

Project Risk Management

What is Risk?

- * Risk can be identified in many different ways:
 - * People
 - * Injury, missed deadlines or loss
 - * Plant (buildings, equipment etc...)
 - * Damage, mal-operation or loss
 - * Political and Environmental
 - * Loss of funding, change in law or material price fluctuation

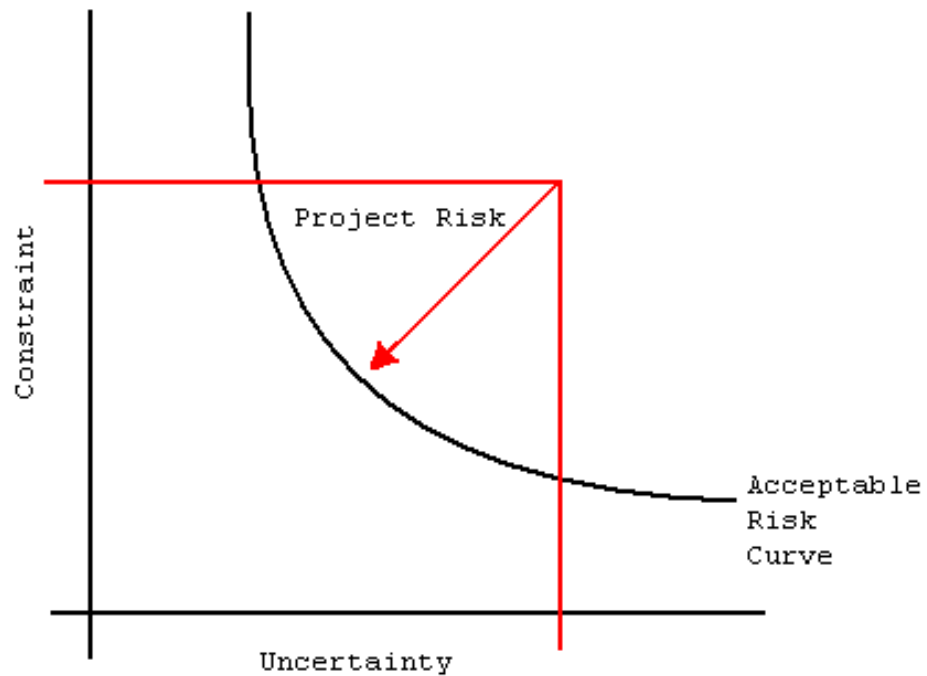
Risk Definition

“A Risk is a combination of constraint and uncertainty”

- Larry Krantz, Chief Executive of Euro Log LTD, UK [1]

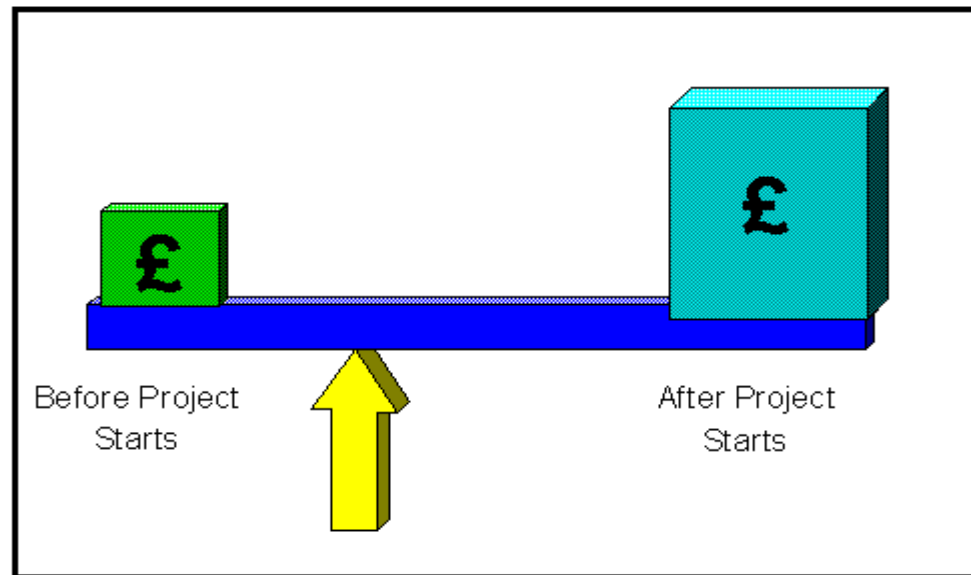
- * Two options to reduce risk:
 - * Remove constraints
 - * Locate and minimise uncertainty

Constraint Versus Uncertainty



Why use Risk Management?

Costs of Fixing Risk In Projects



[3]

Attitudes Towards Risk

- * Ignore Risk
 - * Increases probability of project failure
- * Reactive Risk Control
 - * Deal with an issue as it arises at un-identified cost
- * Proactive Risk Control
 - * Plan for risk and eliminate and reduce where possible using Risk Assessment and Risk Control

Attitudes Towards Risk Example

- * Take the simple example of crossing the road:
 - * Ignoring the risk and not looking before crossing can result in being hit by a vehicle or causing an accident.
 - * Reactive risk would be crossing the road but looking while crossing and either returning to the pavement or dashing across the road if there was a chance being hit by a vehicle.
 - * Proactive risk would be looking both ways before crossing the road to make sure there is ample time to cross the road.

Risk Assessment

- * Risk Assessment has three main areas [4]:
 1. Identify uncertainty
 - * Exploring project plans for uncertainty
 2. Analyse Risk
 - * Detail how each uncertainty can impact the project
 - * Loss probability and magnitude
 3. Priorities Risk
 - * Allocation of resources to risk based on varying level of impact to the project

Qualitative and Quantitative Labelling

- * Risk can be labelled by two different methods
 - * Qualitative – Risk is labelled in terms of ‘Low’, ‘Medium’ and ‘High’ or ranked i.e. 1 to 10
 - * Quantitative – Risk is enumerated with real figures such as ‘£10000’ or ‘50%’

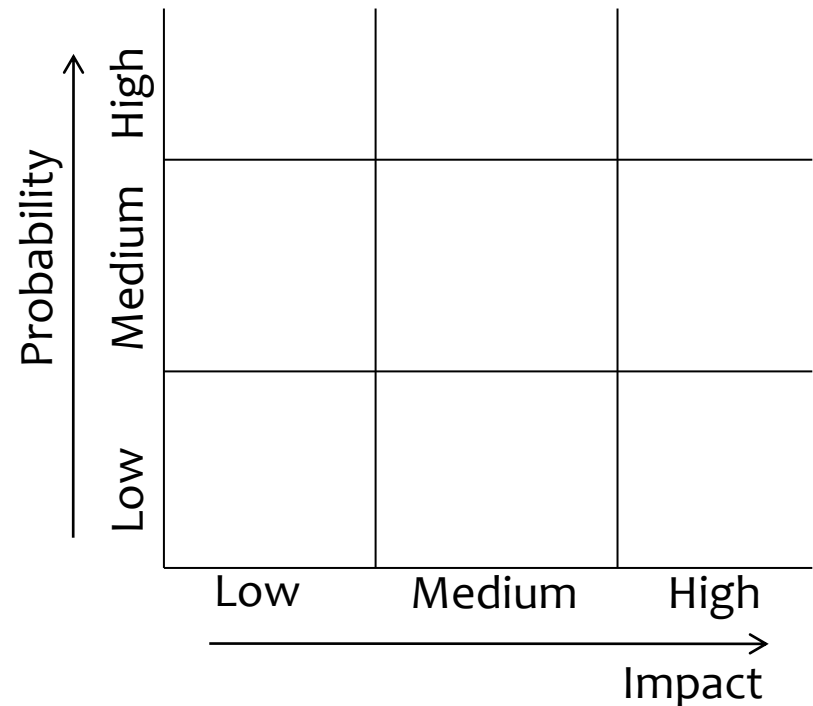
Example of Qualitative Risk

- * HAZOP – Hazard and Operability Study
 - * Used in design stage of a project to evaluate the risk regarding health and safety.
 - * Example – Used in Oil & Gas industry to evaluate process and flow diagrams

Prioritising Risk Qualitatively

- * Risk can be prioritised by compounding the impact on the project and the probability of occurrence
- * Indicates areas which require greater attention/resources

[5]



Example of Quantitative Risk

- * LOPA – Layers of Protection Analysis
 - * Uses probability of failure of each layer of protection of an asset to give an overall rating for the level of protection and risk of failure
 - * Gives a numerical value to the number of likely or expected failures of a system so that an appropriate maintenance regime can be implemented or extra protection installed.

Risk Control

- * Risk Control has three main areas [6]:
 1. Mitigate Risks
 - * Pre-empt potential Risk by eliminating early on
 2. Plan for Emergencies
 - * To minimise time and cost to project, have a plan and budget ready to handle identified Risk if they occur
 3. Measure and Control
 - * Track and manage impact of Risk on the project

Risk Register

- * Tool used to plan for identifying, analysing and managing of risk:
 - * Details Risk
 - * Owner of Risk i.e. who is responsible
 - * Probability and Impact
 - * Mitigation (actions to be taken in advance to minimise probability or impact of risk)
 - * Contingency (actions to be taken reactively to minimise probability or impact of risk)

Example Risk Register

* Consider the following example Risk Register for a Scottish student [7]

Risk Category	Risk Title	Risk No.	Probability (0-3)	Impact (1-3)	Compound Risk	Mitigation	Contingency	Owner
University	Failing Exam	1.1	1	3	3	Prepare by Studying	Drop out and join the circus	Self
University	Missing Lecture	1.2	1	2	2	Get a good nights sleep and set alarm clock	Get notes from another student	Self (potentially another student)
Party	Having too much to alcohol to drink	2.1	3	3	9	Have a good meal before party and do not drink too much alcohol	Aspirin, lots of aspirin	Self

References

1. <http://www.netcomuk.co.uk/~rtusler/project/riskprin.html>
 - Quote
2. <http://www.netcomuk.co.uk/~rtusler/project/riskprin.html>
 - Example Diagram
3. <http://www.netcomuk.co.uk/~rtusler/project/riskwhen.html>
 - Diagram
4. Project management : a systems approach to planning, scheduling, and controlling
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- * 7. <http://www.youtube.com/watch?v=aKRJloSAXnl>