Projects Driven Supply Chain

Improving Project Performance Throughout a Complex Turnkey Lifecycle

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Introduction

In today's highly competitive environment, project-oriented businesses face growing pressure to provide complex turnkey solutions that are dependent on an increasingly volatile supply chain. These supply chain dependencies add significant risk on the ability to deliver projects on time and on budget. Subsequently, there is an urgent need for improved automated communications among the involved supply chain, project management and finance organizations. In addition more accurate resource planning and improved project management are critical to the project success.

This white paper defines the key factors and requirements when assessing, responding to, and delivering complex, high-risk project opportunities that are dependent on a supply chain to deliver. It then explains how EPPM (Enterprise Project Portfolio Management), Risk Analysis, and Value Chain Planning solutions provide a comprehensive means to help companies better manage project risks, improve project deliveries, better manage revenue opportunities, and improve a company’s capability to deliver complex projects and turnkey solutions.

Project Level Visibility

Today, project-based companies with complex supply chain dependencies face customers who want a single point of contact.

In this case that means they want one provider that can manage everything from purchasing through manufacturing to installation and even post installation service – the proverbial “one throat to choke” when things go wrong. So companies are taking on additional complexity outside their normal project scope to provide these turnkey solutions, which involve even more supply chain dependencies, to meet the project and customer requirements.

A large industrial manufacturer in April 2014 reported in The Wall Street Journal a significant increase in its turnkey installation projects. In eight months, the company doubled its installation-related workforce. The company also reported that cost overruns were its largest concern.

Turnkey solutions provide the opportunity for increased margins, and providers are better able to differentiate themselves in a competitive market. But along with the perks come increased complexity, huge risks and big capital investments. Capital can be tied up for months or longer waiting for completion and one supply chain shortage or delay anywhere in the world can spell disaster to the provider’s bottom line.

Language Barrier

A major roadblock to project success often lies in the disconnect between supply chain and project management functions – each with its own metrics and terminology.

In many cases, supply chain managers and project managers speak different languages. Project managers, for instance, talk about float, work breakdown structures (WBS), project risks, estimate to complete, and focus primarily
on delivering a project on time and on budget. Meanwhile, supply chain managers deal with material requirements planning, inventory optimization and advanced concepts in value chain planning. They manage inventory holistically and measure success in inventory turns and delivering products on time.

The project manager inherently drives to minimize risk by ordering parts early and having them reserved or issued physically to their projects. While this may make the project manager much more comfortable in his ability to deliver his specific project, the impact to the business could be that precious capital or capacity are tied up while parts can sit for months waiting for the project schedule. Opportunities could be missed as critical items are not available for other requirements or companies are forced to pay expediting fees for parts to meet the needs of other projects. Oftentimes, customer contractual terms encourage this behavior by allowing billing to occur upon material receipt. Even revenue policies may encourage early receipts to maximize revenue opportunity.

The supply chain planner focuses on optimizing inventory and maximizing capital investment across projects. Without proper project visibility, projects worth millions of dollars could be put at risk by a part worth only a few dollars. Balancing the requirement to minimize risks against tying up capital to hold inventory requires a holistic view across the supply chain and the project portfolio vs. looking only at projects individually.

Project managers and supply chain planners each use their own automated tools intended to optimize their specific roles. Project managers use project management and resource management tools while supply chain planners utilize MRP (Material Requirements Planning), production scheduling, and inventory optimization tools. Most project organizations resort to desktop project management tools preventing a real project portfolio view. When it comes to collaboration, the groups resort to phone calls, spreadsheets, and emails to communicate and coordinate tasks. These manual, disconnected processes lead to errors, increased costs, and slow response through increased latency. Since they do not have clear visibility into each other’s requirements or priorities, the result is very little confidence on either side that the project will be delivered on time or within budget.

**Supply Chain Dependencies throughout the Project Lifecycle**

It is critical for the project and supply chain teams to communicate and work together throughout the project lifecycle as there are numerous dependencies on the supply chain for project success. The supply chain needs to be able to provide the best, most complete information available to minimize risk and keep the project on schedule and on budget; however, companies face many challenges in acquiring this information throughout the many phases of the project lifecycle.

- **Bid assessment & project initiation.** Project managers typically initiate bidding and project initiation phases independently of the supply chain. Any estimates of the company’s ability to deliver might be based solely on a few critical components. But once the project is won, there are no assurances that the project is doable within the timeframe allotted.

- **Design & engineering.** Access to supply chain information is critical. Project managers have difficulty understanding and managing the cost of an engineering schedule slip and the impact on the overall project as new part numbers, evolution of items and development of the project billing of materials (BOM) are delayed.

- **Manufacturing & procurement.** During the build phase of the project, project managers struggle to determine the impact that any parts delays will have on the overall project schedule and whether or not they can compensate for that in other areas of the project schedule. Often, by the time they’re able to find out, it is too late to react. Project leaders need the ability to do supply chain simulations to see the impact of changes. In addition, change and scope management is a difficult process that, if not management properly, can negatively impact costs, margins, customer satisfaction and schedule.

- **Delivery & installation.** In large turnkey projects, capital can be tied up for months with limited capability to predict or manage the schedule. If project planners had better visibility into the supply chain that supports the
project, they could more accurately move and replace components, optimize revenue and be able to better shape and manage cash flow.

**Managing Risk**

Adding to the urgency, customers are more demanding than ever – requesting shorter lead times while the turnkey solution provider’s supplier and manufacturing lead times remain constant. Many companies even impose late delivery penalties – a growing trend when targets aren’t met.

> A telecom infrastructure provider in India announced plans in October 2013 to fine companies that delayed execution of the national broadband venture. The project was already two years behind schedule due to poor coordination between implementation agencies. It planned to impose a maximum penalty, the equivalent to 10% of the value of each tender package for any time-overruns, post-award of contracts.

Global supply chain complexities and increasingly volatile business conditions also mean that planning for and managing risks has never been more important. It starts with delivering the best project estimates as quickly and accurately as possible. In a 2012 PWC study on the state of project management, respondents identified poor estimation as the largest contributor to project failures.

The impact of incorrectly estimating a project can be catastrophic to margins. A study of 258 projects in 20 countries showed a startling nine out of 10 with cost overruns. Budget estimates can be off target by 100 percent or more, according to the Oxford Review of Economic Policy. Two factors that are major contributors to inaccurate project estimates, according to the report, are insufficient time to deal with uncertainty in the estimating process and the need of certain sponsors to create artificially low estimates in order to get a project initiated. Managing expectations and clear communications are a project manager’s keys to success.

**Mission Critical Factors during Opportunity Assessment**

When assessing new project opportunities – from initial bidding through installation – the organization needs to respond quickly with the best information available. An EPPM solution that is integrated with supply chain management tools can unite both functions to create a clear, agile picture of all projects, provide accurate information quickly during opportunity assessments, and give providers of turnkey solutions a competitive advantage.

It often takes 30 days or more to accurately identify the ability to deliver on a complex project. With the pressure to respond quickly to customer requests, estimates are often made with incomplete information. During the opportunity and assessment phase of project planning, there are four key factors to consider when reviewing and responding to a new project opportunity:

> **Reaction time.** As the market becomes more competitive, it is important to respond to new requests in a timely manner with the best information available to assure that you are being responsive to the customer while assuring that you can profitably deliver what is being committed.

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Revenue, cost and margin projections. Project complexity and global supply chain dependencies are making it increasingly difficult to accurately estimate project revenue timing, project costs and project margin while assessing new project opportunities.

Capability to deliver. Increasingly, customers are becoming more demanding and are asking their suppliers to put skin in the game. This requirement is frequently manifested in contracts through penalty fees. It is important to know what, when and how a new project can be delivered.

Project risks and contingencies. Clearly understanding the risk factors up front along with developing contingencies and integrated mitigation plans help to better plan and anticipate project revenue, costs and margins.

Each of these factors can be addressed with an integrated EPPM and supply chain planning solution.

Project Risks and Contingencies

Complex projects represent huge opportunities and greater risks. In a 2012 PwC survey, it was revealed that 97% of the respondents believe project management is critical to business performance and organizational success. Despite this feeling, performance levels in scheduling and budget are missed 30% of the time.

While most organizations should be working toward higher maturity levels to improve performance and success, this survey shows that only 32% are continually striving for maturity improvement. As a result, the business’s ability to manage, forecast and deliver project and revenue expectations is more important than ever.

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 Strategic Business Units (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.

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. But within a world of competing in-house resources, specific skill sets, and contracted services, project failure is often a direct result of factors external to the project and not inherent to the project itself.

Capacity planning is not a new concept, but the forecasting of over and under allocation of resources, skill sets, and budgets all fall short when schedule uncertainty is not considered.

The Right Tool for the Right Job

As mentioned earlier, the project manager and supply chain planner each leverage tools for their own specific roles. Software solutions have evolved that are optimized to meet the requirements of each. Slow and inaccurate communications between groups has resulted in a lack of confidence in the others ability to correctly prioritize or provide updated status. In addition, a lack of integration between these tools has increased communication latency and has sometimes caused each to attempt to expand the use of their own tool set to address tasks best managed by the other. For example, the project WBS is sometimes structured to include multiple material items that might be better managed through supply chain planning tools where time phased netting logic and exception management are automatic. In addition, complex workarounds are sometimes used to drive project demand in supply chain planning that adds additional complexities in managing projects, contracts, and materials.

The solution is to use the right tool for the right job by leveraging Enterprise Project and Portfolio Management (EPPM) tools to manage the project and use Value Chain Planning (VCP) tools for managing material requirements associated with the projects. For repeatable items and Bills of Materials (BOMs) the VCP tools help to reduce costs,

minimize risks, and improve the ability to deliver projects on time. They do this through providing improved visibility and better execution. Value Chain Planning tools provide:

» Supply chain supply aggregation across a project or across multiple projects providing improved visibility into capability and providing additional information for negotiating with suppliers
» Detailed exception management to help quickly pinpoint at-risk areas allowing focus on the most critical material requirements for improved project execution
» Improved capital cost management though time phased visibility of material requirements across projects
» Ability to simulate various supply chain scenarios to determine optimal solution by reviewing the impact of changing suppliers, capacity, sourcing, etc.

A comprehensive EPPM solution can help to reduce costs, improve efficiencies, and improve on-time project delivery. It does this by providing the capability to easily manage schedules, risk, and visibility across the entire project portfolio. A comprehensive EPPM tool set provides:

» The ability to pinpoint the best strategies to develop and implement projects from conception through execution to endgame, which helps manage costs and reduce risk
» Ability to easily update project schedules and simulate various project scenarios
» Improved project status management through detailed views and reports on critical activities, critical path, project float, estimate to complete, and other important project dimensions
» Improved project performance management through baseline comparisons, variance tracking, and exception handling. Manage and track project schedule against various project baselines to compare scenarios across schedule revisions, and to better understand variances from the original plan.
» Comprehensive resource capacity management across the project portfolio. Adjust and manage the impact of resources changes across the project portfolio and manage the impact within individual projects.

A Clearer Picture

Oracle’s Primavera EPPM Solution combined with Primavera Risk Analysis and Oracle Value Chain Planning solutions brings project visibility to a complex supply chain while also providing visibility of supply chain status and exceptions to the project managers. An integrated solution allows project management and supply chain activities to be viewed and managed collectively, and helps manage turnkey solutions as a complete, integrated business process. It also helps to ensure that projects will be delivered on time and within budget.

» An integrated solution helps the complex project provider examine its ability to execute according to plan. Complete information from all of the project dependencies provides a complete view on the ability to deliver throughout the project lifecycle.
» An integrated solution provides the project manager with the ability to better manage and implement change requests and provide rapid visibility into costs and project impact so that changes can be implemented with the least disruption to margin and schedule.
» An integrated solution can combine traditional capacity and materials planning techniques with Monte Carlo risk simulation capabilities to better understand and manage risk. This can provide additional confidence levels for meeting a complex project schedule. 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.
» An integrated solution allows companies to see and understand various risk factors, use project templates to quickly build an accurate project plan, see capacity within a project planning tool and integrate project BOM and work breakdown schedules.
» An integrated solution allows companies to execute projects on time and on budget. Project leaders can see the status of the supply chain and enhance the company’s ability to execute projects using supply chain information from the planning process through execution.
An integrated solution allows companies to look across the project and supply chain to provide a single source of truth where all parties are relying on the same information to make decisions. This provides confidence that each party is able to support the project commitments.

Conclusion

Projects have become much more complex with increasing dependencies on an ever more complicated global supply chain. The company who is best able to manage its complexity and provide the most accurate information in the shortest time has the competitive advantage when delivering complex projects and turnkey solutions. Oracle’s Primavera EPPM Solution, Primavera Risk Analysis and Value Chain Planning solutions help organizations collaborate, manage and deliver complex projects across the entire project lifecycle.