White Paper: *Owners Need Project Controls Too*

ARES
PRISM

A man wakes up one morning with a blinding headache and the world moving around him. As he struggles to sit up, he finds himself in a rowing boat with no oars. Looking out, he spots a man on the bank.

"Hey," he shouts, "can you tell me where I am?"

"Yes," replies the stranger, "you're in a rowing boat, about 20 yards from the edge of a lake."

Exasperated the first man shouts back "Are you a Contractor?"

"Yes, how did you possibly guess?" responds the second.

"Because I asked you a question, you gave me an accurate answer but it's of no use to me."

"Ah! You must be an Owner."

"I am," replied the first, "but what made you think that?"

"Well..." said the second, "You asked me a question, I gave you an answer, you're in the same situation you were in before we met, but now it's my fault!"

INTRODUCTION

As we continue to work in the ever-changing world of capital projects, the opinions on how owners should perform project controls continue to alter between:

1. Duplicating everything the contractors do in an attempt to maintain control and monitor trends in the data.

OR

2. Taking the "hands off the wheel" and letting the contractors manage everything and provide all project reporting themselves.

OR

3. Hiring a project management consultant (PMC) as an agent to manage and report on project progress. Although this option can suffer the same issues as the first 2 and therefore isn't the magic bullet either!

None of these approaches fully achieve the goal of providing the owner with a complete method to effectively manage and monitor their project.

IPA (Independent Project Analysis) research has found that the project control function typically costs between 0.3 and 3% of the total project cost (average 1.3%).

What is particularly interesting is that the IPA has also shown that for this relatively modest investment in project controls (and associated best practices), the overall reduction in risk of over expenditure can range between 6% and 20% of the total capital investment.
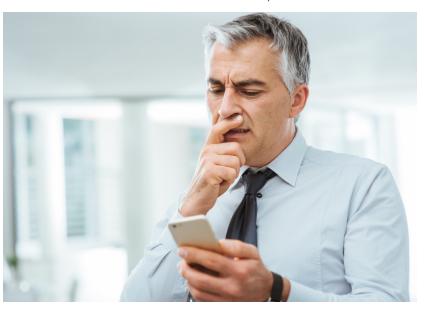
There are also significant improvements in schedule predictability, and hence the business rate of return on the investment.

Savings like that can have a huge impact on project success, so evidently it is important to find and implement the most effective project controls approach available. The need for good project controls is applicable to any project regardless of the nature & size.

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THE VARIOUS APPROACHES

The first approach of duplicating the efforts of the contractors, whether Engineering, Construction, Fabrication or Vendor, is wasteful of resources and has no real impact on the owner's level of control. Additionally, the amount of detail collected from all of the different contractors and their systems can lead to information overload and a serious lack of clarity.

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The second approach where the owner relies heavily on the contractors to manage the entire scope of work comes with a significant amount of risk. The contractor, even with the greatest intentions in the world, will act in their own self-interest, which does not always translate into what is best for the owner. Contractors also tend to be more optimistic than they should be about their ability to recover from slippage and poor productivity. Even worse, some contractors neglect to mention these problems to the owner, meaning the first time the owner may know about a delay or overrun is when it has already happened and it is too late to do anything about it. Contractors may also come in with low bids for their scope of work, putting more risk on the owner to ensure that the full scope of work is accounted for between contractors and their own costs.

The third approach, where the owner hires a project management consultant (PMC) to manage the entire scope of work on their behalf may be easy and convenient, however, there is a pitfall to acknowledge. The financial interests of the owner are not necessarily aligned with those of the consultant. PMCs are typically contracted on a time and materials basis so project delays lead to an extension of their services – meaning more payment for them at greater cost to the owner.

THE BEST APPROACH FOR OWNERS

None of the approaches mentioned above offers an ideal solution. Luckily, there is another way. A balanced middle ground where the contractors perform their roles independently while still providing enough detailed information to the owner so that they can perform their own analysis and assess the state of the project.

Because ultimately, the owner is the one with their head on the chopping block if something goes wrong within the project. The owner is responsible for everything associated with the project, so they need to be able to:

- Analyze and make decisions independently from centralized and accurate project data.
- Add their own internal costs to the project report without exposing internal details to a third party.
- Interpret what they are being told and challenge the contractors on statements they are making.
- Provide confidence to internal and external stakeholders that the project is being managed effectively and with strong control over cost and schedule.
- Place an emphasis on Schedule and Master Schedule to coordinate activities across the various parties and to integrate the schedule with the rest of the Project Control data.

  The simplest and most effective way to meet these needs is to make use of an Enterprise Project Lifecycle Management System. With such software, owners can:

- Integrate all data into one central location, allowing for easy analysis of the project throughout its entire lifecycle.
- Achieve a superior level of control, which in turn mitigates risks on the project and ultimately leads to the successful execution and delivery of capital projects.
- Manage a level of contingency not available to the contractors so that extreme events and unlikely risks can be managed without providing a huge pot of funds to the contractors.

TYPES OF CONTRACTS AND THEIR INFLUENCE ON OWNER PROJECT CONTROLS

The level of detail that needs to be personally managed by the owner depends very much on the nature of the work being undertaken and the type of contract in place.

Reimbursable work requires a lot more day-to-day management attention than lump sum contracts.

When the contract is reimbursable, the owner has a greater right and need to ask for more detailed information from the contractor. The owner does not necessarily need to have the information provided at the level of individual deliverables, but they do need to have the cost and progress information (in terms of actual work completed against the total work to be done) at a level that would allow them to spot anomalies and issues.

When a lump sum contract is in place, the owner and contractors may feel the

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owner does not need or have the right to ask for detailed information. This may be true in terms of costs incurred by the contractor in the course of delivering their scope of work, but this concern does not address the owner's needs for information that will give them confidence that the work is progressing as expected.

If the owner is performing a coordination role, then they will need even greater detail on progress and schedule information. There may be consequences for late completion of the scope of work and without access to progress information, it can lead to additional costs or delays further down the line.

The delays can be at the contract level, for example, contractors mobilizing too early as they have been misinformed about project progress.

Or the delays can be at the project level, where they result in:

- Lost revenues
- Lower margins due to:
  - o Higher depreciation costs
  - o Increased project financing costs
  - o Exposure to inflation
- A strain on foreign borrowings & domestic credit
- A delay in societal and environmental benefits
- Owners failing to meet their contractual obligations

Decisions made early on in a project can have a huge impact on execution and construction success. Therefore, there needs to be an effective project controls organization and execution plan by end of the FEL2 (Assess) stage. In addition, there may be a need to control each project stage as if it were a project.

With the right data project controls can assess the performance of contractors and manage the correction of deficiencies in performance. It is vital for there to be a contractual mechanism that agrees on what data will be provided and provides a mechanism to influence the contractors to improve their performance when they start to slip.

So it is important to have regular progress reports from the contractors and it is reasonable to expect to see the scope of work broken down alongside progress and productivity measures to provide the owner with the confidence that the work will be delivered as expected. It is useful to make sure that the project control requirements are documented in the contract agreement so that there is no uncertainty about what data is required from the contractor.

When analyzing the data the owner needs to take into account the quality of the reporting for:

- Completeness - are they over or under reporting
- Consistency – are they all in the same format and providing the same information
- Verifiability – can the data be objectively verified
- Compatibility – is the data compatible and easy to integrate into project system
- Acceptability – are they following industry best practices

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- Analyzable – can that data be analyzed for highlighting trends
- Communicable – is it being provided in a timely manner and in a format that is easy to comprehend
- Cost/Benefit – are the costs of reporting exceeding the benefits being provided

Studies have shown that projects that are more than 10% behind cost or schedule, even at only 25% complete, rarely recover their losses. The key to good delivery is to have the right information and the appropriate level of detail to catch issues & trends early.

FINDING THE RIGHT LEVEL OF CONTROL

Projects are delivered successfully when proper planning and processes are implemented with the unified goal of achieving an agreed upon scope. Project control processes are needed to monitor work and identify whether the project is proceeding according to plan. Project complexity, contractor organization maturity, team experience, cost, project importance and other factors determine the level of control needed. Demanding too much control can cause discontent amongst the contractors and cause an increase in project costs and diversion of resources from more important tasks, as the contractors strive to produce the data requested of them. Too little control can lead to unforeseen delays, errors, unwarranted and unexpected costs, scope creep and lower than required project quality. Using a software solution that enables owners to monitor contractors and project progress at a level of control that suits both contractor and owner preference is a must.

Use of an appropriate project controls system also helps to facilitate project planning. Planning ensures that the project is achievable within the budget and time allotted. The plan determines the sequence that work needs to be completed in and addresses the organizational responsibilities required. The planning component identifies what needs to be measured, how it will be measured and how progress will be properly recorded to ensure that the owner does not over spend for work.

Scheduling converts the plan into time focused action items. Critical paths are identified and all schedules are optimised to eliminate lag. A strong schedule would show that the full scope of the project has been scheduled, all the critical paths have been identified and validated, that the plan can be accomplished within the expected time, that each activity can be measured and that slippage and the effect of slippage can be recognized and addressed. It is also important to ensure that schedule is integrated with the rest of the project data allowing for simpler analysis of the effects of project slippage, particularly in terms of the effect on cost.

Cost control starts with a plan and an estimate, and from there develops project cost into time-phased execution budgets. The integration of the budgets with the schedule ensures that each component of work has a common measurement for tracking progress. Actual project costs and changes are recorded and compared against the time-phased execution budgets and work efficiencies are trended accordingly. This information can then be used to calculate the "Estimate at Completion" by comparing the physical completion and actual costs against the current budget for the scope of work.

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THE BENEFITS OF INTEGRATED PROJECT CONTROLS

Integrated project controls offer great benefits for the owners of capital projects and bring together the key elements of planning and controlling a project:

- Planning: Includes estimate (pricing) data that creates the basis of the estimate and the schedule, which creates the sequencing and timing of activities and should be considered the baseline schedule once all parties agree.

- Controlling: Includes updating and forecasting of the schedule, along with risk management, change management, physical progressing and estimate (quantities, hours and cost), progress reporting and tracking of actual cost and commitment values.

Project control comes through the ability to tie all these elements together into one structured view of the project. The un-integrated approach may provide adequate business control in each area but does not offer strong overall project controls.

Integrated project controls improve the organization's capability to manage the project within budget and schedule constraints. It provides early warning indicators of potential problems so that they can be assessed and managed. Integrated project controls focuses on improving data accuracy and reducing duplication of tasks. Using techniques such as Earned Value Management, metrics can be produced that flag troubled areas that need addressing. Without the integration, these problems may go overlooked and later wreak havoc in the project's progress.

The integrated approach to project controls allows each component of the system to be quickly referenced to the others, providing the owner with accurate answers to all of their potential questions: What is the status of the project today? Are there any concerns management need to be aware of? What changes have been made to the project? What is the completion dates and estimated costs at completion? What obstacles exist to completing the project? What risks can impact the success of the project?

Through the integration of the key aspects of the project, the owner's project team is provided with many advantages including:

- An objective view of the project.
- Early identification of potential problems.
- Accurate analysis of current status and likely future outcomes.

All of which provide the project team with:

- The ability to make decisions based on objective facts – not subjective opinions.
- An opportunity to correct issues while they are still small and manageable.
- A way to monitor the results of their decisions and take further corrective action if required.

Additionally, many common project risks can be managed with strong project controls including:

- Scope Creep – Good project controls is founded on strong change management. Ensuring that all changes follow the appropriate evaluation and approval processes confirms that

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scope creep is kept in check. It also ensures that the project scope and requirements remain within budget and funding limits.

- Project Schedule Delays – Integrating the schedule with other key components of the project highlights issues that can affect the delivery of the project before it is too late to do anything. This visibility allows the project team to find resolutions to potential schedule delays.

- Financial Overruns – Comparing the actual costs against the progress made in the delivery of the project highlights where there are potential overcharges, productivity issues, excessive billing rates etc.

- Claims and Liens – If there is a lack of good project controls then it is not easy to define accurate scope of work and terms for each contract. A poorly defined contract is open to misunderstanding, disagreement, uncontrollable changes, and in the worst cases claims and liens from contractors for work they have completed even if the owner feels it was unwarranted.

INDUSTRY STANDARD TOOL

In order for an owner to efficiently manage their project, they need an industry standard tool that is easy to use with the power and flexibility to adapt to the various execution models that can be employed.

That is why many organizations turn to tools like ARES PRISM. PRISM is an Enterprise Project Lifecycle Management solution that:

- Can be installed and configured very quickly in the owner's environment.

- Is capable of importing data from a multitude of other software allowing information to be easily loaded into a common database for analysis and reporting.

- Offers a flexible and comprehensive change control process.

- Can simultaneously track an approved budget and a control budget. This means that contractors can be advised of a budget to complete their scope of work while a separate reserve is held internally.

- Contains a Staff Planning function that can be used to plan and track internal resources.

- Produces reports and dashboards out-of-the-box that owners can use to compare progress and actuals at the click of a button – saving time and improving efficiency.

- Integrates with almost any software on the market. With PRISM Integrator, owners can integrate their IT systems, ERP systems and financial systems into the PRISM landscape.

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CONCLUSIONS

There is no single correct answer to the question: "How much project control do I need?" If you're not measuring it, you're not managing it. So you need to identify what matters most and put in place the right processes and tools to achieve your goals.

The answer is very dependent upon the nature of the project and the experience and skills of the owner and contractors. It is best to approach the project initially with a high degree of control and then relax as the project proceeds and the project team becomes more comfortable working together. Trying to increase control once a project has already started is almost impossible and will leave the project controls team perpetually striving to get the right information, at the right level, with the right codes in order to report (not manage) the data requested from them. To determine the appropriate level of control, project controls personnel need to work with management to assess the data and determine what is right for that specific project according to industry best practices.

Contractors can withhold information provided to the owners – if project controls is not managed at the Owner level then issues can be hidden until it's too late to resolve them.

It is critical that owners responsible for the entirety of the project do not abdicate their responsibilities to contractors or project management consultants. The owner is accountable to the banks, the CFO, shareholders and other stakeholders. The owner has a duty to maintain oversight of the project to a level at which they can guarantee to stakeholders that they are in control. Contractors should only be responsible for the scope of work that was contracted to them and cannot be expected to "fill in the gaps" where an owner does not have the right controls. Also project management must align their interests with the owner's. They need to recommend and adopt a project controls system that is efficient, economical and effective.

In all cases, there is a need for a system that:

- Provides analytical reports in tabular, graphic and dashboard formats with drill down capabilities.
- Alerts the owner to areas not meeting key performance indicators.
- Ensures consistency between budgets, schedules, commitments, actuals, changes and cash flow.
- Facilitates the exchange of data between, contractors, the PMC and the owner.

Poor trends are difficult to reverse and recover from. Adding more resources or sustained use of overtime fails to deliver the expected improvements in schedule and often just results in increased cost, poorer performance and sometimes large implications for safety. Identifying poor trends early on in the project allows for more time to develop an approach to counter them without making matters worse.

Overall, it is evident that owners need to embrace industry best practices by managing in a way that offers contractors enough freedom to complete their scope of work, while still maintaining enough control to analyze and monitor project performance.

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ABOUT THE AUTHOR

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Simon has diverse project controls experience spanning over 25 years. He worked in project management and project controls software development, implementation and support. He also spent time working as a cost controller and as a project controls and project management specialist developing the systems, people, processes and procedures required to embed project controls efficiently in both EPC and Owner organizations. As General Manager, Canadian Operations for ARES Project Management Consulting and Software, Simon continues to work with clients to identify their requirements and to develop and implement project controls supported by the PRISM G2 software.

ABOUT ARES PROJECT MANAGEMENT LLC

At ARES, project controls is what we do. Our PRISM software is developed by people who know project controls and who have experienced the life of an owner, project manager, estimator, scheduler and cost controller. The software has been created to improve the timeliness, completeness and quality of project controls data, make the lives of the users easier and to help the project deliver the scope on-time and within budget by improving the visibility of the project status.

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