

Program and Portfolio Management in the Oil and Gas Industry: Enabling Technologies Best Practices

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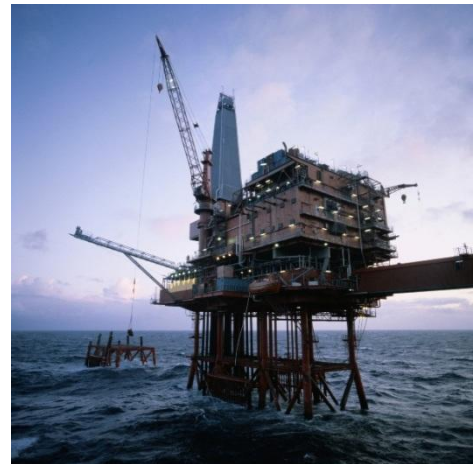


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EXECUTIVE SUMMARY

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 considerable 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 project and portfolio management (PPM) best practices into place to help reach their financial goals while protecting themselves from risk. Risk continues to grow in this industry as a result of increased objections against petrochemical plants, high utilization rates at

refineries, and a resource utilization crisis created by thousands of retiring industry workers. To face all of these risks, Oil & Gas organizations need to standardize best practices.

Standardization is simply not possible without implementing technology that enables best practices to be executed across the enterprise. This white paper focuses on the fundamentals necessary to support best practice project and portfolio management (PPM), best practices, and the underlying systems that help firms optimize them in both downstream and upstream environments.

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. This 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. As PPM is simply not a core competency within the industry, this is not surprising. However, managing a portfolio of rewarding projects is a complex activity, involving shared risk and reward for co-operating companies (where success or failure has a fundamental impact on company health) market valuation, and competitive positioning 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. When added to the fact that projects are increasing in quantity, scope, and complexity, it creates a situation where project life cycles are lengthened and financial risk is increased simultaneously.

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 utilization, exacerbated by growing retirement of experienced personnel, leading to significantly higher contractor costs

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 has led many leading companies to aspire to achieve best practice standards across their organizations. The design of consistent standards in the management of projects and portfolios further reflects 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 realized if companies implement the right technologies to support those practices. In the past, many companies wishing to establish best practices have failed due to the limitations of the systems they chose.

DEFINING BEST PRACTICES IN PROGRAM AND PORTFOLIO MANAGEMENT

PPM best practices involve the design of a consistent and integrated set of planning and management principles across an organization. Best practices set guidelines for everything from managing a single project to effectively supervising the full spectrum 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 program and portfolio levels.
- **Program level.** At the program 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, prioritized, and implemented to align with overall corporate strategies. Additionally, delivery metrics of all projects and programs are collated and reported up to the executive level.

Achieving all this requires the adoption of common philosophies and approaches across the organization. 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. The financial consequences for not pursuing an integrated or 'interoperable' model are staggering. It becomes a profit imperative to create a common business environment across the organization 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.

THE IMPORTANCE OF INTEGRATION AND DATA STANDARDIZATION TO SHAREHOLDER VALUE

At the executive level, few things are more important than having visibility into the organization's entire portfolio of programs 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 organization'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, resulting 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.

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

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

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 Program Management Office (PMO). This centralized organization 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 standardize PPM methodologies and tools across the enterprise to reduce the risk of cost and schedule overruns; leverage the value of integrated information using standardized data formats; formalize the project proposal and prioritization process; develop project management expertise to execute projects more efficiently; and centralize management of projects.

BENEFITS OF ACHIEVING INTEGRATED PPM BEST PRACTICES

Organizations implementing a centralized approach to project and portfolio management are able to accomplish the following:

- **Prioritize 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 prioritize 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, authorized 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 program 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.
- **Maximize revenues by optimizing the portfolio.** Integrated best practices make it possible to accelerate/decelerate, prioritize/de-prioritize, or even stop projects as necessary based on how well they perform within the portfolio.
- **Employ resources more economically.** 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 ENABLING TECHNOLOGIES TO SUPPORT 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 labor costs in the energy of project portfolios, such systems were often difficult to use and lacked critical business (up- and downstream) functionality. A significant disconnect remains 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 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 company that does not successfully link project management with program and ultimately portfolio management may notice that it is unable to:

- Identify and prioritize 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 optimize these across a number of projects.

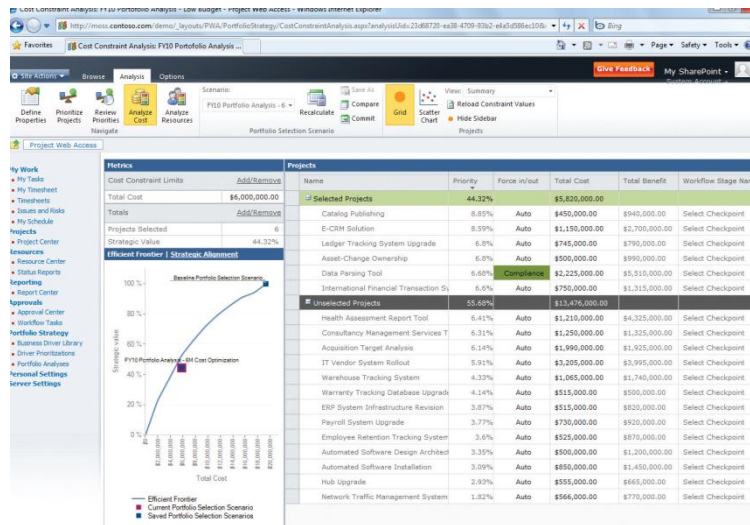
A common result of organizations that fail to link project and portfolio data is the regular emergence of “surprises” on project overruns at the portfolio level – often too late for any meaningful management intervention and after successful time-scope-quality project delivery has been communicated to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

However, software is already available that provides visibility of all critical project and portfolio data and key performance indicators (KPIs) while enabling organization 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 standardization that is the natural result of implementing integrated systems means that PPM decision makers can make “apples-to-apples” comparisons that facilitate prioritization of projects in a way that maximizes profitability and minimizes risk.

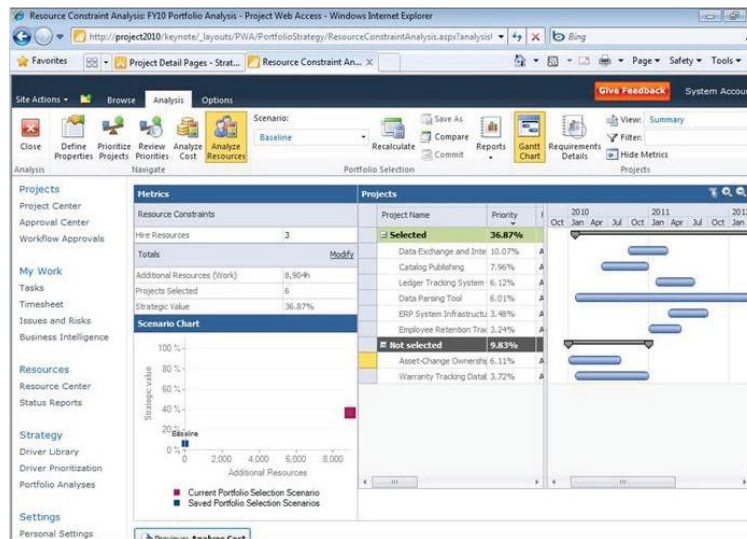
Here is a sampling of how Microsoft Project Server 2010 can address some of the more common PPM challenges within the context of a best-practices framework.

- **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 utilize centrally developed planning templates and maintain them in a reference database. Not only does this speed 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 program 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.
- **Manage aggregate risk.** The capability of leading systems to aggregate project risk from project to program 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 organization's estimating metrics remain up to date. Furthermore, 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, it is ultimately this combination of activities that generates all the revenues from operational assets, whether for an offshore platform or a refinery.

Because the benefits of optimizing investment across a portfolio of this kind are significant, many leading firms establish best practices standards to ensure they are achieving the maximum return on their investments. By implementing the use of analysis techniques available from organizations 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 AMR Research development needs in three key areas:

- **Processes.** Are the current portfolio, program, 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 behaviors 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 centralized, easy-to-use platform for collaboration and workflow is essential to improve communication, disseminate information, and make interactions between people within and across organizational boundaries more productive. By putting into place technology that supports best practice collaboration, organizations 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 organization has already developed a best practices program 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.

About Project Server 2010

Microsoft Project Server 2010, built on SharePoint Server 2010, delivers flexible work management solutions. The innovative new capabilities in Project Server 2010 lead to improved productivity and better business performance.

- **Unified project and portfolio management.** Familiar SharePoint UI and a common data store make Project Server 2010 easy to use. A comprehensive API enables you to customize and extend both project and portfolio capabilities.
- **Effective use of resources.** Select the right project portfolios and maximize resource utilization—effectively prioritizing projects from multiple dimensions.
- **Flexible Web-based Project editing.** Easily build schedules online and conveniently make project edits from anywhere.
- **Demand management simplified.** Capture all work from simple tasks to complex projects in a centralized repository. Develop and deploy effective governance workflows to drive accountability and capture project information, cost and resource estimates, and other valuable project data.
- **More powerful dashboards and reports.** Gain transparency and control with the Microsoft Business Intelligence Platform: Excel Services, PerformancePoint Services, Visio Services, PowerPivot for Excel 2010 and SQL Reporting Services are all at your fingertips. Customize reports in a familiar Excel editor and create powerful dashboards to effectively monitor and share portfolio performance.