

**SAP Solution in Detail**  
**SAP Business Suite**



# **MANAGING ENGINEERING, PROCUREMENT, AND CONSTRUCTION WITH SAP® BUSINESS SUITE**

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## **EXECUTIVE SUMMARY**

In today's highly demanding market, firms in the engineering, procurement, and construction (EPC) industry need an integrated IT solution to help them manage their critical business challenges. The SAP® Business Suite family of business applications provides the most complete set of integrated solutions for EPC firms available from a single vendor. These solutions support the entire life cycle of your projects with robust tools for the concept development, design, procurement, and construction stages – as well as tools for project operation, decommissioning, and disposal. The breadth of this EPC support is complemented by a depth of functionality within the individual applications and by the consistency, standardization, and best practices that the applications promote.

Many leading EPC firms have used SAP Business Suite to overcome the major IT challenge that the industry faces today: multiple vendor and legacy systems that require duplicate processing, result in untimely and inaccurate information, and make it difficult to adapt to new business requirements. In addition to providing a low total cost of ownership, SAP Business Suite helps you manage more projects with fewer resources, so you maximize your cash flow and ROI.

## **GREATER OPPORTUNITIES, NEW CHALLENGES**

The EPC market is growing rapidly, but with this increased opportunity come new challenges. Firms like yours are under ever-greater pressure to deliver more projects with a smaller staff at a time when the retirement of senior managers is creating a severe talent crunch. Your ability to deal with these external market forces may be the single most important factor in determining your long-term success. The integrated best practices and knowledge management tools within SAP Business Suite give you the support you need to capitalize on today's opportunities and challenges. By providing better functional integration and robust process automation, the software can help you take on more business with fewer resources.

Your IT systems are the nerve center of your organization. When you use SAP Business Suite to integrate those systems, they will be more reliable, provide more timely and accurate information, and be easier and less expensive to manage. This leading software offering provides a well-synchronized family of applications that have been specially designed for the EPC industry.

By replacing a patchwork of legacy systems and multivendor point solutions with SAP Business Suite, you can eliminate the duplicate processing, inflexibility, and untimely or inaccurate information that could keep you from realizing your business's full potential. Complementary offerings from SAP partners – such as Autodesk, Bentley Systems, NRX, and Primavera – add to one of the industry's largest EPC application footprints. Instead of fitting your operational methodologies to your IT system requirements, you can adapt the applications in SAP Business Suite to meet both your current and future business needs.

SAP Business Suite increases visibility across all your projects so that you can realize immediate gains through better management of your assets, employees, subcontractors, and suppliers. You can also maintain tighter control of budgets and schedules, reduce total cost of ownership, and increase cash flow. These real and tangible benefits have helped EPC firms that use SAP solutions improve revenue growth, operating margins, inventory carrying costs, and their return on invested capital.

As your company grows, the strong scalability of applications within SAP Business Suite will let you expand the software to support your business. The proven multinational, multilingual, and multicurrency functionalities of these applications will help you seize future business opportunities wherever they arise. Because SAP is committed to ongoing research and development for the EPC community, your software will be just as cutting-edge tomorrow as it is today.

## A COMPREHENSIVE SET OF APPLICATIONS

SAP Business Suite provides both a full range of enterprise resource planning software and a wide array of EPC-specific functions. Figure 1 shows an overview of the EPC-related business processes that the applications support.

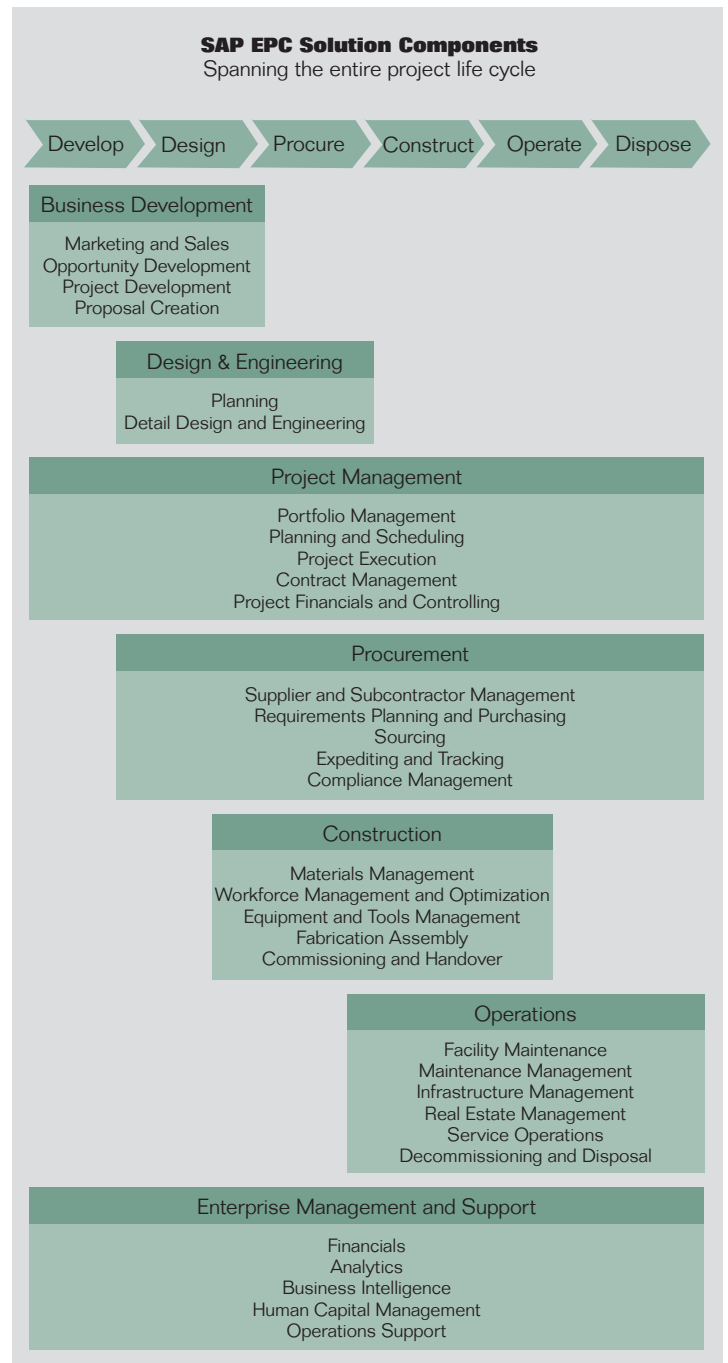


Figure 1: Support for EPC Business Processes Using the SAP® Business Suite Family of Business Applications

## Project Management

Project management functionality should form the foundation of your EPC software solution. SAP Business Suite project management software has been proven in more than 2,000 installations worldwide. Figure 2 shows the central functions of this software.

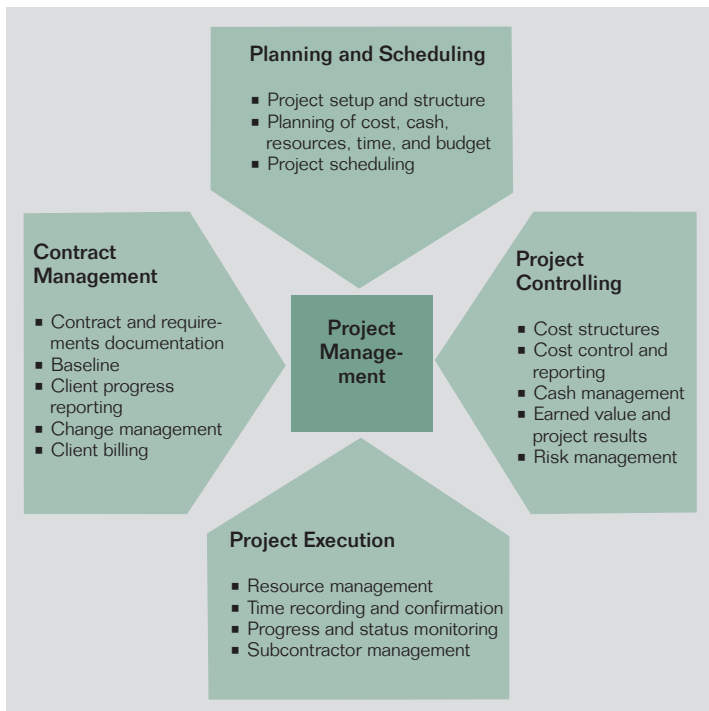


Figure 2: Project Management Functions in the SAP® Business Suite Family of Business Applications

If your company is like most EPC firms, your projects have become more complex, your schedules tighter, and your prospect base more sophisticated in its demands and expectations. At the same time, you must differentiate yourself from the competition to secure higher-margin opportunities. You must also adapt to greater globalization and the shrinking labor pool that makes it more difficult to staff your projects. SAP Business Suite provides all the tools you need to implement proven industry best practices and meet today's project management challenges.

## Planning and Scheduling

With the integrated planning functions in SAP Business Suite, you can view and manage project resources, schedules, costs, and revenue across your entire portfolio. The applications provide a clear picture of your historical project performance to help you create quotations and cost plans for new projects. When you consider a prospective project, you can easily refer to previous projects that closely match the new opportunity to determine whether you have staff with the skills that the new project requires (such as fluency in the local language) and whether this staff is willing to relocate, if necessary. Views from the top down and from the bottom up are available for the baseline project schedule and scope (including milestones) to help you measure actual project performance against the baseline as the project proceeds.

When your CAD drawings near completion, you can integrate them into the software and automatically generate appropriate lists of materials. Using standardized templates, you can then divide the project into functional work areas and individual work packages for delegating materials, craft labor, and subcontracted tasks. When you assign labor and materials at the work-package level, you will receive an accurate assessment of your requirements. This assessment will help you maximize the utilization of human assets, quickly identify craft areas with potential labor shortages, and reduce the number of downstream delays, missed schedules, and expedited procurements.

SAP Business Suite automatically makes cost structure details available for budget and financial reporting. As you receive work-in-progress income, automated settlement routines can accurately distribute revenue to your internal business units.

You can manage activities across your project portfolio using standard work structures based on templates. Consistent key performance indicators (KPIs) help you compare projects across your portfolio.

## **Project Controlling**

The coupling of a defined project scope and budget with various change management procedures in SAP Business Suite helps you control the scope and costs of a project. Functions for early warnings, exception reporting, alerts, and financial KPIs (by project and in aggregate) let you stay abreast of potential problems and address them early in the project life cycle. You can proactively manage project performance by using the software's project-forecasting functions and tools for measuring earned value.

Integrated functionality for scheduling critical-path management shows you in advance which project components are most critical in maintaining your completion schedule. "What-if" scenarios help you analyze the impact of possible schedule changes. Exception reporting quickly alerts you to potential problems. Integrated cost reporting includes information on planned, committed, actual, and forecasted expenses.

Your expected cash flow is forecast across the entire project portfolio to help you plan your capital requirements and evaluate your actual cash position versus your forecasted position. You can generate milestone-based progress billings at the earliest opportunity to optimize your cash flow and reduce your capital requirements.

## **Project Execution**

SAP Business Suite also helps you manage key supply chain elements – such as subcontractors, vendors, and fabricators. The software makes it easy to identify relevant costs for previous projects, extrapolate them for current expenses and locations, and determine the optimum contract and budget structure for a new project. When the project is awarded, details from the proposal process become the basis for managing the project-execution stage. The integration of KPIs – such as percentage of completion, productivity, and earned value versus your baseline budget and schedule – can help you evaluate project performance.

Communication management functions within SAP Business Suite help you collaborate and share information across the project team with joint-venture partners, subcontractors, vendors, engineering partners, and owners. You can use the integrated document management functions to update, track, and share project documents and other information with all stakeholders.

Because there is complete visibility of available skill sets and current work assignments, you can easily manage professional labor, craft labor, and crew production at the job site while controlling the quality, cost, and timeliness of work provided by subcontractors. You can, for example, assign subcontractors according to the skills and availability of their workers to streamline the process of craft-labor planning.

Talent management functions help you manage and apply resources based on a detailed skills inventory. You can easily recognize and reward the skill sets that are in greatest demand and maintain key in-house talent. By identifying potential skill shortages in advance, you can then avoid those shortages by establishing training and skills-advancement programs, recruiting semiretired talent, or hiring offshore workers.

Your employees can function at higher levels of expertise and rapidly master new skill sets with integrated knowledge management tools. Collaborative components that are built into SAP Business Suite let you employ experts and management talent across multiple projects by assembling virtual project teams that have the skills to manage complex projects.

Comprehensive support for your human-resource and payroll processes help you hire, rehire, and terminate large numbers of employees quickly and with minimal burden on your HR staff. Like all SAP software, SAP Business Suite handles the complexities of a global operation. In addition, the software can help you meet local requirements, such as settling payroll obligations with cash on the job site or dealing with community-based labor unions.

The applications in SAP Business Suite can also help you control equipment and tool assets across your project portfolio and handle multiple sourcing alternatives to optimize the cost and delivery of project materials. You will know the exact location of every piece of equipment and tool (from small specialty tools to your big iron), the operational status of these assets, and their availability for reassignment. This visibility can improve asset utilization, reduce stocking levels and external rentals, and ensure a maximum total return on your investment.

With SAP Business Suite, you can align internal cost charging and billing with your individual requirements and automatically maintain and update depreciation, maintenance costs, and profitability from internal rentals. The software tracks equipment uptime, scheduled and unscheduled maintenance, the insurance related to your assets, and the status of asset warranties. It also sends you alerts for maintenance tasks that are required to keep warranties in good standing.

### **Contract Management**

Along with other parts of your EPC business, your contract terms and conditions have probably become more complicated – accommodating new methodologies such as lump-sum payments, time-and-materials charges, cost-plus arrangements, payment incentives, and hybrid combinations of these conventions. If you have joint-venture partners, there may be further complications.

Managing your contracts effectively requires an integrated contract management solution that interacts with your accounting and project management functions. SAP Business Suite links specific contract terms to their corresponding business functions and provides the visibility and control you need to assure on-time completion and maximize earnings. The tight integration lets you realize project milestones consistently and issue progress billings quickly. You can easily allocate the payments you receive to joint-venture partners, subcontractors, or your own internal business units.

In addition, SAP Business Suite makes it easy to initiate and track potential changes in a project's scope, budget, and cost. You can use the summaries and detailed reporting of potential changes to manage your exposure to work that was not officially approved. Because you have the ability to communicate, process, and approve changes quickly, your project stays on time and within budget. You can also use the software to hand over a completed project and the related documentation to the project owner or operator.

### **Procurement**

The project-based procurement tools in SAP Business Suite support key bottom-line results: reducing the costs of materials and services in your projects. By streamlining your procure-to-pay processes, the software can simplify your procurement administration, make procurement faster and more efficient with fewer errors, increase productivity, and lower processing costs. You can use bill-of-material takeoffs from your CAD drawings to generate initial material requirements. You can tag project elements that require specific tracking and then follow those elements from the introduction of materials or services at the job site to the point where you turn over data to the permanent owner or operator. You get cost savings that are quick, significant, and sustainable due to benefits such as:

- Better sourcing decisions that optimize the overall value from your suppliers
- Improved capture, sharing, and enhancement of sourcing knowledge
- Enhanced compliance from suppliers, business units, managers, and buyers with your procurement requirements
- Optimized interactions with suppliers, such as the improved processing of changes to purchase orders
- Streamlined business processes for both buyers and suppliers with greater focus on value-added activities
- Interchangeable data with the e-procurement software of key suppliers
- Quicker turnaround of expedited purchases that can minimize disruptions of project schedules

- Tracking of individual elements from the original engineering drawings through procurement and installation to your final turnover documentation

SAP Business Suite can also support jobs that require integrated fabrication, assembly, or project-based manufacturing. Additional support is available for system and plant testing and commissioning, which may require extensive document management functionalities. You can use this support to test a single system or an entire plant.

### **Operations**

If you are among a growing number of EPC firms that seek recurring revenue by responding to their clients' operational and maintenance needs, SAP Business Suite provides the functionalities you need to manage project assets, equipment, and facilities. The software can accommodate all types of production equipment, facilities, and infrastructures over the complete life cycle of those assets – from design specification and procurement, installation, and start-up through maintenance, operations, decommissioning, and disposal. The result is a more profitable maintenance operation. If plant systems go down, for example, the reactive maintenance that may be required can be disruptive and expensive. In addition, the downtime can increase client dissatisfaction and reduce incentive payments. SAP Business Suite supports the preventive and predictive maintenance strategies through which operational data drives demand for spare parts by predicting repair and maintenance requirements before systems malfunction. This can help you reduce asset downtime, labor costs, and spare-parts inventory.

The maintenance software in SAP Business Suite has a user-friendly interface that reduces keyboard time and increases wrench time. By capturing actual maintenance details, the software provides an audit trail for confirming contract compliance for inventory levels, measuring response time, adhering to preventive maintenance schedules, and meeting warranty obligations.

SAP Business Suite can help you deal with overhauls, refurbishments, shutdowns, and turnaround jobs – tasks that incentive-based contracts and liquidated-damages clauses have made high risk and high reward. With SAP Business Suite, project managers and maintenance engineers have control over physical assets and equipment plus fully integrated functions for inventory management and the e-procurement of maintenance supplies. You can plan and schedule these tasks with a high degree of accuracy and monitor the related processes and schedules from start to finish.

When it comes to project commissioning, SAP Business Suite can help you deal with the various mission-critical documents that must be organized and delivered – such as manufacturer certifications of compliance, operator training and testing, calibration records, operation and maintenance manuals, as-builts, affidavits of disposal, and sign-offs by government environmental agencies. The software can further simplify asset management for your clients by transmitting facility turnover data to them in a structured format that simplifies information retrieval, queries, and ad hoc reporting of asset information and documentation.

You can also use the software to streamline your asset management processes and maintain asset interoperability. The software delivers a single view of asset master data across the enterprise and gives users involved in engineering, maintenance, operations, and supply chain processes configurable, role-based access to the information they need. Users can also access relevant content through an intuitive user interface that streamlines information exchange and collaboration.

## **SAP NetWeaver® – YOUR KEY TO CONNECTIVITY**

SAP Business Suite is powered by the SAP NetWeaver® platform. SAP NetWeaver unifies technology components into a single platform, allowing organizations to reduce IT complexity and obtain more business value from their IT investments. It provides the best way to integrate all systems running SAP or non-SAP software.

SAP NetWeaver also helps organizations align IT systems with their business objectives. With SAP NetWeaver, organizations can compose and enhance business applications rapidly using enterprise services. As the foundation for enterprise service-oriented architecture, SAP NetWeaver allows organizations to evolve their current IT landscapes into a strategic environment that drives business change.

With the SAP NetWeaver platform, you can align your information systems with your business requirements and interact more effectively with new hardware technologies, communications infrastructures, legacy systems, partners, subcontractors, and vendors. SAP combines composition technologies and application functionality to reduce complexity and increase flexibility. You can compose applications using enterprise services, orchestrate business processes and events, manage enterprise information, and deliver applications and content to users more quickly and cost-effectively. In addition, the SAP NetWeaver platform enables the following:

- Data unification – to ensure that your master data is accurate, free of duplicated records, and normalized
- Process integration – to help disparate applications work together and integrate your applications with those of your business partners
- Business information management – to increase the visibility and reach of structured and unstructured enterprise data

By enabling business-process optimization and collaboration among all the stakeholders in your portfolio network, SAP NetWeaver can enhance your business flexibility and competitive advantage.

## **SAP SOLUTIONS FOR THE EPC INDUSTRY**

SAP has invested in product development teams with hands-on experience in the EPC industry. SAP constantly evaluates the selection and management of its EPC partners to assure that these partners have a similar commitment to the industry. SAP further strengthens that commitment through participation in industry user groups and the SAP Global Industry Advisory Council for Engineering and Construction.

SAP has numerous EPC customer references. SAP software is unmatched by its peers in the breadth and depth of its functional support for the EPC industry, which can reduce or eliminate the need for third-party applications. If your firm does need third-party applications, you can readily integrate them with the functions of SAP Business Suite. The software also integrates easily with industry best practices.

With SAP software, you benefit from the size, reputation, and stability of a global company. SAP solutions have virtually unlimited scalability for addressing tomorrow's EPC growth opportunities. SAP solutions also have the flexibility to interface with both your current and future hardware systems and communication infrastructures to support tasks such as:

- Data interchange with CAD software
- Software for supervisory control and data acquisition
- Process-control software
- Radio-frequency identification and bar code tags and labels
- Data-collection and monitoring software
- Geographic-information software
- Satellite-linked remote job site data entry
- Information and alerts to mobile devices and PDAs
- Other XML-based interfaces

## **TAKE YOUR EPC ENTERPRISE TO THE NEXT LEVEL**

In an industry that has become increasingly competitive and complex, SAP Business Suite offers a wide range of EPC business benefits. Your quotations and bids will be more accurate, and you will make better business decisions by improving portfolio visibility and the information you provide to stakeholders. You will optimize your project resources – whether they are materials, equipment, your labor pool, or your business partners.

SAP Business Suite improves your ability to share key subject-matter experts and engineering and project management talent virtually across multiple projects. It can enhance your profitability through functionalities for forecasting and scheduling, tighter project control, and access to information that is timely and accurate.

In addition, you can use SAP Business Suite to reduce operational and financial risks, improve cash flow, and improve efficiency. You will have more projects delivered on time and within budget and establish better relationships with your stakeholders.

## **FIND OUT MORE**

If you are interested in reducing your total cost of ownership through an integrated set of EPC solutions, and you need a technology portfolio that can support smooth and virtually unlimited growth, SAP Business Suite makes all that possible and more. To learn more about how SAP Business Suite can help your enterprise, contact your SAP representative today or visit us online at [www.sap.com/industries/eng\\_construct/index.epx](http://www.sap.com/industries/eng_construct/index.epx).



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