QUICK GUIDE TO MANAGING PROJECT RISK

MaSEE
Management System for Engineering Education

Project Risk Management

Risk Management involves identifying things that could go wrong, assessing the likelihood and impact of those things, and developing plans to eliminate or mitigate any negative effects on the project or project outcomes. It is an ongoing and iterative process essential for the success of all projects. No matter how well planned, all projects are subject to **uncertainties**. All projects must, therefore, have contingency plans – plans for what to do should risks eventuate.

Risk Management Continuum

Risk Management is required by Law, including:

- Safe workplace and site under Workplace Health and Safety (WHS), Industrial Relations and Civil Liability laws.
- Product safety under WHS and Australian Consumer Law.
- Customer and supplier relationships and engagement under Australian Consumer Law.
- Environmental damage under Environmental Protection laws.

Laws may also require compliance with Standards, Codes of Practice, and/or professional licencing and accreditation.

Risk Assessment

Risk assessment is central to risk management and involves identifying, analysing and evaluating risks. Risks can be identified by the project team using a range of activities including brainstorming, analysing data, reviewing anecdotes and 'lessons learnt' from past projects, and exploring 'what if' and 'worst case' scenarios. Some risks can be anticipated, some not – the more you consider, the fewer you are unprepared for. Once identified, risks can be assessed in a variety of ways.

Risks are often assessed using a Risk Assessment Matrix in which they are ranked in terms of potential impact and likelihood. While estimation of these can be guesswork, it should be as informed as practicable. Once evaluated, the matrix will indicate the level of action required.

Below is an example of a Risk Assessment Matrix. These will vary between companies and projects.

		Likelihood					
		A. Remote	B. Rare	C. Unlikely	D. Possible	E. Likely	F. Highly Likely
Impact	1. Negligible	VL	VL	VL	VL	L	L
	2. Low	VL	L	L	L	M	M
	3. Concerning	L	M	M	M	H	H
	4. Major	M	M	M	H	H	H
	5. Extreme	H	H	H	E	E	E
	6. Catastrophic	E	E	E	E	E	E

VL = Limited/Light-handed response required, if any (overall risk **V**ery **L**ow)
L = Action needed (overall risk **L**ow) **M** = Action needed (overall risk **M**edium)
H = Action needed (overall risk **H**igh) **E** = Action needed (overall risk **E**xtreme)

Types of Risk

Risk **=** an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives (PMI: Project Management Body of Knowledge Guide).

Safety hazards should be listed and treated separately from project risks, because safety hazards are the subject of WHS legislation.

1. Scope Risk	2. Scheduling Risk	3. Resource Risk
This risk includes changes in scope caused by the following factors: > Scope creep – time lines, funding, designs change, often incrementally > Integration issues > Hardware and Software defects > Change in dependencies (project logic)	The project might not proceed as scheduled for many reasons including: > unexpected delays > natural factors > errors in estimation > delays in acquisition of parts A small delay may have a cascading effect resulting in a major impact on cost and scope. Use of Work Breakdown Structure (WBS), RACI matrix (Responsibilities, Accountabilities, Consulting and Information) and Gantt charts helps to reduce the likelihood of scheduling risk.	Risks in this category often relate to having enough of the right … > people with the necessary skills and knowledge in project roles > tools, plant and equipment to complete the required tasks as scheduled > materials available when needed to create the required deliverables > software and hardware working and available when required All of these also require the availability of sufficient funds, people and vendors.

Responding to Risks

Risks can provide opportunities as well as being threats to the potential success of the project and/or intended outcomes. Once risks are known and evaluated they can be planned for and treated accordingly.

Risks that provide Opportunities	
Realise	Act to ensure the risk will occur
Enhance	Act to increase impact and/or likelihood
Share	Find another party to improve management of the risk
Accept	Take no action – allow impact to eventuate without intervention
Risks that provide Threats	
Avoid	Act to end risk exposure
Reduce	Act to reduce likelihood and/or impact
Transfer	Find another party to deal with risk, e.g. insurance
Accept	Take no action – allow impact to eventuate without intervention

Related Standards and Guidelines

>*Risk management – Principles and guidelines*. (2009). *AS/NZS ISO 31000:2009.* Retrieved from Joint Australian New Zealand International Standard: https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/asnzs_31000_2009.pdf

>*Risk management - Risk assessment techniques.* (2009). *IEC/FDIS 31010.* Retrieved from International Electrotechnical Commission: https://bambangkesit.files.wordpress.com/2015/12/iso-31010_risk-management-risk-assessment-techniques.pdf