Managing issues

- Identify issue

- Document the issues
  - Issue log

- Assign responsibility of issue

- Track until closure
  - Issue is *resolved*
    - some acceptable outcome achieved

- **Communicate** issue
  - Team, stakeholders, vendors

Overview of this session

Risk Management

- What is a risk?
- Difference between risk and issue
- Risk management process
- Common sources of risk
- Applying risk management to your projects

- **Quality Management**
  - What is quality?
  - Principles of quality management
  - Quality management tools and techniques

Question – choose the correct answer

- ***What is the difference between a risk and an issue?***
  1. A risk is a problem that may occur, an issue is a problem that has occurred.
  2. A risk is a problem that needs to be identified and managed, an issue is a problem that has to be solved.
  3. A risk is a problem that has some cost associated with it, an issue has no loss associated with it.
  4. A risk is a major problem, while an issue is a minor problem.

Risk definition

- *"a **potential** problem that will be detrimental to project success, should it materialise"*

  (Wiegers, 2007)

- *"An **uncertain** event or condition that, if it occurs, has a positive or negative effect on one or more project objectives such as scope, schedule, cost, or quality."*

  (PMI, 2017)

- *"**Uncertain** event impacting negatively or positively on a project's objectives."*

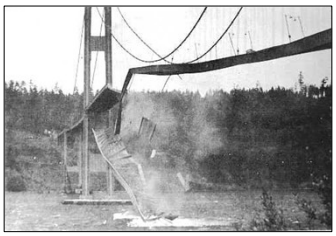
  (Larson & Gray, p. 207, 2018)

Risk Taking Activity

Risk

- Two major aspects of a Risk:
  - its ***probability*** of occurrence
    - chance of event happening
  - its ***impact***
    - the effect of the event occurring

Tacoma Narrows bridge failure - 1940



Case study

business2community.com

- Access https://www.nytimes.com/2005/06/22/nyregion/a-shocking-thing-happened-to-the-big-popsicle-it-melted.html
- What could have been done to avoid this situation?
- What were the consequences?

Risk Management

- An important part of project management
  - addressed very specifically as part of any project management plan
- is **proactive**
  - as opposed to only addressing problems (issues) when they arise - reactive

en.wikipeadia.org

Project Risk

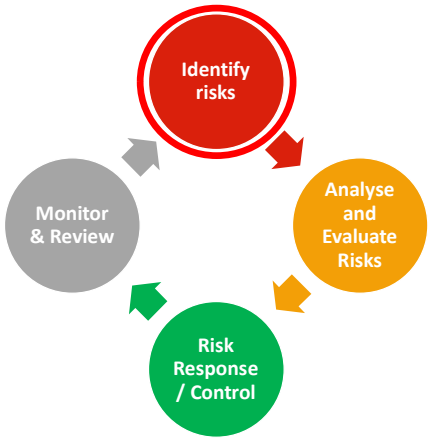
- *Project risk* characterised by:
  - Uncertainty
    - 0 < Probability < 1
  - A loss associated with it
    - money, time, reputation, product functionality, etc.
  - It is manageable
    - human actions can be applied to change its form and degree

Difference between a risk and an issue

- A risk is something that *could* go wr
  - A *potential* issue (problem)
  - 0 < Probability < 1

- An issue is something that *has* gone wrong
  - A problem that exists
  - A risk that has occurred

Overview of Risk Management



Establish context

- What are you evaluating risk for?
  - define scope
- What are the factors that may affect?
  - technical, economic, environmental, social, legal, etc
- May need to identify stakeholders
  - users, employees, clients, legal bodies, etc
- Identify risk criteria
  - death / injury, financial loss, legal liability, negative publicity, etc.

Risk Identification

- Identify what could go wrong (risks)
- Must be stated explicitly (*risk statement*)
  - Used to work out possible courses of action

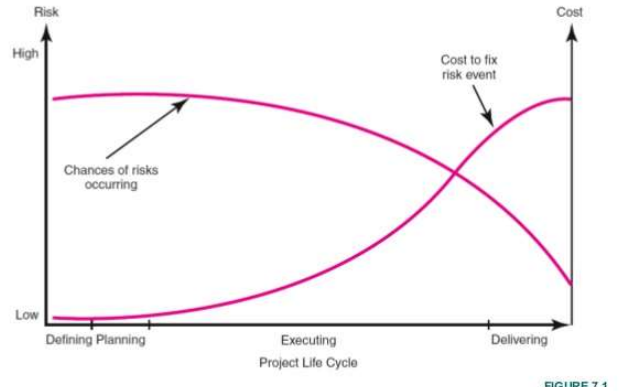
(SafetyCare, 2008)

Risk Identification

- Can categorise in terms of the three “legs” of project

- Scope risks
  - Unable to meet goals, low quality, etc.
- Cost risks
  - overspending, inadequate resources, etc.
- Schedule risks
  - loss of key personnel, schedule slip, etc.

The Risk Event Graph



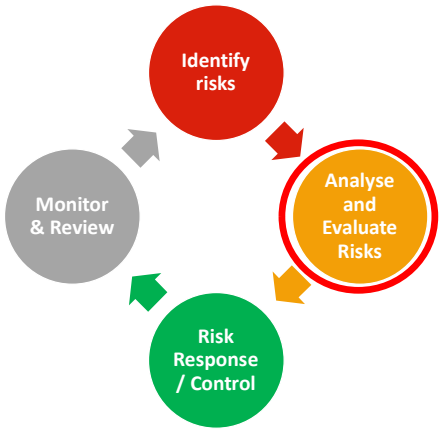
(Larson & Gray, p. 209, 2018)

Risk Category	Extended categories
Technical	Requirements, Technology, Interfaces, Performance, Quality, etc.
External	Customer, Contract, Market, Supplier, etc.
Organizational	Project Dependencies, Logistics, Resources, Budget, etc.
Project Management	Planning, Schedule, Estimation, Controlling, Communication, etc.

Exhibit 3 – Organization-Provided Standard Risk Categories

(PMI, 2017)

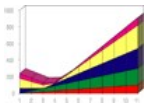
Overview of Risk Management



Risk Analysis

- Examine potential risks - to determine
  - Likelihood (Probability)
  - Consequences (Impacts)

- Also need to look at:
  - **Indicators** that a potential problem is becoming a real problem
  - **Trigger events** to watch out for
  - Related areas of impact



Evaluate Risk

- Each risk prioritised according to assessed **likelihood** (probability) and **consequences** (impact)
- Use a Risk Matrix
- Risks then addressed from high to low priority

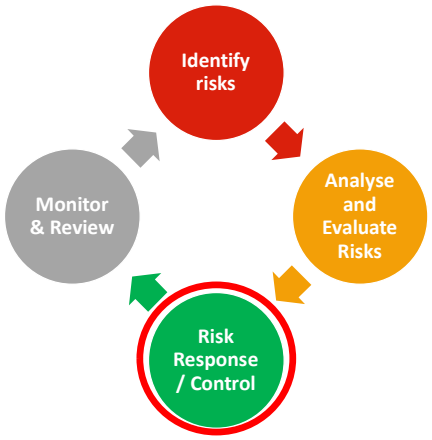
		Consequences		
		Low	**Medium**	**High**
Likelihood	**Low**	1	2	3
	Medium	2	3	4
	High	3	4	5

Evaluate Risk

- Decide whether risk is acceptable or not
- Need to evaluate:
  - Degree of control over risk
  - Potential and actual losses which may arise
  - Benefits and opportunities presented by risk

Risk Analysis Matrix					
	Consequence				
	Insignificant	**Minor**	**Moderate**	**Major**	**Catastrophic**
Likelihood	1	2	3	4	5
Rare	Low	Low	Medium	Medium	High
Unlikely	Low	Medium	Medium	Medium	High
Moderate	Low	Medium	Medium	High	Extreme
Likely	Medium	Medium	High	High	Extreme
Almost certain	Medium	High	High	Extreme	Extreme

Overview of Risk Management



Risk Response / Control

- **Risk Mitigation**
  - Act to reduce risk
    - *reduce* likelihood
    - *reduce* consequences
    - or both
- Ideally – eliminate risk altogether
  - But is that possible?

Risk Response / Control

NO RISK!!??

Falling out of bed kills 450 people annually in the U.S.

pxfuel.com

Odds you'll cut yourself shaving - 1 in 6,585*

* in any given shave

Risk Response / Control

- **Risk avoidance**
  - Consciously avoid risky options or seek low risk options
  - However, might increase another risk
    - e.g. avoiding overspending might result in decreased quality

- **Risk transfer**:
  - Transfer risks from one area to another
    - e.g. insurance
    - e.g. risk of high staff turnover - transferred to subcontractors, by outsourcing
  - Can bring new risks
    - e.g. losing control

Risk Response / Control

- **Risk acceptance**
  - Consciously accept low likelihood and/or low consequences risks, and handle the impacts should they occur
  - Example:
    - use a hard disk on a computer, knowing that it can fail *(risk acceptance)*
    - but make regular back-ups to avoid data loss *(risk mitigation)*

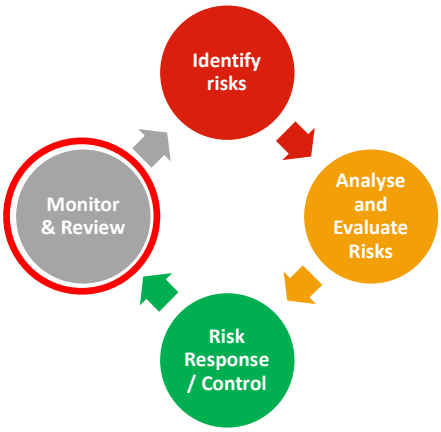
What risks to demolish Kingdome, Seattle, USA?

What risks had to be mitigated?

Risk	Mitigation Strategy
Flying concrete	- explosive charges wrapped in chain-link fencing covered with thick blankets of geotextile polypropylene
Damage to nearby buildings	- windows and doors taped shut - sealing air conditioners - covering floors and windows with plywood - reinforced polyethylene sheeting wrapped around exterior of buildings
Injury to people	- evacuation of people to a safe zone - 100s police officers used to maintain safety zone
Dust and debris	- 8 water trucks - 8 sweeper units - 100+ staff to control dust and begin clean-up

(Larson & Gray, 2018, p. 218)

Overview of Risk Management



Risk Monitoring

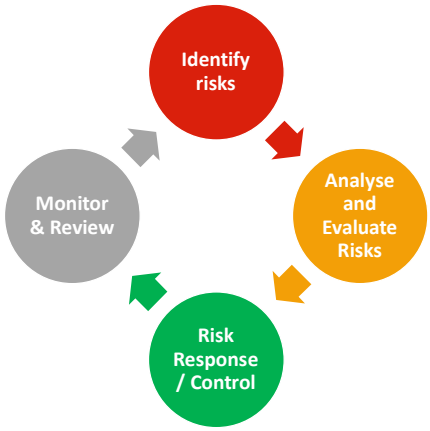
- Constant monitoring of
  - Risks that eventuate
  - Frequency of occurrence
  - Impacts

- Also evaluate
  - Indicators and trends
  - Trigger events

Review and reiterate

- The nature of risks **evolve over time**
  - New risks emerge, old risks no longer exist
  - Likelihood / consequences change
  - Managements strategies no longer effective
- Need to review what happened
  - Risks that occurred, effectiveness of strategies
- Repeat whole process
- Risk Management is a *continuous* task

Overview of Risk Management



Common Risk Sources
What are they?

Project

- Size and complexity
- Requirements
- Change impact
- Organisation
- Stakeholder involvement
- Schedule
- Funding
- Facilities
- Technology
- Vendors / Suppliers

Team

- External factors
- Business factors
- Project Management
- Assumptions / constraints
- Project Planning defects

What is Quality?

- "The degree to which a set of inherent characteristics fulfils requirements."

(PMI, 2017)

- "Fitness for use."

(Juran, 2010)

- "Quality should be aimed the needs of the consumer."

(Deming, 1982)

- "The total composite product and service characteristics of the organisation to meet the expectation by the customer."

(Feigenbaum, 1991)

Aspects of Managing Project Quality

- Focus on **quality-based requirements**
  - Identify quality and compliance standards
  - Both customer and other key stakeholders
- Focus **on value-added requirements**
  - Understand non-functional requirements that impact customer satisfaction
- Focus on **product** and **process**
  - *What* is delivered (goods/services)
  - *How* it is created/delivered (including project management)
- Focus on **verification**
  - How can you validate that project is on target?
  - How will you prove that work is complete and correct?

Seven Key Principles to Managing Project Quality

1. Identify targets
   - Customers quality expectations and other stakeholder's quality expectations
2. Plan it
3. Right-size it
4. Set expectations
   - Customer expectations aligned with project needs
   - Balance with schedule and budget constraints
5. Stay customer-focused
6. Trust, but verify
   - Inspect or test that results meet acceptance criteria
7. It is up to you!
   - Project Manager has ultimate responsibility for quality

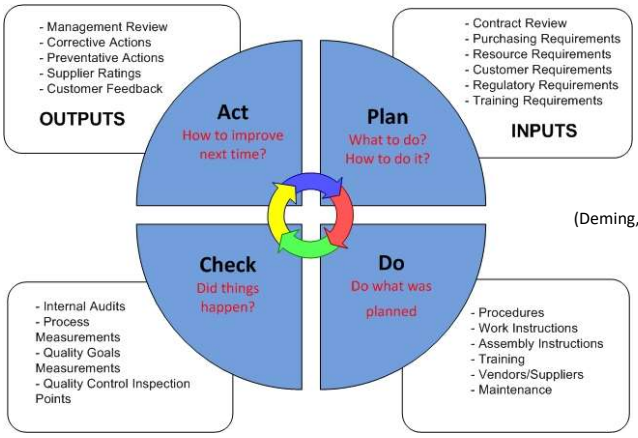
Tools and Techniques for Project Quality

- Requirements Traceability Matrix
  - Documented link between original requirements and final deliverables
- Checklists
  - Clearly capture and communicate quality standards that need to be met
  - Flexible and simple
  - Capture lessons learned
  - Document verification done
- Templates
  - Enable use of standards, standardise work outputs and processes
- Reviews
  - Plan for review-feedback-correction cycle
  - E.g. peer reviews, inspections, client walkthroughs, testing cycles, milestone reviews

Tools and Techniques for Project Quality (cont.)

- Completion Criteria
  - Starts with project acceptance criteria
  - Defined for each deliverable and work assignment
- Small Work Packages
  - Finer level of quality control
- Independent Audits
  - Type of review, but done by external party
- Standards
  - Should be defined beforehand and communicated clearly
- Quality Management Plan
  - Document that describes and communicates project's quality management system to stakeholders

Quality Management process



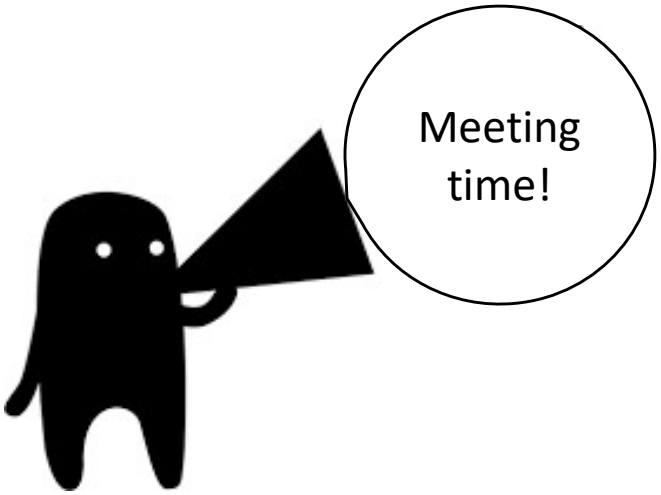
(Deming, 1982.)

Overall objective of Quality Management

- Understand needs and expectations of customers and other key stakeholders
- Ensure that those needs and expectations are managed and met

Video: The Ingredients of Quality Management

www.youtube.com/watch?v=h3xyX4yVqzI (CAQ AG International, 2013)



publicdomainvectors.com

Discuss Risk Management

For the your team project

1. Identify possible risk factors
2. Work out likelihood and consequences (low, med, high, catastrophic)
3. Rank risk based on matrix below
4. From Rank 5 risks down, work out possible Risk Control / Responses

Risk Analysis Matrix					
	Consequence				
	Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood	1	2	3	4	5
Rare	Low	Low	Medium	Medium	High
Unlikely	Low	Medium	Medium	Medium	High
Moderate	Low	Medium	Medium	High	Extreme
Likely	Medium	Medium	High	High	Extreme
Almost certain	Medium	High	High	Extreme	Extreme

Discuss Project Quality

- Discuss what quality measures are relevant to your team project
- Will share with class after 5 minutes

Video: How to manage risks and issues

www.youtube.com/watch?v=YSx41G9s0OU (Easyprojecthub, 2016)

Team Project Plan

- Combine individual sub-projects into a single project
- Come up with Project Plan
- Due **?**

- **Project Approved budgets – complete table:**

Team	Requested budget	Approved budget
Team 11	$ 55	
Team 12	$ 20	
Team 13	*$ 15*	
Team 14	$115	
Team 15	$ 322	
Team 16	$ 0	$ 0

Session Review

- Review of key concepts
- **Risk Management**
  - What is a risk?
  - Difference between risk and issue
  - Risk management process
  - Common sources of risk
  - Applying risk management to your projects
- **Quality Management**
  - What is quality?
  - Principles of quality management
  - Quality management tools and techniques