

RISK & OPPORTUNITY REGISTER

Introduction

One of the greatest challenges owners and/or builders face when delivering capital projects is cost management, particularly when projects involve many partners and include complex elements that introduce more uncertainty and risk. By using a Risk and Opportunity Register in project management, project teams can identify, share and disclose risks in a transparent manner to collaboratively manage, mitigate and preferably eliminate risk. A Risk and Opportunity Register also helps teams identify opportunities to enhance a project in ways that typically go unnoticed.

A Risk and Opportunity Register is part of the overall strategy of building a visual workspace. It allows risks and opportunities to be identified and assessed early, and allows the team to apply intellectual capital rather than financial capital to mitigate or avoid risks.

1.0 Why

Traditionally, project leaders manage risk through a contingency fund that is designed expressly to cover costs associated with unforeseen circumstances. Typically, risks incurred early in a project reduce the fund quickly, and later risks are represented as justifications for additional funding. Risks are not made visible early enough to allow the full team to respond.

A Risk and Opportunity Register is part of the overall strategy of building a visual workspace. It allows risks and opportunities to be identified and assessed early, and allows the team to apply intellectual capital rather than financial capital to mitigate or avoid risks. When used effectively, a register can help the project team avoid unnecessary costs that can translate into additional value for all parties involved—trade partners, design partners and owner.

The opportunity side of the register offers many benefits. It can offset risks, create a pool of money to serve as an incentive pool for the team to enhance profits, or act as a funding source to drive additional value to the project. Often, teams are so focused on risks that they fail to give consideration to opportunities. Having an actively managed Risk and Opportunity Register encourages project teams to look for and consider opportunities that can enhance the value of the project.

Finally, the register provides an effective tool for sharing knowledge. Everyone on the team contributes, adds information and views information contributed by others. The register also is the basis for weekly or monthly meetings on risk management. At the end of the project, the register provides teams with a record of how risk was managed, and the gains realized through the process for the client and the individual partners.

Teams are often unaccustomed to thinking rigorously about opportunity and risk. It requires practice for it to become a routine part of thinking during planning sessions and work in the field.

The register is a valuable tool for a project of any scope or type and during all phases of development, from project conceptualization to commissioning. However, the Risk and Opportunity Register is mandatory for any Lean/IPD project because the partners are collectively at risk for failure and collectively benefit from any opportunity.

2.0 How

Integrate the Register Early. Share the document and incorporate it into your meetings as early as possible. Too often risks aren't identified until they have already become problems. For this reason, it is important to identify each risk early even if there is a relatively low probability of the risk surfacing. For example, if there is a 5% risk that a supplier will be six months late, the relevant leader should flag the risk so the appropriate team members can begin thinking about potential solutions or alternatives.

Exercise Discipline. Discipline is required to effectively manage the register. This includes updating the list before the meeting, and agreeing on what items should be acted upon and by what time. Ensure adequate time is devoted to register management. In the early stages of the project, longer meetings with the team may be needed to discuss the register. As the list of items on the register grows, it might become necessary to filter items by date according to those that are most time sensitive.

Encourage Problem Solving. One of the most valuable benefits of the register is the ability to encourage problem solving. For example, often a contractor will ask a subcontractor if he or she can adhere to a new, more aggressive deadline. The default response may often be an unqualified yes or no, with little to no discussion. This is problematic as the no means there is little flexibility while the yes may represent an unreliable commitment. Instead, encourage structured dialog on these topics. The following phrases can encourage such discussions:

"Yes, I can make that problem go away *if...*" or "Yes, I can make that opportunity happen *if...*"

These conversations can help teams strategize how to make the "ifs" happen. These "ifs" can lead to significant savings in production costs.

Brainstorm for Opportunities. Teams are often unaccustomed to thinking rigorously about opportunity and risk. It requires practice for it to become a routine part of thinking during planning sessions and work in the field. Involve everyone on the team in these discussions and encourage all to contribute.

3.0 What

A Risk and Opportunity Register is a list of risks and opportunities with a probability and cost estimate for each, aggregated into a collective risk dollar amount for the project.

Typical broad topics that can generate line items within the register include:

- Changes in assumptions and/or occurrences about escalation (important on large multi-year projects)
- Changes in assumptions and/or occurrences about when and what items will be procured
- Changes in the basis of estimate
- Changes in the basis of budget
- Uncovered discrepancies between the basis of budget and the basis of estimate
- Uncovered discrepancies between the basis of design and the conditions of satisfaction
- Labor productivity
- Uncovered issues in the representation (design, shop drawings, fabrication details, equipment cut sheets etc.)
- Uncovered issues in the realization (fabrication, procurement, installation, commissioning) Uncovered issues with regulations (i.e. misunderstandings of what it takes to comply)

Various formats for representing the Risk and Opportunity Register are provided in the two figures below:

Figure 1: General format example of a summed list for a Risk and Opportunity Register

Description	Condition of Satisfaction	Probability (%)*	Cost (\$) **	%x\$	Champion	Sunset Date
Price of primary widget has quadrupled due to closing of 95% of widget mines	Cost Constraint of "less of \$500MM"	80%	\$100MM	\$80MM	Dr. Worm	July 4th, 2076

Description: Brief explanation of the area of risk or opportunity. An example might be "potential for delay in receiving supplier materials."

Condition of Satisfaction: The overarching goals of the team

Probability: The likelihood that the event will actually happen. It's inherently a subjective assessment and doesn't normally need a deep diving analytical process. A gut feeling is usually sufficient.

Cost: Two similar definitions that amount to close to the same thing "reasonable worst case cost" and "a cost that could go up by up to 5% or drop to up to 20% less." The product of the percentage and the cost is %x\$ (percentage multiplied by cost). This figure can be placed in a line graph to track performance of risk and opportunity management over the life of the project.

Champion: The team member who has ownership of the issue. They will likely need help from others on the team to either eliminate or validate the risk, but it is their responsibility to see it through to the end.

Sunset Date: The date given for the next notable action item, milestone, or discussion of the issue. It is good practice to allow the pull plan to inform this date for final resolution (or last responsible moment).

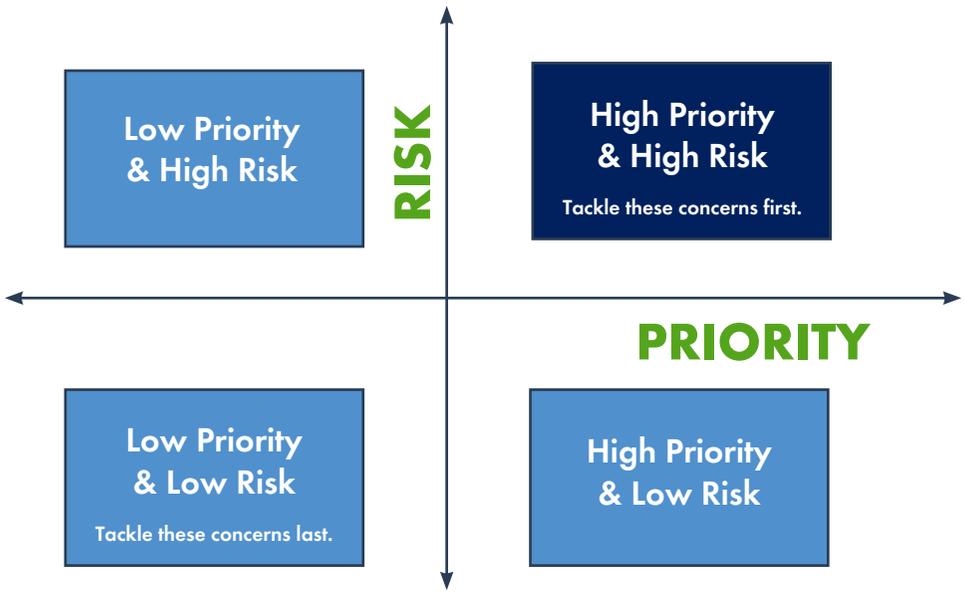


Figure 2. Risk-Priority Matrix

3.0 When

A Risk and Opportunity Register should be utilized from the inception of the project concept through the activation of the asset.

Early phases: At the very start of a project consider getting the integrated team together with the key representative(s) from the owner and/or user and ask the following questions:

- We all know this project will be an unmitigated success, but in the hypothetical scenario where it is not, what are the things that could happen that would cause us to fail?
- You have the power to make things happen on this project that will improve it. Perhaps these are things you have seen work well on other projects or things you have always wanted to happen. What are those things?

With those questions answered, the team can formulate a strategy to eliminate, mitigate, or manage each risk, and develop a strategy to allow each opportunity to occur.

Later phases: Later in the project, the meeting becomes a regular one where you, as noted above, assign estimated probabilities and costs. Management of the Risk and Opportunity Register is recommended to occur somewhere between weekly and monthly. On smaller projects, it can be an agenda item during a larger meeting. On larger projects, it will often be its own meeting.

4.0 Who

The Register is used by leaders with the owner, designer, architect, general contractor, trade partners, and more importantly, others directly involved in the actual risks and opportunity as needed.



Quick Reference

Lean Construction Defined	27
Conditions of Satisfaction	133
The Business Deal	139

For additional readings and information, please see the below information.

CHAPTER 17 – RISK AND OPPORTUNITY REGISTER

Additional Readings

[Commercial Terms to Support Lean Project Delivery](#)

[Conflicts Between Contract Law and Relational Contracting](#)

[Contract or Co-Operation Insights from Beyond Construction Collaboration - The Honda Experience](#)

[Contracting for Lean in Design Build](#)

[Discrete Event Simulation Enhanced Value Stream Mapping an Industrialized Construction Case Study](#)

[Fuller Theory of Driving Behavior](#)

[PPC2000 Association of Consultant Architects Standard Form of Project Partnering Contract](#)

[Project Alliancing a Relational Contracting Mechanism for Dynamic Projects](#)

[Reliable Schedule Forecasting in Federal Design-Build Facility Procurement](#)

[Social Construction Understanding Construction in a Human Context](#)

[Why Isn't the UK Construction Industry Going Lean with Gusto](#)