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# Assessing Bid Viability with Primavera Risk Analysis

## Executive Overview

This white paper defines the key factors to consider when placing a bid on a high-risk project. It then explains how Oracle's Primavera Risk Analysis provides a comprehensive means of helping companies understand the risk environment and shows them how to create bids that increase the potential for a positive return on investment (ROI).

## Introduction

As projects for the exploration and refining of oil and gas resources demand greater capital expenditures, the risks shouldered by companies continue to grow. Paramount is the need for competitive advantage during the strategic bid decision-making phase.

The importance of bid viability decisions increases as the performance of each strategic business unit (SBU) becomes more visible at the board and stakeholder levels.

Consideration of potential revenue generation in the context of high-risk project environments helps determine both bid values and the contract types that should be pursued. In addition, adopting a risk-savvy corporate culture at an early phase within a project lifecycle—before traditional project management techniques come into play—results in the continued dissemination of cost and revenue data and intelligence from the project opportunity phase through bid planning, execution, and closeout.

## Mission-Critical Factors During Bidding

During the opportunity phase of corporate portfolio planning, there are three key factors to consider when appraising the viability of a project bid:

- **Revenue potential.** Evaluation of the long-term total revenue gained from a project investment. The impact of how much expenditure and available capacity is required to execute a project is typically considered separately, during portfolio capacity planning. These factors combined give an overall indication of expended profit. However, in the first instance, revenue potential is used to indicate the potential size of the opportunity.
- **Contract type.** Determination of the types of contracts entered into between the project owner and the sellers or subcontractors.
- **Portfolio capacity planning.** Evaluation of the contractors' capacity and expertise to execute and deliver the project to completion.

Revenue potential, contract type, and portfolio capacity planning must be considered and resolved as part of the go or no-go decision-making process of capital investment planning. However, all three factors are heavily impacted by uncertainty.

All three of these points must be considered and resolved as part of the go or no-go decision-making process of capital investment planning. However, all three factors are heavily impacted by uncertainty. The process of project scheduling and estimating can, to an extent, minimize this uncertainty and attempt to assert a level of control. But, without continued risk assessment and reduction during the live project, project management efforts will only relieve symptoms and not prevent the root cause of the problem.

## Assessing Revenue Potential

During project selection, the individual contribution to the overall corporate revenue potential is a key consideration. Performing a revenue risk analysis both validates corporate forecasts as well as pinpoints the SBUs that are the biggest risk drivers. SBUs that appear very lucrative on paper can actually be contributing the most to reduced revenues due to uncertainty. Uncertainty within a project can stem from ranges of revenue to the simple fact that not every project candidate within a portfolio is a certainty.

Winning a project bid is far from guaranteed. As a result, accounting for the probability of success is essential in the evaluation of a portfolio's revenue capacity. Assessing the impact on the portfolio of improving the chance of a successful project bid provides a significant competitive advantage. It allows you to consider withholding bids on projects that could have a major impact on corporate forecasts if lost or come in at a cost well over budget.

Figure 1 shows a portfolio of projects that are in the proposal—or prebid—phase and projects that have already been won. Projects in the proposal phase have been assigned a win probability.

Further, each project has a range of potential revenue forecasts associated with it. Through a combined revenue and cost-risk simulation using the Monte Carlo method, you are able to report which business units carry the highest degree of risk. In this example, the Africa SBU carried the most risk.



Figure 1. To determine which SBUs are the biggest risk drivers, you must begin with their associated projects. Then Primavera Risk Analysis provides a ranking of business units according to the degree of risk they impose on the overall business.

One large oil and gas company uses Primavera Risk Analysis to assist with decision-making during the project selection phase and conducts analyses such as the one described earlier. With the application, the company’s major project teams can provide accurate probabilities of meeting a stated goal so that management can compute the expected ROI for capital expenditures. The company now has the ability to realistically predict the allocation of both funds and time. Such an accurate assessment so early in the project lifecycle provides the company with a stronger selection of projects in its portfolio.

## Determining Acceptable Contract Conditions

As part of the bid delivery, the determination of liability and risk exposure drives the decision-making process about the type of contract to enter into—both between owner and contractor and contractor and subcontractor.

When subcontracting specialist work that carries a high degree of risk, a firm-fixed-price (FFP) or a fixed-price-incentive fee (FPIF) contract should perhaps be considered over a time-and-materials contract. In high-risk cases, an FFP or an FPIF causes the buyer to be responsible for any delays and overruns. Performing a risk analysis provides visibility into which types of work carry such a liability and, hence, supports a decision regarding the bid or contract type.

Figure 2 illustrates the different contract types and their relative risk exposure levels from both the buyer’s and seller’s perspectives. Further, when a higher risk level is adopted, a greater amount of contingency is required. Adding contingency to a bid to form a higher, but safer, bid

when mandated to enter into a high risk contract can lessen the potential impact of cost overruns during execution. In essence, the lowest bid is not necessarily the best bid.



Figure 2. Contracts have different risk levels, which are determined by whether you are a buyer or a seller.

## Planning Portfolio Capacity

Winning a project is essentially a liability to a company (the seller or contractor) until the point of successful completion, and it is handed over to the client. A lucrative project usually has high stakes as well as high potential gain. By examining its ability to execute according to plan, a company lessens its chance of taking on an attractive looking project that is actually likely to fail. In isolation of other projects—both planned and underway—a project can be highly viable in terms of successful completion. But within a world of competing in-house resources, specific skill sets, and contracted services such as shipyards, project failure is often a direct result of factors external to the project and not inherent to the project itself.

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Capacity planning is not a new concept, but the forecasting of over- and underallocation of resources, skill sets, and budgets all fall short when schedule uncertainty is not considered. However, combining traditional capacity planning techniques with a Monte Carlo simulation approach provides additional confidence levels regarding how close a project gets to overcapacity thresholds. Determining how sensitive an SBU is to the availability of resources enables strategic planners to better time-phase projects and allow for potential time and cost overruns. (See Figure 3.)

Figure 2 illustrates how Primavera Risk Analysis helps with capacity planning including probabilistic capacity planning and cash flow/capacity analysis.

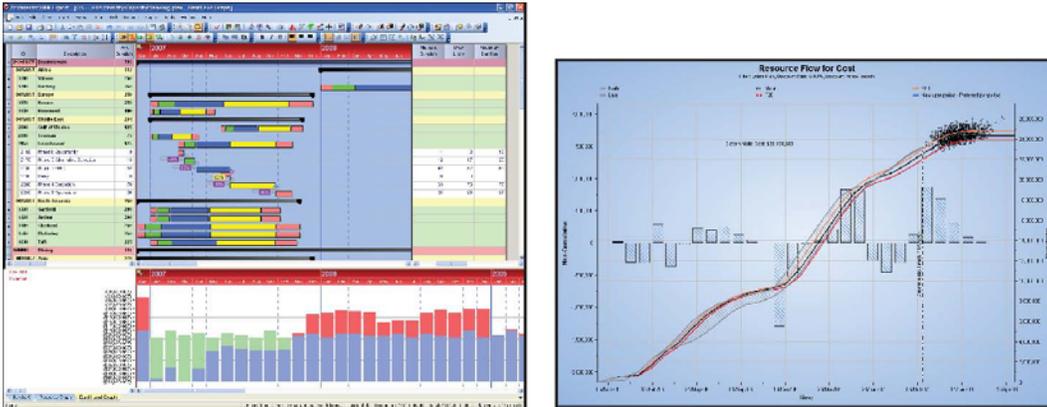


Figure 3. Primavera Risk Analysis helps with capacity planning.

An example of this can be seen through another large oil and gas company’s use of Primavera Risk Analysis. The company schedules scarce specialized resources—such as suitable diving vessels—based upon the uncertainty of the associated time window. The project controls team leader states that “the use of Primavera Risk Analysis...helps us to determine the projects that fit best with our overall program and makes the most economic sense.”

In parallel to project time phasing and prioritization, the ability to forecast long-term budget requirements is key. Again, determining the impact of potential schedule overruns on individual projects within an SBU helps to expose periods of budget underallocation, and equally important, budget overallocation. Because of the opportunity cost of investment funds, budget periods that contain allocated funds that are not used are regarded equally as poorly as periods lacking the required funds to complete planned work.

## Conclusion

Before drafting and presenting a bid, a company must evaluate the revenue potential of the project, the type of contract to enter into, and its own capacity for executing the project. Each of these areas is heavily impacted by uncertainty. To create the best-possible bid, companies use Primavera Risk Analysis, a full lifecycle risk analytics solution integrating cost and schedule risk management. Oracle’s Primavera Risk Analysis provides a comprehensive means of determining confidence levels for project success together with quick and easy techniques for determining contingency and risk response plans. It gives you an objective view of required contingency to account for cost and schedule uncertainty and analyzes the cost effectiveness of risk response plans. These combined outputs form the basis of a risk-adjusted schedule—the norm within today’s planning and scheduling process.



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Primavera Risk Analysis  
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