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Four Ways Enterprise Project Portfolio Management Can Increase ROI in Asset-Intensive Process Industries

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Executive Overview

Asset-intensive companies like those in the utilities, oil, gas, chemical, steel and mining industries, need to invest heavily in order to maintain operations and continue to grow their business, yet they are faced with an uncertain economic situation. Because of this challenge, it is essential that companies are able to fully optimize investment decisions and lower operating costs to ensure a healthy ROI. Enterprise Project Portfolio Management (PPM) solutions can help them do so, by ensuring that projects are completed on-time and within budget. Enterprise PPM solutions can also provide companies with better visibility into projects and portfolios, improve collaboration and communication among project team members, help management manage project resources to ensure the right people are on the job at the right time, and mitigate and manage project risk.

Introduction

With today's tough economic climate, companies in asset-intensive industries need to find ways to ensure their investments are driving enterprise value, reducing costs and improving operational efficiency. Enterprise PPM solutions can help these companies make better investment decisions; improve construction program management; enhance shutdowns, turnarounds, and outages; and optimize resource utilization and capacity planning. This whitepaper will provide an overview of the challenges facing companies in asset-intensive industries, explain how enterprise PPM solutions can help, and delve into the specific ways in which enterprise PPM can improve all aspects of portfolio and project management.

A Bird's Eye View of Enterprise Project Portfolio Management Solutions

The recent past has seen historic revenue and profit growth in major asset-intensive industries, followed by an unprecedented economic decline. Although on the mend, global forces along with fluctuating demand have generated unpredictable markets and placed operations and balance sheets under stress. Coupled with continuing capital constraints worldwide, it's essential to optimize investment decisions and lower operating costs to ensure a healthy ROI. As if that's not enough, the business environment continues to be very challenging, as the most highly skilled workers are nearing retirement age.

PPM solutions help asset-intensive enterprises overcome these challenges by providing better visibility into projects and portfolios, improving collaboration and communication among project team members, better managing resources to ensure the right people are on the job at the right time, and mitigating and managing project risk. The result is that companies can make better decisions on allocating resources to projects and achieve better project outcomes. PPM solutions can help organizations:

- Assess, prioritize and select the best projects to invest in while managing contingencies and other risk factors
- Improve management and integration of the engineering, procurement and construction (EPC) process and reduce program risk
- Reduce shutdown times and improve productivity of internal and external resources
- Manage with a limited pool of talent to maximize existing craft productivity and capture best practices for future generations of new hires

Why Investment Portfolio Management Matters

The oil and gas industry regularly faces drastic changes in market and political conditions that force it to continually reexamine investment decisions. Electric power generation and other utilities have seen the dynamics of their business transformed in recent years to a much more volatile and competitive marketplace in tandem with an increasingly changing regulatory environment. Making the right capital expenditure decisions has become more critical than ever in these challenging times. From a technology standpoint, fragmented and siloed data makes it difficult or impossible to get the real time information from the numerous sources needed to make sound investment decisions.

Enterprise PPM addresses these challenges by providing an integrated platform to effectively screen initial proposals, determine the best projects to invest in and ensure they are aligned with corporate strategic investments. It can link strategic objectives with the portfolio of initiatives so

Enterprise PPM solutions enable project leaders to plan, forecast and manage the status of all their projects down to the task and resource level. The solution provides complete and total visibility across the enterprise for project status and budgets and delivers 12 to 18 month planning accuracy in over 10 separate groups. Budgets are formulated and tracked using fully-loaded schedule data and actual cash flows. The solution scales to grow with business demands and requirements.

that investment decisions can be assessed in measurable ways. PPM provides a platform and process for prioritizing and selecting these investments that have strong business case justification and analyzing them against available funding and resources. Portfolio performance can be assessed in real time to identify investment gaps and potential problems, like negative cash flow.

One of the largest energy and petrochemicals companies in the world with over 100,000 employees uses enterprise PPM to manage an annual capital spend of $25 billion. The company recently implemented Primavera's P6 Enterprise PPM solution to improve capital project processes. The solution's multi-user, multi-project and multi-region capabilities provide management with increased visibility that enables better decisions. The energy company can now forecast resources globally which prevents resource over-allocation and bottlenecks. The company utilizes the software's top-down and bottom-up portfolio planning capabilities to increase planning flexibility and accuracy. The company reports a total savings of $50 million per year.

Getting a Handle on Construction Program Management

After determining the right investments, the next step is to successfully execute them. Large scale capital projects such as those in oil and gas exploration, electricity generation and natural resources extraction present significant challenges. Projects are becoming increasingly complex and costly, making it more important than ever to rigorously plan, execute and measure them. Environmental factors, market shifts, unforeseen engineering challenges, improper planning, skilled talent issues and a wide range of other possible problems all have the potential to cause projects to financially underperform, incur delays and exceed budget. For example pressure to complete projects has resulted in a 25% reduction in construction schedules, leading, in part, to mistakes generating cost overruns in the US$100s of millions. Executives responsible for managing these projects need to ensure that the company's investment will be secure and meet return on investment metrics.

Oracle's Primavera solutions provide executives and staff alike with a powerful and easy-to-use enterprise PPM solution that helps companies meet project and program budgets and deadline commitments. Executives can obtain up-to-the-minute project performance data to identify project issues early and take action. What-if scenarios can be posed enabling stakeholders to see in real terms how a potential change will affect the project and the impact of different responses

on the budget and schedule. Likewise, the ability to model risks and plan for contingencies is a critical consideration when executing large-scale capital projects. Running simulations – like Monte Carlo analysis – helps mitigate and plan for risks. And for those managing the projects, enterprise PPM solutions can provide change control and a master schedule to enhance coordination and collaboration both internally and externally with contractors and suppliers.

A large Asia Pacific-based renewable energy company turned to Primavera's PPM and risk analysis solutions to help them prioritize opportunities and improve portfolio resource planning. According a company program manager, "Primavera is improving the accuracy of our schedules and forecasts allowing us to make better use of our scarce resources and deliver to expectations." Initially the company used Primavera for the construction of a $130 million wind farm which was completed under budget. The company also achieved first power generation within four days of the baseline date they forecasted one year earlier.

With Primavera's solutions now fully implemented, risk and uncertainty is also managed more effectively. "The Risk Analysis solution allows us to prompt project managers to consider risk more methodically and to provide risk registers. Using clear risk graphics we can communicate risk, likelihood and possible impact clearly to prompt mitigating action and justify proposed spends."

Successfully Managing Complex & Routine Maintenance Projects

Once assets are in operation, an essential tenant of managing them is to keep them up and running efficiently. As a result, plant turnarounds and other complex maintenance present one of the greatest planning and scheduling challenges. A major turnaround involves thousands, sometimes tens of thousands, of activities that must be completed within a very tight, fixed window of time. A large company may have multiple turnaround projects underway at any time, not to mention potentially thousands of ongoing day-to-day preventive maintenance activities and maybe several new construction projects or plant expansions as well. Profitability depends to a large degree on being able to plan, schedule and deploy resources in the most efficient manner throughout all these various activities, between different turnaround projects, between preventive maintenance and turnarounds, from plant to plant, etc. If a turnaround in one plant is completed ahead of schedule at the cost of diverting resources that force a shutdown in another plant, then efficiency – a driver of profitability – as a whole will suffer.

Enterprise PPM software simultaneously considers the impact of multiple turnaround and routine maintenance projects on overall enterprise resources while tracking activities down to a finer level of granularity. An enterprise view of resources provides a command center for coordinating teams around the globe, making it possible, for example, to spot an imbalance or inefficiency of work between different areas so that crews can be reassigned from one project to another. Management can obtain at any moment a real-time picture of the performance of individual projects, disciplines, locations, divisions, or any other element in the corporate structure. Automating the scheduling process on an enterprise basis means that resources can

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receive customized, up-to-the minute detailed activity assignments, even via a web browser. Enterprise PPM solutions extend the value of enterprise asset management (EAM) and asset lifecycle management (ALM) systems by more effectively scheduling routine and daily work.

A large oil company located in the Middle East was able to successfully leverage PPM solutions to manage all their maintenance and turnaround work. The company has one of the world's largest oil complexes, comprising three adjacent refineries that produce more than 850,000 barrels of oil per day. In the past, the company had 31 different systems in place to manage maintenance and turnaround work so business practices were not unified. There was limited information sharing and no centralized information repository. The company standardized on Oracle's Primavera solutions for project management and scheduling and integrated with both EAM and Oracle ERP systems. Primavera is leveraged across the enterprise to provide a consistent and accurate planning environment. "…our staff agrees that having all our information in one system with integration between shutdown work orders and project plans enables us to work much more effectively" said the Project Management Professional team leader. The results include a 7% reduction in shutdown duration and a huge reduction from 2 months to 9 days in the procurement cycle. Total savings are US$21 million per year, including US$3 million in manpower savings.

Maximizing Resource Optimization and Capacity Planning

A critical ingredient in operating these assets is skilled personnel. Energy-related industries are facing a major talent shortage. The average age of an employee is 46 to 49 years old while the average retirement age for the industry is 55. Retirement poses an immediate challenge to the industry's workforce. Lack of skilled talent is increasing project costs and completion dates at many companies. For example, Industrial Info recently reported on a company that discovered that a shutdown originally scheduled for five weeks had to be extended by 20% because of a shortage of workers. In addition, mistakes due to poor or deteriorating project management skills are driving up costs.

To meet this challenge, the energy industry needs to invest in the right projects to maximize resource optimization, assign the right staff to the right project and capture best practices/methodologies for the future workforce. Enterprise PPM software makes it easier to match skills required to skills deployed to reduce costs, increase productivity and enhance worker

The company has improved its ability to plot work activities and determine what resources will be required to supplement existing resources. They can now easily consolidate resource requirements for the peak project season by specific geographies. Efficiency has been increased by shifting the dispatching of resources to schedulers in local offices.

safety. With integration to Human Capital Management (HCM) systems this matching of skills becomes even more robust. Project teams can address staffing requirements and easily view available resources for common skill sets across all projects. Capacity planning and resource leveling makes it easier to determine whether you are over or under-allocating resources and whether your partners or service providers have the necessary skill sets. PPM software lets you quickly adjust for illness and other risk or environmental factors. Finally, enterprise PPM software expedites communication, collaboration and the capturing of best practices in order to speed the learning process of new hires and "kick start" projects.

A large utility in Canada, responsible for over 90% of the province's electricity transmission system and about one-third of the province's distribution system, uses PPM solutions to successfully manage the company's resources. In the past, the company filled service orders for performing construction and maintenance work using multiple manual processes and used a jumble of highly- customized, poorly-integrated software for workforce management. The company selected Oracle's Primavera solutions for its core resource management capabilities. The company has improved its ability to plot work activities and determine what resources will be required to supplement existing resources. They can now easily consolidate resource requirements for the peak project season by specific geographies. Efficiency has been increased by shifting the dispatching of resources to schedulers in local offices. Coordination and management of resources based on local conditions and constraints has been improved.

Conclusion

In practice, the business processes and systems used to choose and manage projects and portfolios are typically fragmented resulting in potential escalation of costs, lower productivity and constrained resources. An enterprise PPM solution provides a single source of the truth, linking corporate goals with operational plans. It provides the platform for operating in a multi-dimensional world, streamlining the processes from initial investment through portfolio selection to execution in order to:

- Identify the portfolio of investments that best align with corporate objectives and provide the highest return on investment
- Execute capital construction projects to ensure meeting budget and schedule commitments

- Manage both complex (shutdowns, turnarounds and outages) and routine/daily maintenance to optimize efficiency and resource deployment
- Optimize the utilization of scarce resources and capture best practices by assigning the right staff to the right projects

Companies in asset-intensive industries must invest heavily to compete while facing an uncertain economic backdrop. Enterprise PPM solutions enable these companies to identify the best investment opportunities and efficiently manage these assets from design to maintenance with the skills required to maximize return on investment.

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Author: Guy Barlow

Oracle Corporation
World Headquarters
500 Oracle Parkway
Redwood Shores, CA 94065
U.S.A.

Worldwide Inquiries:
Phone: +1.650.506.7000
Fax: +1.650.506.7200
oracle.com

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