DUE DILIGENCE ENGINEERS

PROJECT INSIGHTS

IDENTIFYING POTENTIAL SHOW STOPPERS.

DUE DILIGENCE ENGINEERS

CONTENTS

EXECUTIVE SUMMARY

Critical to Australia's continued growth is the delivery of large infrastructure projects and the procurement of fit for purpose plant and equipment in a timely and cost effective manner. But many fail to deliver. There are many reasons cited including:

- Lack of clear links to strategic outcomes
- Lack of effective stakeholder engagement
- Lack of senior management support
- Specialist groups within an organisation operating in silos

For projects to be successful, in terms of both project performance and project delivery, they require a contextually sound, robust and transparent project governance structure and effective project risk management processes. These two elements combined demonstrate project due diligence.

This paper highlights the R2A process which provides an independent snapshot review of the project in a prompt and cost effective manner. It provides insight into potential show stoppers, those issues which are catastrophic to the project.

Over the last 10 years, R2A has applied the process to projects ranging from $10M to $2.5b. In all cases, no unanticipated issue arose and relevant precautionary and contingency plans were in place to effectively manage the issues that did arise.

INTRODUCTION

Continued investment in large infrastructure and procurement projects across a range of industries is essential to Australia's growth. However, the key success of such projects is the delivery of the project objectives in a timely and cost effective manner.

This isn't always the case and some large projects fail. There are many reasons as to why this occurs including:

- Lack of clear links to strategic outcomes
- Lack of senior management support
- Lack of effective stakeholder engagement
- Specialist groups within an organisation operating in silos

> **CONTINUED INVESTMENT IN LARGE INFRASTRUCTURE AND PROCUREMENT PROJECTS ACROSS A RANGE OF INDUSTRIES IS ESSENTIAL TO AUSTRALIA'S GROWTH.**

When things start to go wrong, typical questions asked of R2A include:

1. We are a Public-Private Partnership (PPP) project. We have seen other PPPs using reputable consultants and recognised processes blowout, for what technically appear quite small elements of the whole project, despite apparently meeting all relevant milestones during the course of the project. How could this have happened? What else could have been done?
2. We price contingency sums using a 'frig' factor. Is there a little more scientific way of pricing uncertainty (without complicated mathematics), especially at the concept design stage of a project?
3. Our outsourced maintenance contract has fallen over. Despite our best efforts it seems that our alliance partner's objectives were not fully aligned with our own. Why did this happen, and more importantly, what process can we adopt to ensure it does not happen again?
4. We are required to have a project risk register. It satisfies our audit requirements but it doesn't actually work very well. Specifically, we did a great deal of work up front but it doesn't deal with issues effectively, users get frustrated with it and then tend to ignore it until audited. Can you help?
5. Our organisation uses a 5x5 (or 3x3 or 6x4) risk characterisation tool. But as a decision making tool, it's not making sense. Why is this?

This paper provides a summary of the challenges faced by project managers and senior management and explains how R2A's proven process ensures critical project risk issues are identified and, efficiently and effectively managed.

IS YOUR PROJECT AT RISK? KEY IDENTIFICATIONS

The attention on large projects, especially government projects which rely on public funding, is increasing. The public is demanding transparency and accountability by those responsible to ensure projects deliver promised outcomes.

To ascertain if change is required for your current or upcoming project, action is required if:

1. Your project's critical success factors don't align with the project managers' expectations or those of clients and partners.
2. Your project isn't focusing on credible threats to both project performance (the owner's concern) and project delivery (the contractor's concern).
3. You don't have a sound argument that there are no potential project show stoppers over the entire life of the project or if they exist, that they are being effectively managed.
4. You have not optimised project scoping and sub-project planning before tendering/detailed design.
5. You are not confident that all of the value adding opportunities have been identified during the planning stages.
6. You have only applied a risk management process consistent with ISO 31000 (the Risk Management Standard) to the construction or procurement phase of the project.
7. Your project has experienced unexpected risk surprises.
8. Your project is continuously being blown out in terms of time and/or budget.
9. You have a large and unmanageable risk register.

> **"THE PUBLIC IS DEMANDING TRANSPARENCY AND ACCOUNTABILITY BY THOSE RESPONSIBLE TO ENSURE PROJECTS DELIVER PROMISED OUTCOMES."**

WHY CURRENT PROCESSES AREN'T EFFECTIVE

Accountabilities and responsibilities associated with an organisation's business as usual activities are laid down in their organisational governance arrangements. However, seldom does an equivalent framework exist to govern the development of projects.

Poor project governance is one of the key factors often cited as to why projects fail.

This is because the project framework is not contextually sound and aligned with the project's critical success factors (the desired and expected outcomes).

Project activities often don't align with project's strategic objectives which means there is a misdirection of resources to the more likely risk issues rather than the catastrophic project show stoppers.

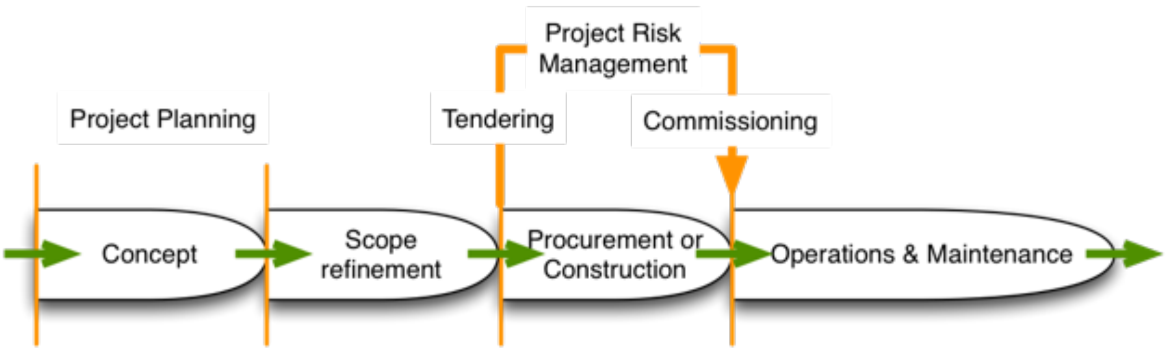
> "POOR PROJECT GOVERNANCE IS ONE OF THE KEY FACTORS OFTEN CITED AS TO WHY PROJECTS FAIL."

SURPRISE OR UNEXPECTED RISK ISSUES

Traditionally, project risk management often only refers to the management of project uncertainty during the procurement or construction phase (tendering to commissioning) as shown in the diagram below.

This approach does not view the project from start to finish. This short sightedness can cause catastrophic risk issues to be missed resulting in unexpected or surprise issues arising during the project. These have the potential for the project not to achieve what it should and / or create delays and budget blowouts.

One key source of unexpected issues arises from project stakeholders including the end users, who have not been appropriately engaged.



Project Risk Management

BOTTOM UP SILO FAILURES

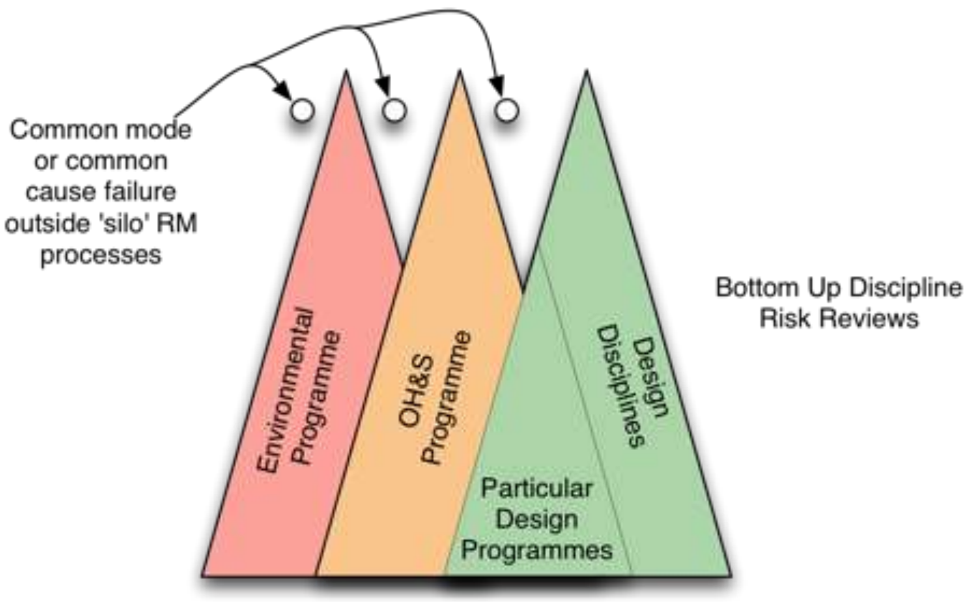
Another common cause of project failure is that each discipline / project group undertakes project risk assessment activities in their own silos, without regard for the high level project objectives.

Each specialist group comes to an internalised understanding of what is important from their perspective and often develop risk registers accordingly.

Senior management therefore receives pieces of the puzzle but not within a unified framework and approach.

So what are the key risk issues that the project needs to worry about?

Common mode and common cause issues can also be overlooked using a bottom up silo approach.

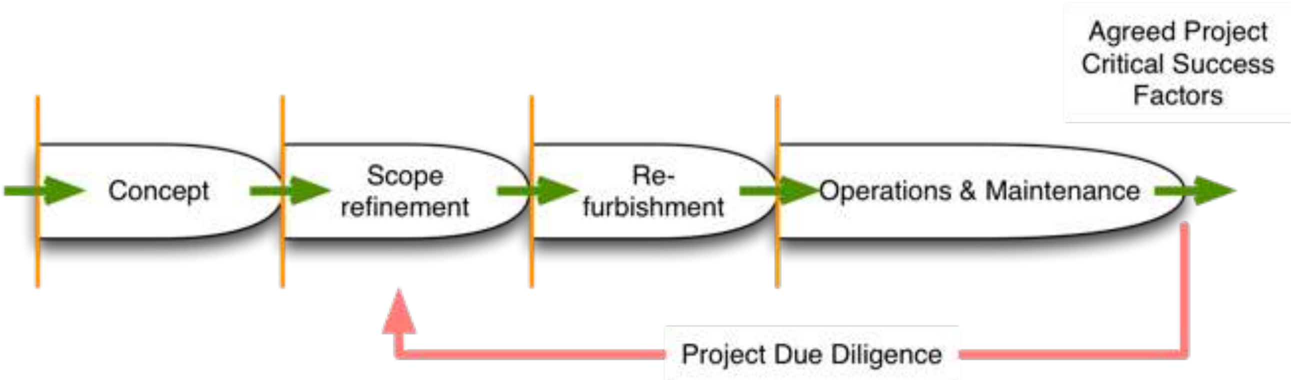


Common mode and common cause issues can also be overlooked using a bottom up silo approach.

SUCCESSFUL PROJECTS: WHAT THEY LOOK LIKE

For projects to be successful in terms of both project performance and project delivery, they require a contextually sound, robust and transparent project governance structure and effective project risk management. These two elements together combine to demonstrate project due diligence.

The due diligence aspect arises from confirming the ultimate objectives (the critical success factors) of the fully functioning project for all stakeholders rather than just delivery to a project specification.



THE PROCESS

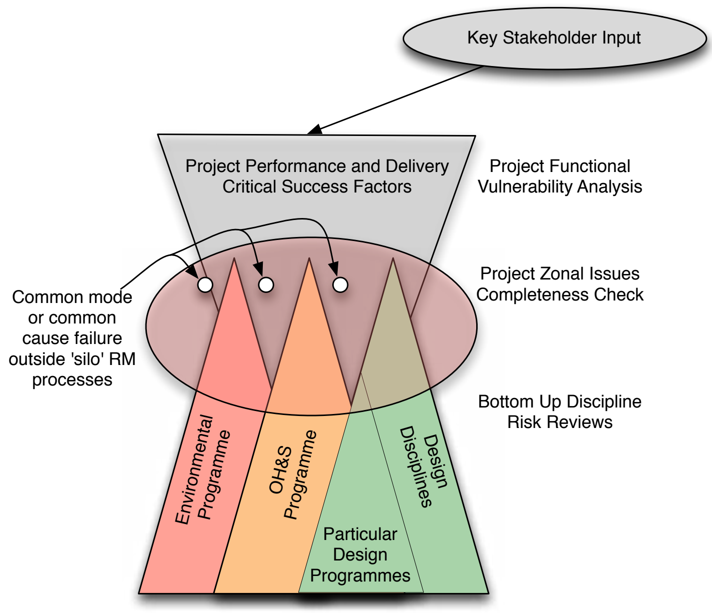
R2A has developed a due diligence snapshot process to specifically identify project show stoppers in advance.

The key to success is to ensure all project stakeholders are clearly identified and are effectively engaged and communicated with at the appropriate stages during the lifecycle of the project. This ensures that the ultimate project requirements are explicitly confirmed and their risk issues are being effectively managed.

The process typically involves three tasks:

1. Functional Vulnerability Analysis.
   Determine the issues that can critically impact on both project performance and project delivery. The process identifies the critical project performance vulnerabilities by defining the critical success factors for the project and credible threats to which it is exposed. Vulnerabilities are characterised as minor, moderate or critical (show stopper).
   This provides a completeness check to ensure that no significant threats and vulnerabilities will be overlooked during the project.
2. Zonal Issues Completeness Check.
   This is a geographic or zonal risk 'completeness' assessment undertaken by examining each major element in its geographic, community and environmental context. It identifies site specific issues.
3. Bottom Up Discipline Reviews.
   These are completed as required for specific issues and design disciplines whilst making continuous reference to the higher level studies. This ensures such detailed technical reviews remain contextually sound and transparently connected to the identified overarching issues.

The following diagram represents the three key steps.



DUE DILIGENCE ENGINEERS

CONCLUSION

Critical to Australia's continued growth is the delivery of large infrastructure projects and the procurement of fit for purpose plant and equipment in a timely and cost effective manner.

For projects to be successful in terms of both project performance and project delivery, they require a contextually sound, robust and transparent project governance structure and an effective project risk management process. These two elements combined demonstrate project due diligence.

The benefits of the R2A project due diligence snapshot are:

1. The review is completed promptly, typically within two weeks.
2. The project critical success factors, in terms of performance are identified and articulated by the Organisation. This ensures all risk work (current and future) is completed in the decision maker's context.
3. The project is able to focus on the credible critical threats to both project performance (the owner's concerns) and project delivery (the contractor's concerns).
4. The Organisation has confidence that all potential project show stoppers have been identified and are being effectively managed.
5. Project scoping and sub-project planning has been optimised before tendering / detailed design.
6. Value adding opportunities have been identified during the planning stages.
7. The project does not experience unexpected surprise risks.
8. The potential for continual blow outs in terms of cost and time is minimised.
9. Results are transferable to a succinct and manageable risk register that can be continually reviewed during the various stages of the project.

R2A's process ensures the Organisation has confidence in the project risk management process and will ensure that the project is right the first time resulting in a successful outcome.

WHERE TO NEXT

If you would like to know more about how to manage risk in a due diligence context, you can:

1. **Contact R2A** to organise a briefing for your executive management team.
2. **Book** an In-House Course or arrange a Private Briefing with your Legal Counsel and R2A.
3. Buy a copy of the 9th edition of the R2A text, Risk & Reliability: Engineering Due Diligence. **Order online here.**
4. **Receive** R2A's email newsletter.
5. Attend the two day Engineering Due Diligence workshop presented by Richard Robinson. **Book online.**
6. **Attend** the one day Defensible Risk Management Techniques course presented by Richard Robinson on behalf of Engineering Education Australia.
7. **Enrol** in the Introduction to Risk and Due Diligence Postgraduate Unit at Swinburne.

DUE DILIGENCE ENGINEERS

Level 1, 55 Hardware Lane
Melbourne, VIC, 3000
Australia

P +1300 772 333
F +61 3 9670 6360
E risk@r2a.com.au
www.r2a.com.au