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Enhancing the Construction Process for Energy Companies to Increase ROI & Improve Cash Flow

Executive Overview

An increasingly complex and volatile business environment requires sound solutions for asset-intensive energy companies seeking to mitigate risk, enhance efficiencies, and rein in costs while planning, building, and commissioning capital projects. Enterprise Project Portfolio Management (EPPM) solutions provide robust collaborative tools to help meet those goals. Oracle Primavera's holistic EPPM solutions maximize collaboration and integration, real-time and uniform program visibility, and predictability in a way that goes beyond traditional solutions to optimize the value of a capital asset throughout its lifecycle.

Introduction: Energy's Wild Ride

The world's key asset-intensive energy industries face unprecedented challenges today. Perhaps no industry is being battered more with the cross-currents of change than the energy industry. After undergoing the wildest rollercoaster ride ever in petroleum commodity prices amid a generation-defining economic collapse, the oil and gas industry now faces mounting pressures on regulatory and fiscal fronts. On the utility side, power producers are in the thick of a heated debate over the need—and costs—for transitioning away from fossil fuels. Not to mention an unprecedented drop in demand.

After two years of recession, economic uncertainty still abounds. Some essential resources are becoming increasingly scarce and costly, from raw materials to qualified personnel. Throughout the asset-intensive energy sectors, most of the mission-critical institutional knowledge is still concentrated in an aging workforce, creating a perpetual “brain drain” that was merely attenuated—not alleviated—by the global recession.

The pending recovery will inherently increase the demand for energy and resources, placing greater pressure on owner-operators in these key industries to improve efficiencies and rein in costs in managing their capital asset projects.

Going forward, energy industry projects will face increasingly stringent regulatory and investor oversight. This will bring elevated risks, growing productivity threats, and higher costs—in terms of both project execution and lifecycle value.

Managing Capital Asset Construction

Faced with such hurdles, it is more important than ever that owner-operators in these critical industries find a better way to manage capital asset construction projects and thus increase cash flow and optimize the ROI delivered by their capital programs.

But those efforts proceed against a backdrop of structural change in the architectural/engineering/construction (AEC) industry since the 1960s that has left that industry more fragmented. In addition, AEC companies increasingly are resorting to a dogmatic reliance on onerous contracts to manage this fragmentation. The ensuing threat of claims and litigation forces all players into a stance of risk aversion. When avoiding risk becomes a key driver in capital project delivery, innovation gets stifled, project costs jump, and productivity declines.

Those results are borne out by the data:

- U.S. Department of Commerce statistics show a steady decline of productivity in the construction industry from 1964 to 1998.¹
- A 2008 survey by Primavera Systems of AEC project managers and executives found that 94% of respondent firms did not deliver all of their projects on time or on budget.²

In the vast majority of cases where a project missed schedule or budget targets, the causes are owner or contractor changes.

The goal then becomes one of effective project change management through enhanced integration. The main obstacle to achieving this goal is a lack of tools for expediting project participant collaboration and visibility.

Collaboration Stymied

As the construction project data show, it has become clear that risk-shifting does not work, instead bogging down projects. The problems really start when the business's capital plan is dissociated from execution, i.e., when the owner-operator allows the project to regress into a just a delivery plan that focuses on meeting contractor schedule and budget obligations but fails to reflect the original project—and enterprise—goals.

Typically, the hurdles an owner-operator faces in achieving a business plan for a capital energy project, building it, and commissioning it stem in large part from a lack of collaboration and integration.

According to a 2007 study of the construction industry by McGraw Hill Construction, 3% of a project's cost relates directly to a lack of project integration. With a multibillion-dollar price tag typical for many of the major projects in the energy industries, the added costs could amount to tens of millions of dollars. But that's small change compared to the exponentially larger impacts of construction process breakdown and fragmentation that can devolve into lawsuits and even project collapse.

¹ Paul Teicholz, "US construction labor productivity trends, 1970-1998," p. 427, *Journal of Construction Engineering and Management*, September/October 2001.

² Primavera 2008 Project Management Report: Standardized Best Practices and Technology Adoption in the AEC Industry.

Visibility Lacking

One reason companies fail to deliver projects on time and within budget is that they lack a unified view of the schedule, financial data, issues, and metrics needed to adequately plan, execute, and manage according to the schedule.

This lack of a unified visibility creates communication breakdown, hobbles scope and schedule management, limits program management oversight, and increases risk. The impacts can be profound, from cost overruns and schedule delays to lawsuits.

There can be hundreds of participants in a large project. The challenge is to keep everyone informed, externally and internally, and to manage all of the moving parts, including scope changes made within a secure data environment.

The lack of visibility prevents project leaders and executives from collaborating efficiently and readily seeing the actual impact various actions and changes can have on the overall plan.

Recognizing the Need for a Technology Solution

Owner-operators are beginning to recognize the need for an integrated technology solution that allows all construction project participants to be individually protected against claims but still enables them to focus on project work with full collaboration and ready visibility across a project's scope.

Resource and energy industry operators are realizing that an integrated program management (IPM) solution is needed to streamline construction. It must not be simply another tool to reduce project risk, but be a vehicle for optimizing the asset lifecycle management process in the planning, building, and operating of capital assets.

Both owners and EPCs can collaboratively use IPM solutions to plan, execute, and measure capital projects, including capabilities to:

- Track project, division, and enterprise cash flow;
- Plan projects to capture full business requirements;
- Forecast cost to completion and project completion date;
- Anticipate issues and potential changes before they occur;
- Measure project-specific and business-wide risk exposure;
- Positively impact business plan/project ROI; and
- Guard against claims and improve the change order process.

An IPM solution entails integrating personnel, systems, business structures, and practices into a process that ensures tight collaboration of all participants to cut waste and enhance efficiency through all phases of project planning, execution, and commissioning.

Information silos are removed, duplicate documentation is eliminated, and project risk is minimized.

The Answer: Enterprise Project Portfolio Management Solutions

EPPM solutions, like those from Oracle, can provide the underlying technology that enables an owner-operator to track project status in real time, calculate ongoing project performance metrics, and forecast project completion metrics so that they and other stakeholders—including contractors and other service providers—no longer react to changing project needs but instead avoid surprises and actively manage projects to successful completion and close-out.

Utilizing a holistic methodology such as IPM with EPPM solutions across a project portfolio ensures a rigorous approach to the three main phases of the capital construction process:

- Business plan development;
- Design, procurement, and construction; and
- Close-out and commissioning

Business Plan Development for an International Oil Company: Case Study

The most crucial aspect for the successful outcome of a large field development offshore project, was determining the commercial viability of the development by gauging costs and risks in developing the project schedule. The design, procurement, and construction of wells, subsea facilities, pipelines, and a giant floating production, storage, and offloading vessel entailed hundreds of thousands of activities and required construction in a number of international locations. The company's project planners had access to a networked Oracle database and to Primavera project and risk software. The company used Oracle's Primavera solutions to:

- Identify risks such as local labor strikes, project scope changes, and interface issues with multiple contractors;
- Judge confidence levels for project success in order to form contingency plans; and
- Evaluate cost exposures and adjust as needed

In sum, by using the Primavera software, the company was able to develop a reliable schedule and risk probabilistic analysis so that they could make the right decisions and meet delivery dates.

Design, Procurement and Construction: Case Study

A large oil company in Asia targeted a number of areas in which it wanted to improve its project construction management processes, notably shortening construction time while meeting project requirements, maintaining project schedule control, and optimizing resources.

The company used Oracle's Primavera EPPM solutions to:

- Save about \$10 million by reducing the number of ship days by 190 for four overseas vessels delivering equipment and supplies, a 26% reduction;
- Ensure project deadlines were met by developing more accurate construction plans and by providing staff with real-time, web-based updates on schedules and costs;
- Prevent costly overruns by closely monitoring project schedules and budgets;
- Achieve smooth, multilevel implementations by coordinating plans and project teams;
- Establish a special ship and site project plan to better utilize resources;
- Provide staff with robust project information and project analysis reports, which supported better decision making; and
- Establish a central database to store and share project information

In utilizing the Primavera software, the company was able to implement a more effective project management approach and improve their key resources in managing offshore oil and gas construction projects.

Conclusion

In an increasingly complex and volatile business environment, asset-intensive energy and natural resource industries will come to rely more heavily on an IPM approach to manage and mitigate risk, enhance efficiencies, and hold down costs in executing capital projects.

With EPPM solutions, like those from Oracle, owner-operators will be able to deploy capital to critical construction projects effectively and with as little risk as possible.

Oracle Primavera's EPPM solutions optimize collaboration and integration, real-time and uniform program visibility, and predictability on construction projects in a way that exceeds traditional solutions to maximize the value of a capital asset throughout its lifecycle.



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