KPMG

cutting through complexity

PROJECT ADVISORY

Stakeholder communication and project controls integration

Whitepaper 2

Thought Leadership Series ⑪

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About this whitepaper

KPMG's Project Advisory thought leadership series is aimed at individuals and entities who are involved with major construction projects. Effective management of major projects relies on three key concepts: **i)** early planning and organisation **ii)** stakeholder communication and project controls integration, and **iii)** continuous improvement. In this second instalment of a three-part series, we outline the second key component in managing a major project, stakeholder communication and project controls integration.

Introduction

The bigger the project, the more difficult it is to manage.

In Part 1 of this three-part series, we cited a Kaipara District Council ('KDC') Mangawhai community wastewater project that experienced an unquantifiable cost overrun. This was due to "poor governance", "lack of effective and efficient management and records" and "ineffective management oversight."[1]

The lesson from the KDC project is that project management on major projects must be equal to the task. There are three keys to effective management of major construction projects: early planning and organising; stakeholder communication and project controls integration; and continuous improvement.

In this second instalment of a three-part series, KPMG's Major Projects Advisory practice offers nine best practices for communicating with stakeholders and integrating project controls.

Part 2 – Stakeholder communication and project controls integration

Stakeholder management and communication is critical to the successful completion of your major project. Connecting with the right people – and satisfying their demands throughout the planning and execution phases – can significantly affect perceptions of a project's value. This is true for the direct users and employees of the project, for the community in which the project is located, and for the project owner.

Stakeholder management and communication can be complex and time-consuming. There may be specific issues affecting your project (such as regulatory scrutiny, environmental concerns, local contracting opportunities, or joint venture profitability). The successful management of stakeholder interests ensures that stakeholders: i) have a voice; ii) participate in the management process; and iii) are able to contribute to the overall success of the project.

For KDC, inadequate stakeholder communication and project controls integration "created confusion and significant ill will in the community…KDC was not in proper control of the project. Decisions were based on poor information and made without a full understanding of the costs and consequences…KDC needed to ensure that it received information from its project managers about how it was using the tools to assure itself that the design of the scheme was fit for purpose and that construction was being appropriately managed."[2]

KDC could have avoided or reduced these problems if project managers had adhered to the best practices identified below.

The following are the keys to success of any major project:

1. Develop a stakeholder communication plan

Stakeholder identification occurs early in the planning phase through the project team's understanding of the project's political, social, technological, and historical context. Stakeholders can be both internal and external to the project's owner organisation. Internal stakeholders are those in the 'chain of command' for developing and approving the expenditure of project funds. The external stakeholder category is comprised of: engineers, consultants, construction contractors, equipment vendors, labour organisations, community watchdog groups, regulatory and public inspection agencies, utility companies, operators, users, and others.

A stakeholder has one or more of the following interests in the project:

» **Approval** – approving the development and use of a project;

» **Financial** – paying for the cost of a project;

» **Resources** – providing resources (e.g. labour, equipment, materials, facilities);

» **Users** – receiving or utilising a project upon completion; and

» **Community** – deriving positive benefits, such as employment and increased sales; or negative benefits, such as loss of property/access or decreased sales/profits.

It is particularly challenging for the project team to tailor project reports and communications to meet the specific needs of all possible stakeholders.

Equally challenging is the project team's role in efficiently managing stakeholder feedback and incorporating stakeholder inputs into the project management framework.

Once the project stakeholders are identified, it is the project director's responsibility, with assistance from the project team, to develop communication plans that are specific to each stakeholder. That includes developing project performance measures based on each stakeholder's needs and expectations. Each tailored communication plan should address the following topics:

» Key interests, concerns, and information needs;

» Specific events and occurrences to report (e.g. plant outages, safety statistics, fuel spills);

» Level of involvement (e.g. e-mails only, attend quarterly updates, attend weekly meetings);

» Frequency of communication;

» Communication format; and

» Stakeholder feedback and issue escalation process.

To keep stakeholders informed, the project team must implement various communication plans and reporting protocols. Dashboards, narrative reports, e-mails, web sites, web cams, and other forms of communication can be used to track the performance of a major project. Dashboards are reporting tools that consolidate and arrange numbers and metrics on a single screen.

Key elements of the dashboard should provide a comparison of the actual project results in relation to the project plan, including:

References:
[1,2] Controller and Auditor General, Inquiry into the Mangawhai community wastewater scheme, Independent Assurance Report, November 2013.

» Budget variance projection;

» Progress on key project milestones and number of critical path milestones missed;

» Contract status information;

» Cost Performance Index (CPI) and Schedule Performance Index (SPI);

» Schedule variance (days);

» Monthly spend variance (spend vs. actuals);

» Monthly manpower variance (manpower hour forecast vs. actuals);

» Safety events (based on how you are defining them, i.e. recordable rate);

» Percent of contingency draw vs. project completion;

» Revenue and expenditure activity; and

» Funding commitments.

During the course of a major project, stakeholders should receive progress reports from the project team. These can be distributed daily, weekly, monthly, or on an ad hoc basis. The target audience and frequency of progress reporting will vary based on stakeholder needs. To make progress reports more meaningful, they should be tailored to specific audiences.

Typically, the audiences will include senior management, the project sponsor, and local community representatives. Senior management must be able to understand and monitor 'big picture' progress and focus on cost, schedule, high-level risks, and strategic project objectives.

The project sponsor will need to have more details about project performance and be briefed on issues such as technology, LEED certification, permitting progress, schedule delays, cost trends, claim issues, and safety.

Community representatives need status reports that communicate project milestones and major events. Project milestones may include completion of the project's design, estimated taxpayer costs, outages or planned closure of roads and highways, environmental impacts, local hiring, and community outreach.

More important than the routine dissemination of project information is the need for your project team to reach out to stakeholders and keep them engaged in the project. Stakeholder engagement should be seen as a critical success element on all projects. Stakeholders have a vested interest in project outcomes, and they can often enhance the positive benefits of a project and limit its negative impacts. Stakeholder engagement should be seen as an opportunity to both clarify project objectives through stakeholder challenges, and gain fresh insight on project issues and challenges.

Stakeholders are essential to the successful planning and execution of all projects. Additionally, stakeholders are a valuable source of knowledge and problem solving, and their participation and involvement on large capital projects are to be welcomed and expected.

2. Utilise integrated project management systems and controls

Project management systems and controls are used by your project team throughout the life cycle of a major project. They are used to track progress; and monitor cost, schedule, quality, risk, and other project metrics against baseline plans.

Project management systems and controls can be either manual or, preferably, technology-based. Project management systems and controls can either be integrated, or stand alone for particular project management processes, such as scheduling and cost control.

The project team will select and use the project management systems they are familiar with and are trained to use. Integrated *Project Management Information Systems (PMIS)* are recommended, as they allow for consistent and accurate information sharing. They are also becoming more common in off-the-shelf software packages. Typically, information is entered into one location (e.g. contract module) in the PMIS and is then available for use by other project management sub-processes (e.g. budget module).

3. Create a work breakdown structure

The key to an integrated project management system is the Work Breakdown Structure (WBS). This is a hierarchical method of defining major elements of work for a project. These elements describe the project's main deliverables by deconstructing the deliverables into components at various levels, including scope description, resources, budget, and responsibility for carrying out the work.

Typical components for a major project at the functional management level (Level 2) of the WBS are:

1) Project management;

2) Design and engineering;

3) Fabrication;

4) Procurement;

5) Construction;

6) Testing and commissioning; and

7) Start up.

Some of these components, such as fabrication and procurement, may be combined.

Additional WBS levels may identify the specific work by phase, area, and discipline; and even further to resources, cost, budget, and responsibility. Construction projects typically define the WBS to the activity level (Level 4) for managing the work of subcontractors, vendors, and suppliers.

For self-performed work, the WBS can be developed below Level 4, depending on the needs of management and the level of control required for monitoring performance.

The development of WBS activities is a combined effort among various members of the project team; including your project director, senior project managers, engineers, procurement specialists, construction managers, safety managers, inspectors, and start up specialists.

The WBS is integrated with the organisational structure, project schedule, and the cost control system. Without a sound WBS describing the project's deliverables, the project team cannot use Earned Value Management (EVM) techniques to measure and forecast cost and schedule.

4. Prepare a baseline schedule

Project baseline schedule development has two phases: 1) activity planning; and 2) scheduling. The planning stage begins with taking the WBS components at the appropriate level and creating a network analysis diagram. The network analysis diagram presents a logical sequence of work activities showing relationships from one activity to the next. In this phase, the activities are assigned durations based on optimal conditions, normal labour productivity, and efficient costs.

In the scheduling phase, the schedule manager performs the forward and backward pass scheduling calculations to determine each activity's early and late start and finish dates. The critical path of the project is also identified, which sets the overall project duration. Adjustments to the project schedule may occur if the scheduled dates do not fall within contractual milestones or other required performance dates. Approval by the construction owner may also be required before the baseline schedule is finally established.

The baseline schedule is updated on either a monthly basis or more often depending on the demands of the project. This updating will identify activities that have started and completed, or started and are in progress, since the time of the last update. Each activity in progress is updated by applying a percentage of completion estimate compared to the total work required for that particular activity. Physical completion is the preferred method where possible. Schedule updates serve as a project management control for monitoring the progress of construction activities, and measuring the performance of work against the baseline schedule.

The baseline schedule may be revised to incorporate significant changes to the scope of a project or a major change in the overall sequencing of the work. Schedule revisions and time extensions may also be appropriate where there are unavoidable delays. These may be caused by unusually adverse weather, labour strikes, force majeure events, and the like. Similar to the development of the baseline schedule, the revised schedule (for the remaining work) should be checked and reviewed by the construction owner and approved if appropriate. Time extensions and other schedule adjustments may incur significant project costs.

5. Develop the cost estimate and set a baseline budget

Large capital construction projects typically generate four cost estimates that roughly follow the maturity of the project's design process. These include: 1) the concept stage estimate, which is based on the initial scope statement; 2) the feasibility stage estimate, which is based on design documents ranging from 20 to 40 percent complete; 3) the detailed design estimate, which is based on design documents and project specifications ranging from 60 to 75 percent complete; and 4) the construction documents estimate, which is based on 100 percent complete construction documents approved by the construction owner.

Contingency estimate needed to adequately budget the cost of a project is inversely proportional to the level of design maturity. For conceptual estimates, the amount of contingency may be as high as 50 percent of the estimated facility costs using parametric estimating methods. As the design is further refined, the level of contingency is reduced to reflect greater certainty in the configuration, quantities, specifications, and other requirements of the project.

The true cost of the project is not known until the designs are complete, and market-based pricing is applied by obtaining bids or receiving firm negotiated offers for performing the work. At that point, the estimating contingency can be reduced to zero, or to a few percentage points only for items that the estimating team may have missed in the procurement process. (This does not preclude the need to carry a separate contingency for project risks).

Once the baseline estimate is established for the project, all scope changes and cost variances from the baseline estimate are tracked through the forecasting process. Your project team will prepare cost forecasts on a quarterly or monthly basis and identify adjustments to the baseline estimate based on market trends, labour and material escalation, and other cost drivers. A leading practice in project management is to prepare a 'bottom-up' estimate of the remaining cost-to-complete, at two to three key milestones during the project's construction phase.

6. Manage scope changes

Contractor and vendor changes are tracked through a formal change process. Changes to a contractor or vendor agreement – which may involve changes in scope, schedule, price, or means and methods of performance – typically require one party to notify the other of the change through a reporting mechanism such as a Change Notice or Contractor Instruction. These documents can be entered and tracked in a PMIS. By tracking these issues in a system environment, they can be updated, approved, and communicated to the project team.

Formal changes by the construction owner are issued to the contractor or vendor via a Request for Proposal (RFP). After the contractor or vendor reviews the RFP, a detailed proposal is prepared. The contractor's or vendor's proposal will include an analysis of probable cost and schedule impacts based on the level of design for the change.

Following the construction owner's review of the RFP, either a directive to proceed is issued or further negotiations may begin. Based on the proposal pricing and/or schedule impact, the construction owner may withdraw the request and cancel the RFP. If the contractor or vendor is requested to proceed with the work, a formal contract variation is prepared, and the owner makes appropriate adjustments to the WBS data, the project schedule, and the cost codes. Once the change order has been approved, the work can be billed by the contractor.

Change order logs and other reports are generated by the project team on a monthly basis to show open items, pending items, and closed items.

7. Manage project risks

As described in Part I, risk management is a process for identifying and responding to project risks and opportunities in an organised and formal fashion. One of the main purposes of risk management in a project environment is to support the project management team's estimate of risk contingency that must be included within the overall budget.

Features of a formalised risk management process include a Risk Register that identifies threats and opportunities in a qualitative manner (probability and impact), and assigns individuals to monitor and manage the most volatile risks.

More robust risk management processes include a quantitative risk management assessment based on a risk simulation model such as the Monte Carlo simulation. (Commercial software tools are available for this type of analysis). Components of the cost estimate are used in the risk simulation model to generate a probable estimate of project cost based on the particular parameters used in the model. The risk manager can select the desired level of cost certainty. For most users, this is typically in the range of 70 to 90 percent. Any differences between the baseline estimate and the risk-analysed cost estimate are considered when setting the required levels of budget contingency.

Similar to the cost-risk analysis, a schedule-risk analysis can also performed. This analysis is performed by the project management team to determine level or degree of certainty of the target completion date. Risk ranges surrounding selected activity durations are developed through discussions with project managers, contractors, and vendors.

Project risks are monitored on a regular basis, and a new risk analysis is performed on a quarterly or monthly basis. As risks are mitigated or revised based on known conditions, risks can be removed from the register and new items added as they arise. Without adequate risk management processes, it is impossible to determine if your major project will complete on time and within budget.

8. Report earned value

Earned value management (EVM) reporting is a process for monitoring project performance against the project management plan. Monitoring includes collecting, measuring, assessing, and reporting of project performance throughout the performance period. The process starts with the updating of actual construction progress based on the activity descriptions in the project schedule and WBS. Based on the progress reported against the baseline project management plan, the earned value calculations for each schedule/WBS activity can be calculated. Earned value is the budgeted amount of the work actually completed. *Earned value* (EV) is compared to the *actual cost* (AC) for the project (sum of direct and indirect costs incurred for a given time period). It is captured by plotting the job cost reporting (accounting) system, and to the *planned value* (PV), which is the budgeted cost for work scheduled to be completed.

Using earned value, actual cost, and planned value, the project management team calculates the project's cost and schedule variances along with the project's cost and schedule performance indices. Any negative trends are communicated to both internal and external stakeholders, and action plans are developed to bring the project's cost and schedule performance in line with expectations of the project management plan.
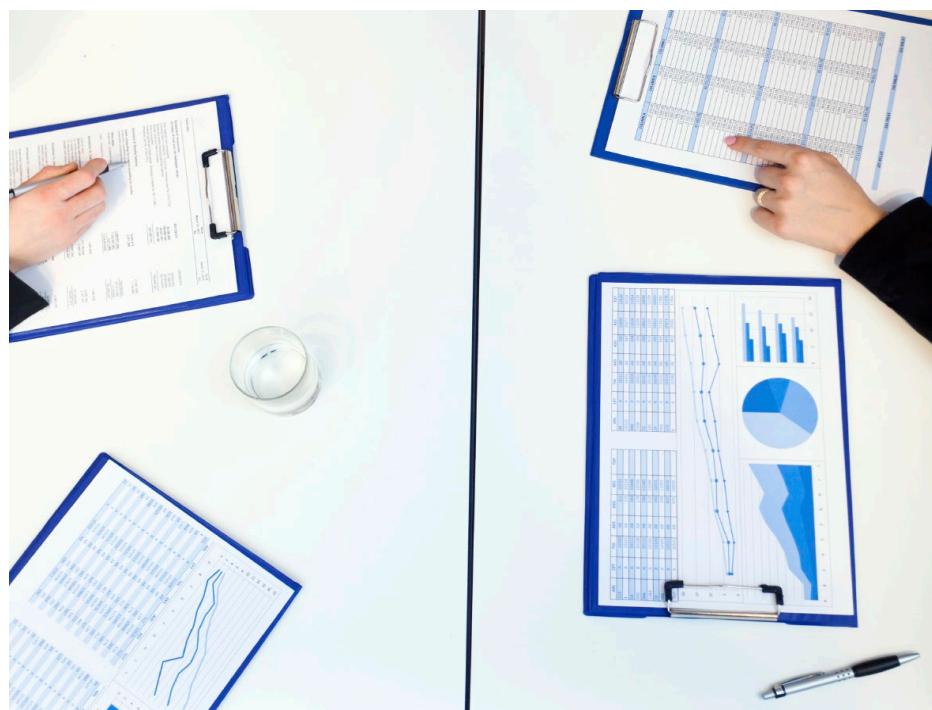
9. Control your project (stick to the plan)

Even with the highest quality of project planning, major projects don't control themselves. Your project controls manager and other key members of the project team play an active role in continuously monitoring and controlling the project. This means getting contractors, subcontractors, and suppliers on board; continuously refining design quantities, cost estimates, and schedules; and managing issues and negative project trends.

When project metrics get 'out of control', the project team must take positive action to get the metrics – and project performance – back on track.

One way of documenting and recording controlled progress is through the preparation of a formal monthly progress report. The monthly project report is the main tool for communicating progress, issues, concerns, financial status, earned value and other key information about the project. Much of the information in the monthly progress report is summarised from raw data and lower-level project records. For example, the overall percentage of completion compared to the project's baseline plan is derived from numerous cost, schedule, and resource records, along with observations made by the project team in the field.

Although the monthly progress report is used by multiple stakeholders, specific sections of the report may be relevant to their specific interests. Therefore, it is important to highlight where additional compilations or raw data can be found. This is particularly important for reporting safety incidents, environmental spills, archaeological finds, testing and inspection records, and other data required to be maintained by regulatory agencies. The monthly project report should be developed as a structured document containing meaningful information to answer most stakeholders' questions at a high level.

Similar to your organisation's monthly close process for financial data, the project team should also perform a monthly close process to preserve and link important information about the overall status of your major project. The objective is to compile a monthly project report organised by subject matter, and containing complete and accurate information. Performance data for the project should be 'frozen' and preserved each month as a part of the project team's monthly close process. The data will be used by accountants, auditors, attorneys, and other stakeholders to track progress and discern performance trends for management reporting and action.

CONCLUSION

There is more involved in successfully managing a major project than simply drawing on industry experience, being familiar with project management principles, and applying technology.

A successful major project is the result, in part, of effective stakeholder communication and project controls integration. Part 2 of this series details these two objectives and encompasses communication planning, systems and controls, work structure, scheduling, scope changes, risk, reporting, and 'sticking to the plan.'

In Part 3 of this series, we will discuss the third key, which is continuous improvement. A major project will not be viewed as a success—even if it's on time and under budget—unless it achieves the business objectives for which it was approved. Since market conditions are anything but static, project teams must stay in touch with corporate trends and changes that may affect the way the project is viewed upon completion. To remain aligned with business objectives, the project team must seek appropriate guidance and feedback from the project sponsor and steering committee.

About KPMG Project Advisory

KPMG's Project Advisory services are objective, professional approaches to managing the many risks associated with major change: risks that involve complexity, technology, governance, selection and management of vendors and partners, implementation of solutions and acceptance of change throughout the organisation.

KPMG applies leading concepts and practices, supported by:

› Experienced practitioners
› Recognised best practices
› Effective tools and templates
› International standards
› Built-in knowledge transfer

Project Advisory Services can assist organisations to generate significant cost savings by minimising poor selection decisions, costly overruns, misalignment with business needs, poor quality deliverables and failed projects.

Our project advisory services include

INDEPENDENT QUALITY ASSURANCE (IQA)

Is your project or programme on track? Are the key risks and issues being effectively managed and addressed? Independent Quality Assurance is KPMG's approach to providing objective, practical and open feedback to senior executives, independently assessing project status, risks and issues. Advice is provided by experienced staff who are not part of the delivery team.

PORTFOLIO, PROGRAMME AND PROJECT MANAGEMENT (P3M) PRACTICES

P3M provides services for the purpose of designing or evaluating portfolio, programme, or project management practices. The objective is to assist in implementing or improving P3M practices to reduce project costs, increase project success and create an organisational P3M support environment which is valued by internal and external stakeholders alike.

LARGE PROJECT AND PROGRAMME MANAGEMENT ASSISTANCE

This cornerstone service of KPMG's Advisory practice is designed to address the full lifecycle of a project or programme, providing an integrated approach to managing large initiatives – the result: significant efficiencies and enhanced outcomes. The methodology incorporates concepts from well-known risk, benefits, project and quality management disciplines to help companies achieve the results they expect during every phase of a large project or programme.

PROJECT RISK ASSESSMENT AND MONITORING

These services provide a highly focused, activity-based approach to project risk management. They provide management with an objective and independent assessment of the risks associated with a business initiative, programme or project, and evaluate the effectiveness of planned or implemented controls to mitigate the risks.

BENEFITS MANAGEMENT AND REALISATION ADVISORY

KPMG professionals help you identify the measurable business changes that you will to see at the successful completion of your project and to tie these into an effective Benefits Management and Realisation strategy which can be referenced in your Business Case. Even for projects where outcomes are "enabling" or "intangible", our Project Advisory team will be able to assist with the identification of proxy indicators and benefit relationships to support the approval of your Business Case and its successful delivery.

PORTFOLIO MANAGEMENT

Effective portfolio management helps large organisations make sound decisions by prioritising the deployment of scarce resources to change initiatives and maximising their value to help achieve the organisation's strategy. Organisations operate in increasingly dynamic environments, which often make it a struggle to satisfy fluid business requirements.

KPMG's Portfolio Management (PfM) Advisory and Assistance services help organisations to develop appropriate processes and capabilities to achieve this aim. We provide practical guidance for conducting capability development, maturity assessments and performance reviews. Our methodology provides a flexible, comprehensive approach that can help our clients achieve their goals.

PROGRAMME MANAGEMENT OFFICE ASSISTANCE

Programme Management Office Assistance is intended to help our clients develop the processes to support a Programme Management Office. We assist with the development of a client's programme office processes and facilitate communication across client leadership to help make sure that enterprise programme initiatives are aligned with the organisation's business strategies. The focus of the PMO is to increase project visibility across client leadership in order to help achieve strategic programme performance.

PROJECT ADVISORY

Our practitioners know that successful projects are the result of clear vision, careful planning, and meticulous execution.

Bottom line: Project Advisory services drive speed and effectiveness of change within your organisation by reducing costs and increasing success.

Leadership Series

Please look for important topics covered by our Project Advisory Leadership Series in the coming months:

» Part three of a three-part mini series on: How to successfully manage your major projects

» Integrated project delivery

» Building a foundation for a project health check

» Effective reporting for construction projects: increasing the likelihood of project success

» Handling labour risk in construction

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