

# Programme and Portfolio Management in the Oil and Gas Industry: *Technology Support for Best Practices*

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## Executive Summary

The unprecedented influx of new capital and expansion projects in the Oil & Gas industry has brought to light the current lack of adequate project controls and their significant impact on the bottom line. Eroding market share and squeezed profit margins are two possible consequences of poorly conceived – or executed – project delivery methodologies. To counter this threat, firms in this sector must put into place project and portfolio management (PPM) best practices to help reach their financial goals while protecting themselves from risk. Risk continues to grow in this industry as a result of increased demands against petrochemical plants, high utilisation rates at refineries, and a resource utilisation crisis created by thousands of retiring industry workers. To face all of these risks, Oil & Gas organisations need to standardise best practices.

Standardisation is simply not possible without implementing technology that enables best practices to be carried out across the enterprise. This white paper focuses on the fundamentals necessary to support best practice project and portfolio management and the underlying systems that help firms optimise PPM best practices in both downstream and upstream environments.

## Introduction: The Need for Technology in Establishing Best Practices

One of the biggest challenges facing companies in the Oil & Gas sector is that projects are being managed in functional silos. As a direct result, they are not aligned with overall corporate strategies. Moreover, the lack of alignment causes senior-level decision makers to receive disjointed information regarding the project status and therefore cannot make the most informed go/no go decisions. This is not surprising, as PPM is simply not a core competency within the industry. However, managing a portfolio of rewarding projects is a complex activity, involving shared risk

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and reward for co-operating companies, where success or failure has a fundamental impact on company health, market valuation, and competitive positioning.

Owning and operating assets in Oil & Gas -- both for exploration and production (E&P) and for downstream operations -- involves significant investment in a complex environment of commercial and technical risk, safety and environmental concerns, as well as changing legislation. Add this to the fact that projects are increasing in quantity, scope, and complexity and it creates a situation where project life cycles are lengthening and financial risk is increasing simultaneously.

Moreover, ad hoc criteria for evaluating and "greenlighting" projects along with inconsistent information management methodologies can mean the difference between profitability or -- with the amount of new projects underway -- a tremendous loss of shareholder value.

A portfolio contains capital projects, turnaround projects, and maintenance activities. The benefits that flow from optimum investment across this portfolio are significant, and this has led many leading companies to aspire to achieve best practice standards across their organisations. The design of consistent standards in the management of projects and portfolios further reflect corporate goals and strategies.

Even though the establishment of best practices is critical, it is only part of the solution. The full benefits will only be realised if companies implement the right technologies to support those practices. Indeed, in the past, many companies wishing to establish best practices have failed due to the limitations of the systems they chose.

An unprecedented era of new capital and expansion projects in Energy are contributing to:

- Extended costs - schedule overruns of 82% and project life cycles
- Average cost overruns for major capital projects of \$US 1.2B per project
- Inefficient resource utilisation, exacerbated by growing retirement of experienced personnel, leading to significantly higher contractor costs

### Defining Best Practices in Programme and Portfolio Management

PPM best practices involve the design of a consistent and integrated set of planning and management principles across an organisation. These best practices set guidelines for everything from managing a single project to effectively supervising the full portfolio of projects.

One of the top priorities of PPM best practices is to implement integrated, consistent, and cooperating systems with logical and transparent linkages at each of three levels:

**Project level.** At the individual project level, managers must generate accurate cost estimates, manage delivery, and report progress up to the programme and portfolio levels.

**Programme level.** At the programme level--which encompasses multiple projects within a given line of business--interrelationships between projects are managed to align with strategic objectives, and reports on their performance aggregated up to the portfolio level.

**Portfolio level.** At the highest level of PPM best practices, the pipeline of potential opportunities is assessed, prioritised, and implemented to align with overall corporate strategies. Additionally, delivery metrics of all projects and programmes are collated and reported up to the executive level.

Achieving all this requires the adoption of common philosophies and approaches across the organisation. Among other requirements, PPM best practices call for an integrated business environment, not only to support a common view of performance metrics, but to enable consistency and collaboration, and bolster shared business values (see Figure 1). The financial consequences for not pursuing an integrated or 'interoperable' model are staggering. According to a 2002 US Department of Commerce, Technology Administration report, \$US 15.8 billion was the additional cost borne by businesses for inadequate interoperability. It becomes a profitability imperative to create a common business environment across the organisation that supports a common view of performance metrics; consistent and collaborative ways of doing business; and 'buy in' from all skills that contribute to corporate goals.

Additionally, business values will embrace the following:

- Consistent processes, standards, and terminology
- Agreed-upon timings for the capture and periodic close out of performance data
- Common guidelines for standard coding structures (including work breakdown structures)
- Common performance measures and reporting standards

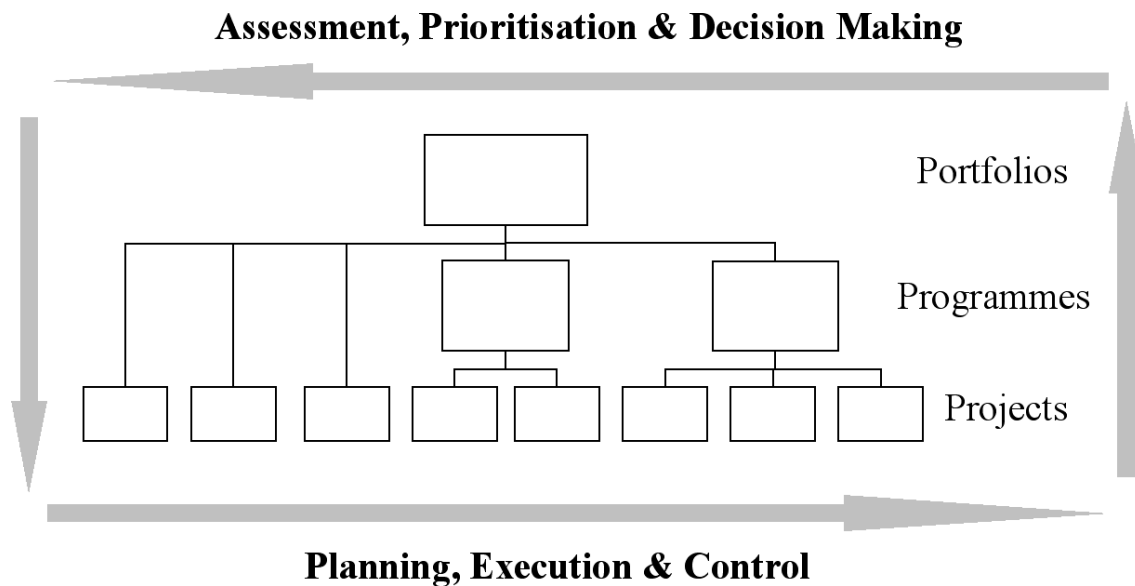


Figure 1: Using PPM best practices, integration between project, programme, and portfolio processes drives performance.

### The Importance of Integration and Data Standardisation to Shareholder Value

At the executive level, there are few things more important than having visibility into the organisation's entire portfolio of programmes and projects. Without an integrated PPM initiative--no matter how often best practices are enforced to individual managers and employees--such visibility is impossible to achieve. The organisation's top priorities are in danger of falling by the wayside.

The risks of delaying integrated PPM best practices are serious. According to the Independent Project Analysis (IPA), 50 percent of all mega projects (projects costing more than \$US 1 billion) are "disasters," with an average overrun of \$US 1.42 billion. Additionally, a full 80 percent of all projects fail to meet the cost and scheduling targets established at project funding. This results in an average 30 percent growth in asset costs and an average 38 percent slip in execution schedules. These kinds of project failures are massive destroyers of shareholder value.

Integration of project, programme, and portfolio activities across disparate business units has the potential to help companies avoid these extremely serious -- if common -- problems. Additionally, integration also facilitates standardisation of data throughout the enterprise. Among other benefits, integration and data

According to IPA, 1 in 8 projects is a disaster, averaging:

- 30% growth in asset cost
- 38% slip in execution schedule
- 39% of plan for first-year operability

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standardisation enables Oil & Gas companies to forecast and manage costs, schedules, and resources across oil refineries, E&P sites, and chemical sites alike.

One thing that many successful companies do is establish a programme management office (PMO). This centralised organisation focuses on continuous improvement and support of PPM capabilities with the goal of integrating all aspects of portfolio management to improve project profitability and reduced life cycle time. A successful PMO will standardise PPM methodologies and tools across the enterprise to reduce the risk of cost and schedule overruns; leverage the value of integrated information using standardised data formats; formalise the project proposal and prioritisation process; develop project management expertise to execute projects more efficiently; and centralise management of projects.

### Benefits of Achieving Integrated PPM Best Practices

Organisations implementing a centralised approach to project and portfolio management are able to accomplish the following:

**Prioritise projects.** Managing assets in the Oil & Gas sector – whether for exploration and production or for downstream operations – involves making significant investments that mitigate both commercial and technical risk. By implementing an integrated PPM best practices strategy, firms can easily prioritise projects according to their ability to contribute to the bottom line.

**Replicate successes.** Without repeatable project management processes, firms cannot accurately measure if projects are done well, are delivering the desired results, and are completed on time and within budget. An integrated approach to PPM management ensures that successes in one business unit can be replicated in others.

**React faster to changes in project performance.** By having visibility into the company's entire project pipeline, authorised personnel can locate and compare data without the need for cross-checking and reconciliation. This allows them to measure critical and strategic performance indicators at both the programme and portfolio levels.

**Streamline decision making.** By verifying that every project has a complete and accurate set of estimates supporting its business case and budget prior to being submitted for sanction, integrated best practices ensure that informed decisions will be made in a timely manner.

**Maximise revenues by optimising the portfolio.** Integrated best practices make it possible to accelerate/decelerate, prioritise/de-prioritise, or even stop projects as necessary based on how well they perform within the portfolio.

**Employ resources more effectively.** Even the most profitable companies don't possess unlimited resources. Best practices allow companies to balance resource demands across projects to ensure deliverability.

**Link decisions to dynamic changes in project status.** By centrally tracking the status of those projects that have been sanctioned, integrated best practices will provide managers with up-to-the-minute data, allowing them to focus their attention on those projects that are failing to meet targets.

### Implementing Systems Support for PPM Best Practices

No matter how well-considered or carefully thought out a best-practices plan, it will not succeed if there isn't adequate systems support in place. Although most companies have in the past used some kind of technology to support management of project portfolios, such systems were often difficult to use and lacked critical functionality. There remains a significant disconnect in the availability and exchange of management information between the portfolio and project management functions. The effect of this disconnect is an inability of the portfolio managers to track the actual status of the portfolio and to support investment decision making. It

A McKinsey & Co finding noted that more than 70 percent of labour costs in the energy business (up- and downstream, power) are "interaction costs" - the cost associated with looking for and finding information.

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also leads to a gap in the availability of aggregated management information at the central “projects office” level, making the review of projects underway a more time-consuming function and preventing management from intervening quickly when projects require additional support or start to fail. A McKinsey & Co E&P finding noted that more than 70 percent of labour costs in the energy business (upstream, downstream and power) are “interaction costs” - the cost associated with looking for and finding information. The lack of a centralised information database that enables management to discover and address issues before they turn into failures is a key contributor to this disheartening statistic.

A company that does not successfully link project management with programme and ultimately portfolio management may notice that it is unable to:

- Identify and prioritise successful and profitable project opportunities at regional, business unit, and corporate level
- Monitor financial thresholds of portfolio as well as earned value
- Maintain a balanced portfolio as circumstances and realities change
- Develop appropriate contracting strategies to reflect the technical, geographical, and commercial profile of the project pipeline
- Monitor and report the delivery performance of the existing portfolio
- Identify limited or critical project-delivery resources at the portfolio level and optimise these across a number of projects

A common result of organisations that fail to link project and portfolio data is the regular emergence of “surprises” on project overruns at the portfolio level – often too late for any meaningful management intervention and after successful time-scope-quality project delivery has been communicated to executive management.



However, software is already available that provides visibility of all critical project and portfolio data and key performance indicators (KPIs) while enabling organisation to make best practices accessible to all business units in the Oil & Gas sector. By supporting full collaboration between all contributors to a venture, these systems from established vendors allow companies to integrate information from project to portfolio level, and replicate processes that have been proven to work within different lines of business. Moreover, the data standardisation that is the natural result of implementing integrated systems means that PPM decision makers can make “apples-to-apples”

comparisons that facilitate prioritisation of projects in a way that maximises profitability and minimises risk.

Here is a sampling of how technology can address some of the more common PPM challenges within the context of a best-practices framework.

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**Balance resource demands with availability.** Resource availability – or having the right number of people with the right skills in the right place at the right time – is a major issue in the Oil & Gas sector. The stiff competition for resources -- which happens even within the same company -- inevitably drives prices up. Companies implementing systems that give them the ability to forecast resource demands are able to estimate any shortfalls and develop strategies for bringing in additional resources in the most cost-effective manner.

**Provide standard coding structures for use across all projects.** Implementation of a single system for all project planning and control data enables projects in the planning stage to utilise centrally developed planning templates, and maintain them in a reference database. This not only speeds up developing schedules and cost estimates, but also ensures the plans comply with company data coding structure standards. Having detailed data structured and collected in a similar manner across the portfolio is crucial when aggregating project data up to programme and portfolio levels.

**Investigate and diagnose problems from the top level down.** By implementing best-in-class software, managers gain access to project management dashboards that identify those projects that are not performing well using simple “traffic light” status reports. These allow management to review performance trends, drill down into the project detail to identify the causes of the poor performance, and target the deployment of additional support to the project – all before a project runs into trouble (see Figures 2 and 3).

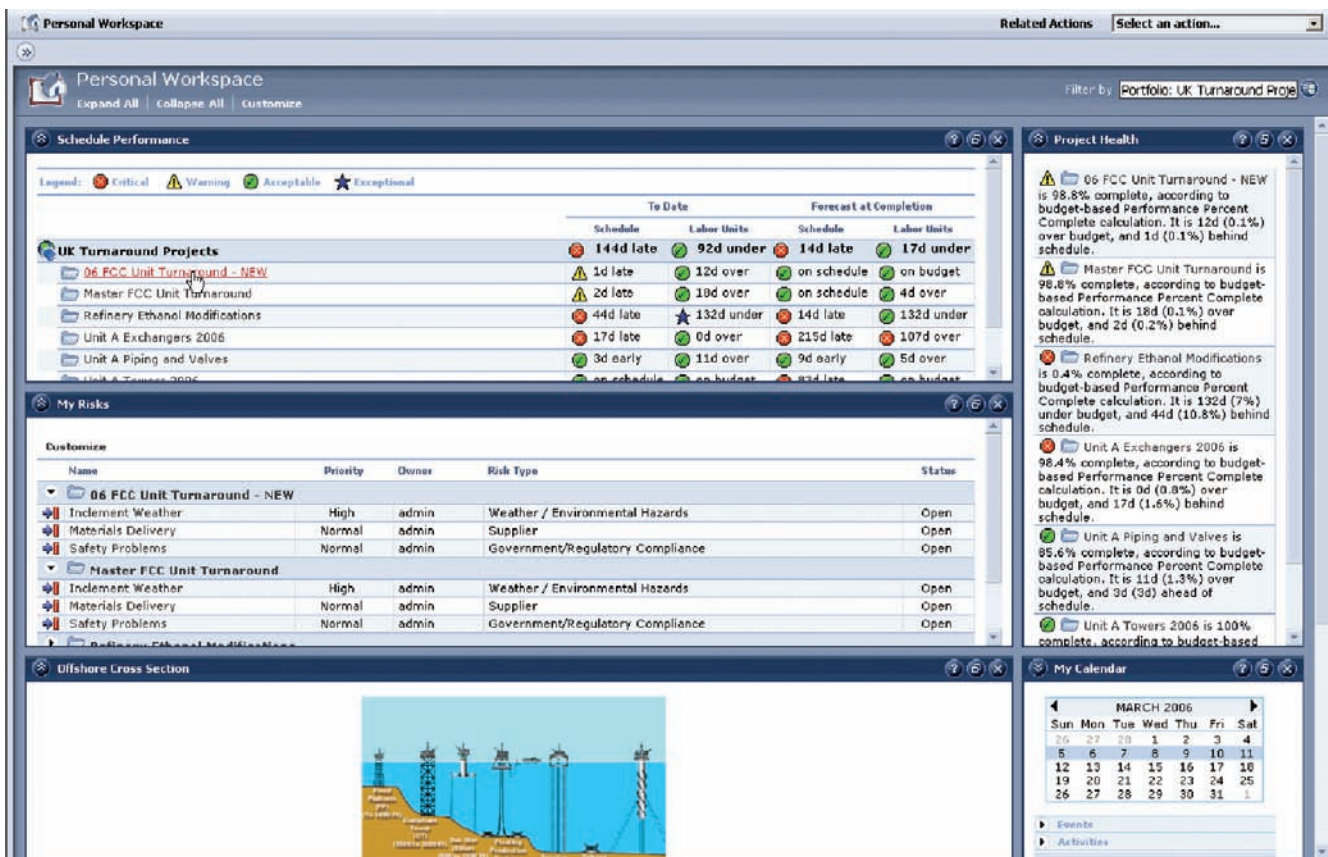


Figure 2. Personal, configurable dashboards allow easy tracking across multiple programmes and projects.

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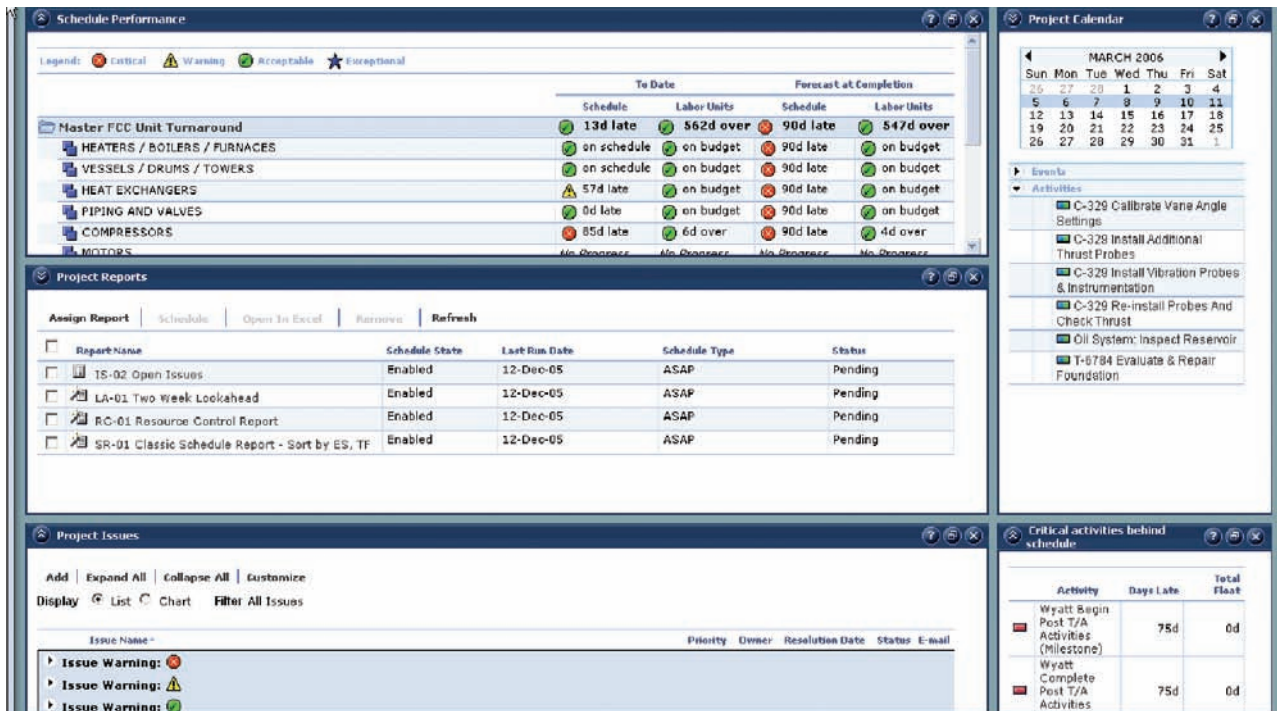


Figure 3. Drill-down from portfolio dashboards into projects, programmes, and tasks enables management to see the root of problems.

**Manage aggregate risk.** The capability of leading systems to aggregate project risk from project to programme to portfolio levels provides essential decision-making metrics to portfolio managers. Throughout the lifecycle, portfolios can be continually monitored for the likelihood of meeting schedule and budget restrictions. What-if scenarios, risk-event contingency plans, and cost estimates can be iteratively developed based on the latest available information.

**Aggregate costs and manage cost risk.** The ability to monitor cost risk and receive early warnings of cost overruns is crucial. If schedules are delayed, costs forecasts will need to be adjusted to account for the delays. Systems that provide visibility into the aggregation of spending across projects allow portfolio managers to easily measure how project forecasts stack up against top-down budgets. Budget requests can be directly compared against bottom-up project and operational spending forecasts to determine whether the requests are justified and aligned with the portfolio objectives. Additionally, tracking of discrepancies between the schedule and the time-phased cost forecasts can be visually highlighted as soon as they occur.

**Capture performance metrics.** At the end of a project, storing the data centrally and allowing management to compare overruns against estimates is fundamental for ensuring an organisation's estimating metrics remain up to date. Moreover, this is important data to have on hand when conducting "lessons learned" reviews. Leading vendors have developed software that provides this functionality.

### Conclusion: Using Technology to Benefit from PPM Best Practices

Oil & Gas companies are under constant pressure to improve the returns from their capital investments. Although all the elements in a balanced project portfolio—capital projects, turnaround projects, and maintenance activities—are often managed in isolation ultimately it is this combination of activities that generates all the revenues from operational assets, whether for an offshore platform or a refinery.

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Because the benefits of optimising investment across a portfolio of this kind are significant, many leading firms are establishing best practices standards to ensure they are achieving the maximum return on their investments. By implementing the use of analysis techniques available from organisations skilled in bridging the gaps between process and functional and technical requirements, Oil & Gas companies seeking to implement best practice PPM can move quickly to identify and address development needs in three key areas:

**Processes.** Are the current portfolio, programme, and project management processes aligned, and are they sufficiently robust?

**People .** Do the people who will implement these processes have the necessary knowledge and skills to do so? Additionally, what behaviours are required to ensure successful implementation?

**Systems.** Do the systems in place provide the functionality to support both the processes and people?

Of critical importance is the need for collaboration. A centralised, easy-to-use platform for collaboration and workflow is essential to improve communication, disseminate information, and make interactions between people within and across organisational boundaries more productive. By putting into place technology that supports best practice collaboration, organisations can:

- Identify the most profitable areas for investment and switch corporate focus to these projects quickly
- Attract a broader and cheaper source of funds
- Report accurately on key financial metrics such as earned value for all stakeholders
- Establish more effective and flexible commercial relationships with subcontractors and partners based on shared values
- Adopt performance-related commercial relationships with clients

Whether an organisation has already developed a best practices programme or is considering doing so there are technologies available to support it. Even those firms not yet ready to implement an enterprise-wide system can benefit from a selective use of the functionality available, and from the incremental implementation of available systems.

...Leaders using portfolio mgt have been able to cut costs 2.5% and shifted 10% of budgets into more strategic projects...  
-AMR Research

#### About INDECO

INDECO, which was founded in 1983, specialises in project and programme management, procurement and contract management. We combine the conceptual and analytical rigor of a top class management consultancy with experience and pragmatism. We work internationally in a variety of sectors, and have been very successful in helping our clients manage large development programmes and achieve step change value improvement from both capital and operating expenditure. Our Enterprise-Wise Project and Programme Management (EWPM) practice has a strong track record in benchmarking, gap analysis, business process improvement and learning/development programmes. For more information, see [www.indeco.co.uk](http://www.indeco.co.uk).

#### About Primavera Systems, Inc.

Primavera is a software company whose focus is project, resource and portfolio management. The company helps organisations identify which projects are most important, and makes it easy for people to work collaboratively on those projects and deliver them successfully. Primavera solutions are used by oil & gas, power generation, utility, and petrochemical companies to dramatically reduce financial risk by millions of dollars. Primavera delivers an integrated platform that improves multi-project visibility, accurately manages and forecasts costs, schedules and resources, and facilitates collaboration and best practice sharing. Primavera solutions have ensured the success of projects collectively worth more than \$5.5 trillion, including the world's foremost oil exploration programmes as well as maintenance, turnaround and shutdown optimisation of power and utility plants. For more information, visit [www.primavera.com](http://www.primavera.com) or email [info@primavera.com](mailto:info@primavera.com).

#### About BearingPoint, Inc.

BearingPoint, Inc. (NYSE: BE) is one of the world's largest providers of management and technology consulting services to Global 2000 companies and government organisations in 60 countries worldwide. Based in McLean, Va., the firm has approximately 17,500 employees, and major practice areas focusing on the Public Services, Financial Services and Commercial Services markets. For nearly 100 years, BearingPoint professionals have built a reputation for knowing what it takes to help clients achieve their goals, and working closely with them to get the job done. Visit [www.BearingPoint.com](http://www.BearingPoint.com) for more information.