Shop-floor data entered manually into the ERP system or derived from a loosely coupled MES system is often out-of-date and incorrect. As a result, managers are not working with current, accurate data.

Because of these factors, many primary metals companies are struggling to respond to the complex production demands of the new, global marketplace. They lack visibility into their supply chain processes and find it difficult to track the movement of materials and products. Production planning is based on inadequate information, and collaboration with partners and suppliers is unsatisfactory. Supply chain managers have limited visibility into their inventory and are unable to make accurate forecasts.

mySAP™ Supply Chain Management

Fortunately, SAP has created a solution that helps you overcome these challenges – the mySAP™ Supply Chain Management (mySAP SCM) solution. By enabling you to adapt your supply chain processes to an ever-changing, competitive environment, mySAP SCM transforms a traditional supply chain of linear, sequential processes into an adaptive supply chain network in which communities of customer-centric, demand-driven companies share knowledge, adapt intelligently to changing market conditions, and respond proactively to shorter, less-predictable life cycles.

mySAP SCM gives you the visibility and collaboration you need to extend your operations beyond corporate boundaries. The result is measurable improvements through cost reductions, service-level increases, and productivity gains – improvements that lead ultimately to stronger profit margins.

Adaptive Supply Chain Management

Adaptive supply chain management is a subset of adaptive manufacturing. SAP defines it as a combination of business processes, software applications, and technology that enables production supervisors and shop-floor personnel to plan and execute, sense and respond, and learn and adapt.

To be adaptive, your company needs a manufacturing integration platform that connects manufacturing processes with your enterprise and supply chain processes. mySAP SCM integrates ERP, advanced planning and scheduling, and MES functionalities and associated workflows to enable closed-loop operations. The result is an adaptive manufacturing solution with integrated business processes that run seamlessly from the enterprise level to the shop floor and encompass the entire supply chain. With an integrated solution in place, you can move from a reactive mind-set to an adaptive stance that allows you to operate at the “speed of business.”

Speed of Business

The speed of business is the ramped-up clock speed at which your customers or channels demand new products and the speed at which your company responds to these demands. It is the speed of operations on the shop floor, determined by your ability to optimize quality and deal efficiently with material, labor, and maintenance issues.

An integrated solution allows you to continuously monitor, analyze, and improve your adaptive supply chain. The SAP solution also provides you with a role-specific dashboard that enables decision support; analytics; visibility into manufacturing, supply chain, and business content; and exception management. In short, with mySAP SCM you are working with a fully integrated solution that allows you to support your organization’s primary metals operations at the speed of business.

Key Functionalities

The strength of this support is rooted in the solution’s functionalities in the areas of supply chain planning and collaboration, demand and supply planning, enterprise asset management, supply chain execution, procurement, transportation, warehousing, manufacturing, and supply chain dashboard and analytics.

Supply Chain Planning and Collaboration

mySAP SCM helps you model your existing supply chain; set goals; and forecast, optimize, and schedule time, materials, and other resources. These planning functions enable you to maximize return on assets and ensure a profitable match of supply and demand.

The SAP® Advanced Planning & Optimization (SAP APO) component of mySAP SCM is key to successful planning activities. It offers demand and supply planning as well as distribution and production planning and scheduling functionalities. And its tight integration with supply chain execution functions facilitates important processes such as multilevel available-to-promise processes. SAP APO offers an integrated, holistic approach to supply chain planning that encompasses a range of planning levels, models, and manufacturing methods.

Demand and Supply Planning

Decision makers within your organization can use mySAP SCM for strategic, tactical, and operational demand and supply planning processes, including:

- Demand planning and forecasting
- Safety stock planning to meet unexpected demands and fulfill service-level agreements
- Supply network planning – via integration of purchasing, manufacturing, distribution, and transportation plans into an overall supply picture
- Distribution planning, which helps determine the best strategy to allocate available supply to meet demand and replenish stock
- Supply network collaboration, which provides the improved visibility that allows you to work more effectively with your partners

Enterprise Asset Management

Another important component of your adaptive supply chain is the SAP Service and Asset Management solution, which gives asset owners and operators, asset service providers, and anyone involved in the asset service network real-time visibility into asset performance and maintenance issues.

Powered by the SAP NetWeaver® platform, SAP Service and Asset Management allows you to install, maintain, repair, and decommission and dispose of products, equipment, assets, and facilities. You have complete control of physical assets – such as production plants, capital equipment, vehicle fleets, and facilities complexes – over the asset’s complete life cycle. This powerful SAP solution helps you reduce operating costs, better manage capital expenditure, and improve asset utilization.

Supply Chain Execution

mySAP SCM helps you carry out supply chain processes efficiently and at the lowest possible cost by:

- Tracking and monitoring the entire fulfillment process
- Processing sales orders
- Handling the entire billing process, from invoicing to the transfer of billing information to accounting

Procurement

The solution also helps track and monitor closed-loop, order-to-cash procurement – from purchase order creation to the transfer of data to an analytics application – by enabling you to:

- Identify and evaluate potential vendors based on historical performance and other data
- Manage purchase order processing for direct materials, indirect materials, and services
- Manage inventory efficiently via functions that allow you to receive, enter, and check vendor invoices for correctness

Transportation

With mySAP SCM you can consolidate orders and optimize shipments across the company to maximize ROI. The solution lets you:

- Optimize shipments, assign carriers to shipments, and tender shipments to assigned carriers
- Consolidate orders and optimize shipments from a centralized location or from distributed business units
- Calculate and settle freight costs based on actual shipments and current freight rates

Warehousing

Manage all your warehouse activities with mySAP SCM and take advantage of new data collection technologies and new workload balancing tools. The solution’s warehousing and storage management functions help you:

- Optimize internal movements and storage of goods within a warehouse
- Plan and execute physical inventory or cycle counts

Manufacturing

mySAP SCM supports all your production processes, including configure-to-order, make-to-order, and make-to-stock manufacturing. Because manufacturing is integrated with other supply chain processes, you can create feasible, optimized production schedules that take into account real-time material and capacity constraints, ensuring a fast, flexible approach to engineering changes and customer requirements. The solution enables you to:

- Generate optimized schedules for machine, labor, and overall capacity utilization, factoring in customer delivery dates, material availability, and real-time manufacturing conditions
- Enrich and integrate manufacturing processes with functions provided by external systems on the shop floor
- Optimize your manufacturing operations by capturing production information from the shop floor to support production control and costing processes

Supply Chain Dashboard and Analytics

By enabling visibility across your extended supply chain, mySAP SCM lets you respond to real-time events and do strategic and tactical planning. You can also monitor and analyze the performance of the extended supply chain using predefined key performance indicators (KPIs). For example:

■ An intelligence dashboard

This notifies you of critical operational events in real time, including supply chain status. The events are configurable and cover a wide variety of real-time data including alerts based upon the start and end of production, abnormal production occurrences such as order cycle time exceeding targets, quality results that are not acceptable, and the abnormal termination of an order due to production upsets. You can even extend your real-time view to non-SAP systems at other locations, such as the shop floor.

■ Analytics

These functions let you define, select, and monitor KPIs to get an integrated, comprehensive view of performance across the supply chain.

Powered by SAP NetWeaver

mySAP SCM is powered by the SAP NetWeaver platform – the open integration and application platform that provides the best way to integrate all systems running SAP or non-SAP software. SAP NetWeaver unifies integration technologies into a single platform and is preintegrated with business applications, enabling change and reducing the need for custom integration.

An Evolving Solution with a Real-Time Advantage

Because mySAP SCM is an essential part of your integrated – adaptive manufacturing system, SAP is extending the solution to provide even more functionalities, including linking the service supply chain and product supply chain. SAP will continue to broaden the solution's real-time, event-driven adaptive functions so you can adjust business processes in real time to respond to rapidly changing market conditions and meet the needs of your customers.

mySAP SCM empowers you to operate at the speed of business by supporting the dynamic synchronization of demand-driven planning, logistics, and supply chain network execution based on real-time information.

For More Information

If you'd like to know more about how mySAP SCM can help your company streamline its operations, extend its collaborative capabilities, and keep you competitive in today's ever-changing marketplace, go to www.sap.com/scm or contact your local SAP representative.