

RISK MANAGEMENT

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Objectives

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- What is risk management
- Identifying risk
- Analyzing risk
- Controlling risk
- Developing a response plan

ICE BREAKER

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- ❑ Objective is to achieve a first class when completing the degree
- ❑ Ask students to identify what are the obstacles making them achieve this objective
- ❑ Time estimate 15 minutes
- ❑ De Brief

What are Problems?

We all know what problems are...

These are events or situations that have undesirable consequences or present difficulty

**OR stop you doing something –
i.e. stop you achieving a goal, or make it harder to achieve.**

Risk (in General)

- Risks are NOT problems !!
 - They are **POTENTIAL** problems ...
 - The problem might occur if the 'right' circumstances arise ...

Risks and Possibilities...

- An example: when driving a car, here are some risks:
 1. A pedestrian walks out in the road in front of you and you hit them.
 2. You crash into the car in front, because it stops suddenly in front of you.
 3. Your car breaks down.
- How possible is it that these problems will occur?

It Depends Upon...



- The likelihood of those events occurring depends on the environment or situation that you are in – and what has happened previously in this environment
- Their likelihood also depends upon the preparation you have made beforehand
- And if they do happen, their impact or consequence depends on the plans you have to deal with them

So...

A pedestrian walks out in the road in front of you and you....”

- Where are you – city centre or motorway? *(i.e. your current situation, what you are doing)*

“You crash into a car, because it stops suddenly...”

- The weather conditions/road surface – dry or wet? *(i.e the current environment / situation)*

“Your car breaks down.”

- How well maintained is the car? Have you had it serviced recently? Miles done? *(i.e. your past behaviour affects the future – and how well do you plan for this - AA, RAC membership?).*

Risk Management – What is it?

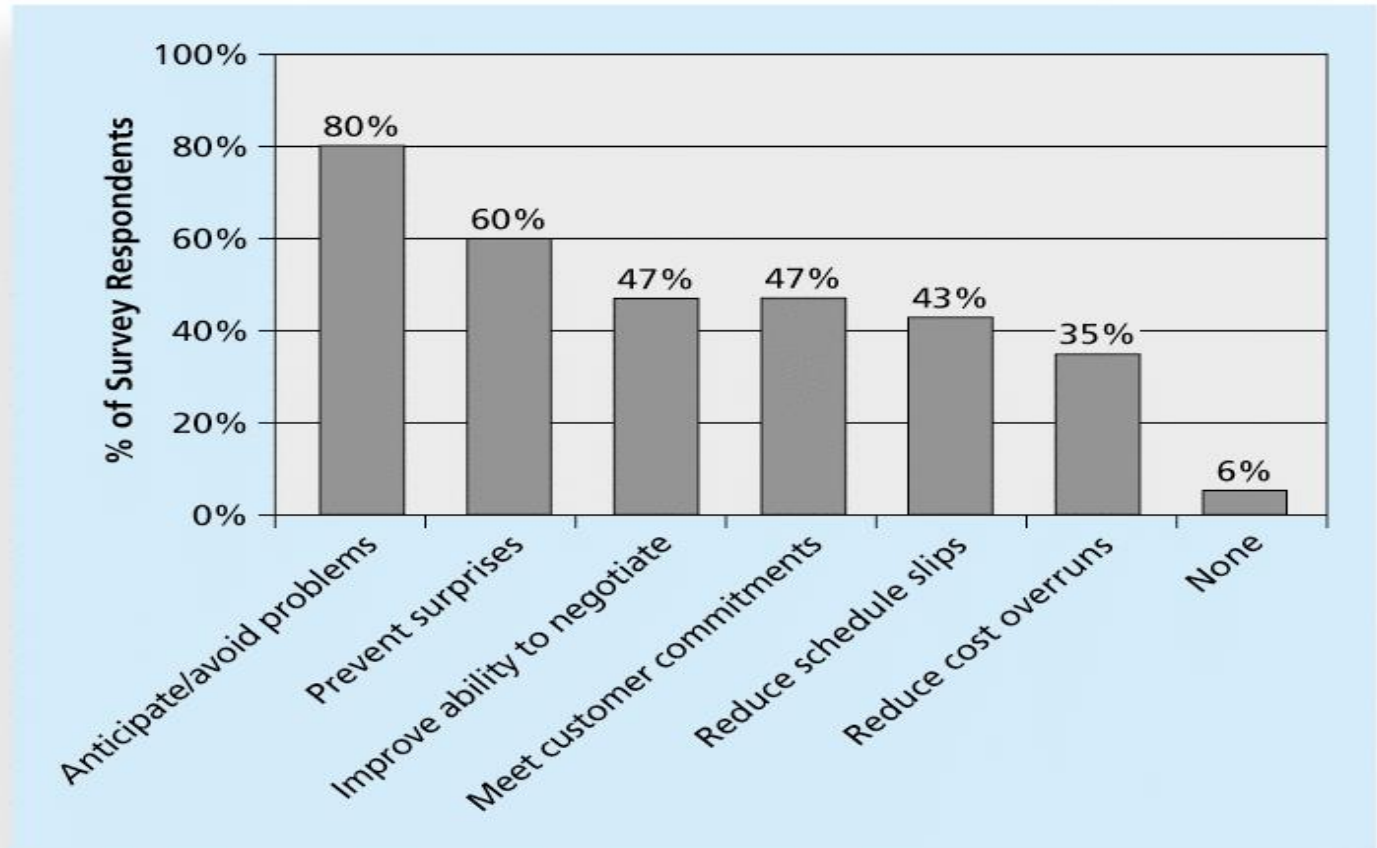
- Risk management is the umbrella term given to the 5 activities of:



risk identification
risk analysis
risk planning
risk tracking
risk resolution

Benefits from Software Risk Management Practices*

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*Source: Kulik and Weber, KLCI Research Group

Risk Management in the Process

Project Lifetime / Duration

Requirements Design Implementation Test Delivery

Risk Identification

Risk Analysis

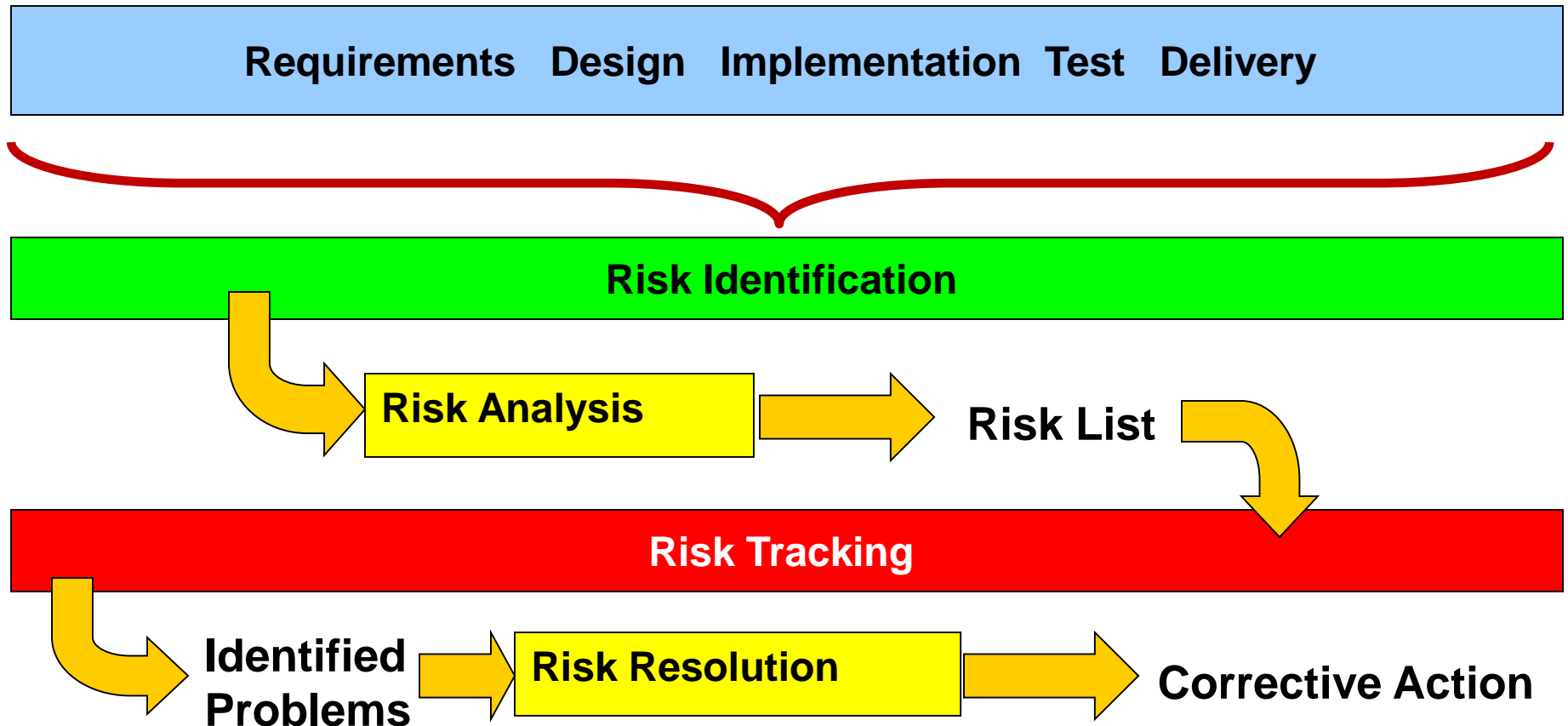
Risk List

Risk Tracking

Identified Problems

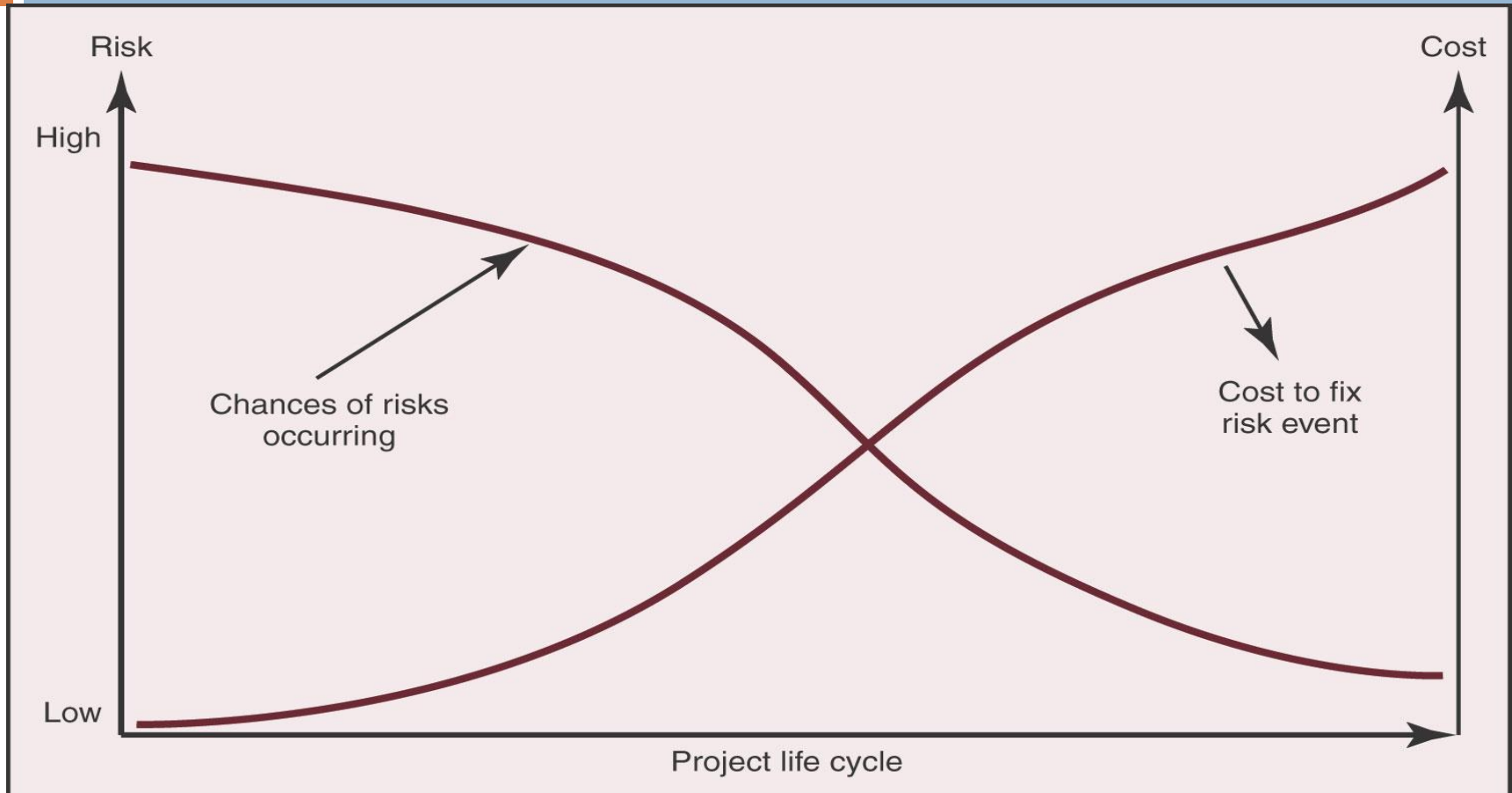
Risk Resolution

Corrective Action



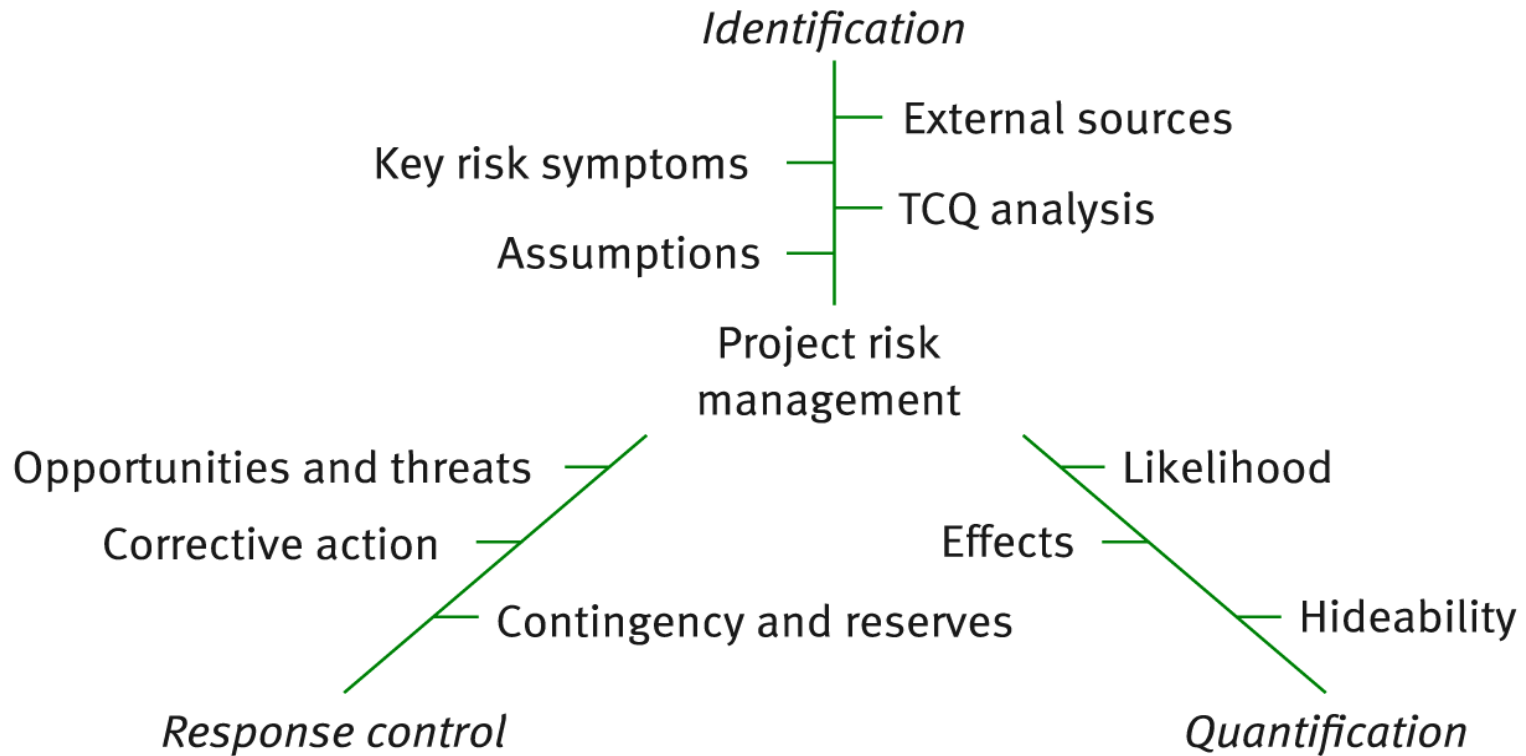
Risk Event Graph

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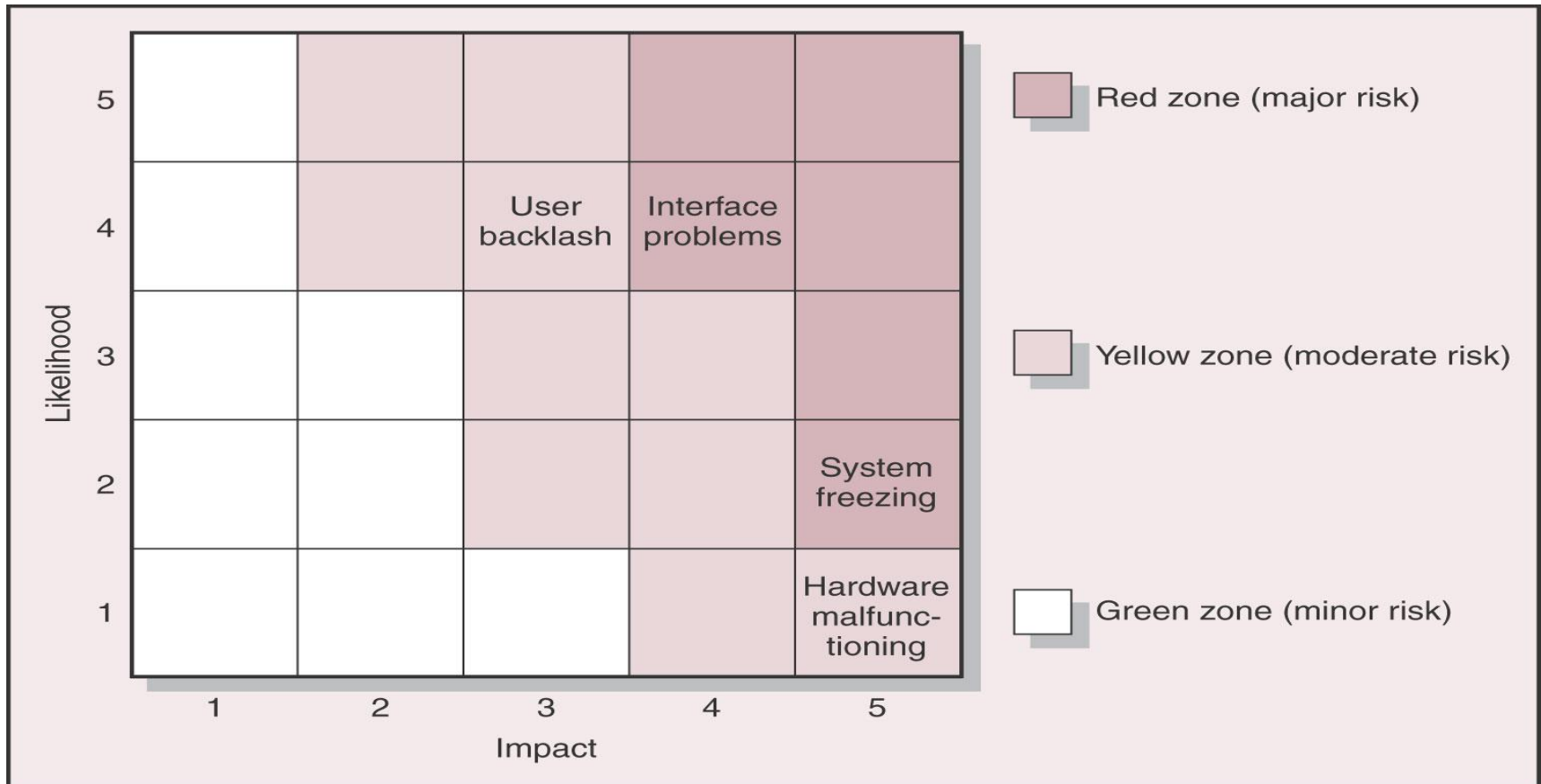
Risk Management Framework

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Risk Matrix

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Classic definition of risk

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- The classic definition of risk is the probability of occurrence of an unwanted event multiplied by the consequence (loss) of the event.
- If the magnitude of the loss is m and probability is denoted by p then the risk (r) can be defined as $r = m \times p$

Failure Mode Effect Analysis

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- Three elements rated on a 1-10 scale:
 - ▣ Likelihood
 - ▣ Severity
 - ▣ Hideability
- Total risk is:
 - ▣ $\text{Likelihood} \times \text{Severity} \times \text{Hideability}$

Response Control/Mitigation

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- Strengths, weaknesses, opportunities and threats (SWOT)
- Corrective action
- Contingency and reserves

Corrective Actions

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- Avoiding the risk
- Reducing the risk (likelihood or impact)
- Transferring the risk to others (Insurance)

Contingency Plans

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- Involves identifying the range of alternative options for providing acceptable recovery strategies in the event of a risk
- Each alternative strategy should have its advantages and disadvantages considered to allow comparison and a decision

Accepting Risk

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- Here the project manager decides that nothing can or needs to be done and notes that the situation should be reviewed during the project
- During the course of the project reviews should be completed to determine the following:
 - ▣ Whether any risk has become or is likely to become critical at any time soon
 - ▣ Whether any new risks have been created and if so what to do about these