



# **ENTERPRISE MANAGEMENT AND SUPPORT IN THE ENGINEERING, CONSTRUCTION, AND OPERATIONS INDUSTRY**

## **The Engineering, Construction, and Operations Industry**

To help ensure success, engineering, construction, and operations (EC&O) companies must effectively manage risk across a number of large, capital-intensive projects involving numerous business partners and subcontractors. Long, complex life cycles and slim profit margins make it essential that these organizations tightly control project schedules and costs. At the same time, ever-increasing global competition is further reducing profit margins, leading many EC&O companies to acquire subsidiaries or merge with other organizations. The resulting integration efforts are challenging, both organizationally and from an IT perspective. And competing on a global level requires these companies to adapt processes in order to comply with country-specific laws and regulations. In addition, for construction companies in particular, cyclical markets force a diversification into services and operations to ensure a steady revenue stream. To thrive in this environment, EC&O companies must successfully adapt processes to local requirements; comply with country-specific laws and regulations; control project costs and schedules; gain financial insight from logistical data; and integrate information from a variety of sources to effectively manage operations.

For more than 30 years, SAP has helped EC&O companies meet their business goals. In fact, EC&O customers who rely on SAP® software consistently outperform their industry peers: in 2003, SAP residential construction customers averaged an operating income margin of 14.5%, while non-SAP customers realized an operating income margin of only 11.1%. Commercial construction customers increased their revenues by 21.8% in 2003, while non-SAP customers increased their revenues by only 7.9%.

Leveraging this expertise, SAP provides comprehensive solutions that can be tailored to address the unique operating and production requirements of EC&O businesses. mySAP™ ERP is a key element of SAP solutions for the EC&O industry, supporting financials, operations, human capital management, and corporate services as well as all complex business processes associated with project management, engineering and life-cycle collaboration, equipment management, construction site management, and facility and plant operations.

## **Enterprise Management and Support in the EC&O Industry**

For companies in project-oriented businesses, such as plant contracting, commercial construction, shipbuilding, and homebuilding, mySAP ERP provides capabilities that support and enhance all processes within project and plant life cycles. Features tailored to meet EC&O organizations' unique requirements help these companies efficiently and cost-effectively manage projects, subcontractors, and employees; maximize the value of facility and equipment assets; and pursue new revenue-generating opportunities, such as property management.

### **Project Management**

Managing projects on time and on budget is critical to the success of EC&O companies. mySAP ERP helps organizations plan, manage, and control all project parameters, including time lines, costs, and resources, for projects of any size. By providing real-time document

exchange and status information, mySAP ERP ensures that staff and managers have accurate information to evaluate progress and make informed decisions at every stage. Comprehensive project overviews help organizations manage multiple projects simultaneously. Project management information can be integrated with supply chain management and procurement systems to guarantee that necessary materials are available at the right price and at the right time.

### **Financial Management**

To ensure profitability, EC&O companies need to maintain tight control of project and corporate finances. mySAP ERP provides financial management capabilities that help optimize financial planning, streamline the financial supply chain, and improve risk management and fiscal management along with related reporting. These capabilities include the following:

- **Financial accounting** – mySAP ERP helps companies centrally track financial accounting data within an international framework of multiple companies, languages, currencies, and charts of accounts. These capabilities comply with widely used accounting standards such as U.S. GAAP (Generally Accepted Accounting Principles) and IAS (International Accounting Standards), while fulfilling the local legal requirements of many countries. Accounting staff can maintain a consistent, reconciled, auditable set of books for reporting purposes as well as to generate data for analysis.
- **Management accounting** – mySAP ERP enables the valuation and recording of financial data for financial reporting. This data can also be used as the basis for all cost- and revenue-related reporting, allowing analysts and managers to work with the same basic data as the company's financial accountants.
- **Financial supply chain management** – mySAP ERP provides enterprises with greater visibility of working capital, which helps streamline cash flow activities, reduce the costs associated with billing and payment processes, and optimize transactions with customers, vendors, and suppliers.

### **Enterprise Asset Management**

EC&O organizations can control costs by maximizing the use of every available asset and ensuring that all facilities and equipment operate at peak performance and efficiency. Enterprise asset management functionality within mySAP ERP helps employees make effective decisions during the complete asset life cycle, from specification, design, procurement, and deployment to maintenance and eventual disposal. Comprehensive asset management helps EC&O organizations comply with safety and regulatory standards and deploy equipment for appropriate projects. Support for maintenance planning, preventive maintenance, and rapid identification of items needing repair helps improve plant and equipment performance and reduce equipment downtime.

### **Sales Process with Bill of Services**

In conjunction with bill of services capabilities available within the SAP for Engineering, Construction & Operations set of solutions, mySAP ERP helps EC&O companies manage the entire sales process from initial inquiries to quotations, sales orders, and billing. Using either lump sum contracts with billing plans or unit price contracts with service entry sheets, a quotation can be calculated and priced. Portions of the entire bill of services can be passed on to purchasing in order to find suitable subcontractors.

## **Equipment and Tools Management**

In engineering and construction projects, equipment costs can account for up to 30% of the total expenditure. Businesses must be able to plan where equipment will be at any given time, how equipment will be transported to the construction site, and how equipment rental costs will be calculated. In conjunction with equipment and tools management capabilities available as part of the SAP for Engineering, Construction & Operations set of solutions, mySAP ERP helps address all aspects of the rental process including equipment planning, shipping, settlement, and billing for single and multipart equipment. EC&O procurement employees can source equipment and tools from internal and external catalogs, and prices can be handled either directly in an equipment master or via a bill of services, as well as with other options. Employees can assign equipment or allow the system to assign it. The sales and automated repurchase of consumable and nonconsumable materials is also supported. As a result, EC&O companies can improve visibility of equipment location and costs, improve planning and utilization, and reduce maintenance costs.

## **Real Estate Sales for Homebuilding**

In conjunction with real-estate sales for homebuilding capabilities available as part of the SAP for Engineering, Construction & Operations set of solutions, mySAP ERP helps connect the community property master to the sales orders created as homes are sold. The real-estate sales browser displays the lots in the community with icons that represent each lot's current status, including not in portfolio, available for sale, quotation issued, sold, sold with contingency, and spec/model home. Fit-list and community rules functionality allows community planners to define which house plans fit which community lots and to address look-alike rules such as disallowing adjacent homes with the same exterior color. During the sales order creation process, sales agents are prevented from selling configurations that do not fit on the lot or that violate community rules. In addition, sales agents can enter a buyer's requested configuration to receive a list of lots in the community where the home could be built without breaking fit-list or community rules. To accommodate buyers backing out of sales contracts after construction has started, sales orders can be cancelled and the order converted into a spec home available for sale to another customer.

## **New and Enhanced Capabilities for the EC&O Industry**

mySAP ERP offers several new and enhanced capabilities designed to streamline business processes for companies in the EC&O industry.

### **Real-Estate Management**

mySAP ERP offers several enhancements to simplify all aspects of property management. In addition, the real-estate management features are more tightly integrated with accounting features in mySAP ERP. The following are some of the ways in which mySAP ERP offers support:

- **Owner occupancy management** – mySAP ERP provides a link between the architectural view (for example, the overall occupancy capacity) and the real view (for example, the actual use of the property) so EC&O organizations can better manage the allocation and utilization of rental and pooled office and factory space.
- **Rent adjustments** – mySAP ERP supports the ability to make rent adjustments in accordance with representative lists of rents and comparable objects. The feature can be used to adjust rents for company-owned property and for objects belonging to third parties.

- **Improved data integration** – By enabling the real-estate contract number to appear on the incoming payment transaction, mySAP ERP allows tenant accounts to be displayed in standard reporting for financial accounting. In addition, organizations can record installment agreements in the system by breaking down open items in financial accounting into smaller amounts at a later time.
- **Improved reports and invoicing** – A number of new standard reports are available with mySAP ERP, including plant maintenance (costs on maintenance orders), asset accounting (depreciation of real-estate objects), and controlling (costs on internal orders for real-estate objects). In addition, rent invoices can be printed from the periodic postings function and dispatched to tenants.

### **Internal and External Collaboration**

Because a large percentage of construction work is often performed by subcontractors, and to ensure timely and open communications with suppliers and partners, construction companies will benefit from tight collaboration and information sharing. Enterprise portal capabilities (available through the SAP NetWeaver™ platform) make it easier to deliver necessary information in an easy-to-use format to employees as well as external subcontractors, partners, and suppliers, while the Collaboration Folders (cFolders) application enables employees to work on product design and development data in virtual teams with external partners and suppliers. Additional features of cFolders include support for sharing and viewing two- and three-dimensional objects; secure collaboration through data encryption; and integration with other applications and collaboration tools.

### **CAD Integration**

New features within mySAP ERP allow employees and partners to access and edit CAD document structures directly in a variety of industry-standard CAD systems or from within mySAP ERP, so new product information can be included in business processes at an early stage. By supporting enterprise-wide collaboration with concurrent engineering and versioning, CAD integration makes it easy for more than one person to simultaneously process an assembly. CAD integration also provides a single access point for all CAD documents, making it easier for all personnel to access the resources they need, when they need them.

### **Resource-Related Down Payments and Billing**

In long-term projects, rendered services can often be billed only after they have been approved or after the customer confirms the progress of the project. In most contracts, the customer and the contractor agree on down-payment dates. mySAP ERP enables organizations to create down-payment requests analogous to the functions offered by resource-related billing. In addition, mySAP ERP makes it easy to bill services between different organizational units without the use of a reconciliation ledger. To expedite invoicing, EC&O organizations can bill the requesting company for services provided using a resource-related billing document.

### **Why mySAP ERP in the EC&O Industry?**

The success of EC&O organizations depends on their skill at managing project schedules and costs, equipment, personnel, and properties, while meeting requirements for global business operations. mySAP ERP helps EC&O businesses address these issues by simplifying and automating complex project management processes and helping integrate people, processes, and data throughout the value chain. Organizations can deploy functionality as needed, leverage existing IT investments for cost-effective integration, and adjust business processes as market conditions change, enabling them to meet and exceed their corporate goals.

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