INST0031
Systems Management

Lecture 8

Managing Risk

What we will cover today

- Disaster planning
  - What is it!
  - Key elements to consider
- Risk Management
  - What is risk?
  - What is risk management?
  - Risk management process
  - Identifying the possible risks
  - Risk appraisal and analysis
  - Risk register
  - Methods for dealing with risks
  - Obtaining insurance

Disaster planning - what is it?

- Planning for **big**, high-impact problems
- Evaluating risks
  - Also for "smaller disasters"!
- Disaster planning *and* recovery strategy
- Importance of determining key business objectives
  - "Mission critical systems"

Disasters don't just "happen"...

- Disasters come about from "chain reactions"
  - Especially due to lack of planning/forethought!
- "Disasters have not been known to inquire about one's state of readiness" (Murray)
- We should
  - Identify potential problems
  - Evaluate potential likelihood and impact
  - Take appropriate preparatory/preventive action

Formally:

- Problem(s) occur
- Problem(s) have impact(s)
- Impact(s) have consequence(s) and effect(s)
- Classically, focus on the 3 Ps:
  - People
  - Places
  - Processes
- And, for us and by inference, data

People

- The most important asset?
- Insiders and Outsiders
  - Staff and "clients"
- Onsite and offsite

Places

- Locations
- Buildings
- Sites
- Environments
- "Virtual" places?

- Important - every place needs separate consideration and planning

Processes

- Identify for each key process
  - what it is intended or assumed to accomplish
  - what it actually does
  - What is its relationship to other ones
- For "chain of events" read "chain of processes"!
- Basic objective:
  - to enable each process to continue, or be restarted, if one is interrupted.

Data

- In formal terms defined by process:
  - What it does
  - What it requires
- In our area (and less formally) tend to focus more on it as it underpins our "Mission critical systems"
  - And very obvious in traditional information settings (e.g. Libraries!)

For each process:

- What will "knock it out"
  - Partially? Totally?
- How likely is that to happen
- What can we do to prevent it
  - Ultimately? Pragmatically? Cost-effectively?
- What will we do if it happens
  - At the time?
  - During recovery?
    - How long can outage be tolerated?

Risk Management

- Risk Reduction -
  - Chance of occurrence
  - Level of impact
  - Effect of consequences
  - Speed of recovery
- Risk acceptance
  - Lowest practical levels of risk

Vulnerability searching

- Vulnerability classes
  - Immediate attention
  - Potential problem
  - Acceptable
  - Not applicable

Contingency management

- Critical activity!
- Contingency plans
- Communication
- Preparedness
- Action checklists

Recovery and Restoration

- Restoration of data
  - Vital records
- Restoration of service
  - Stopgaps
- Insurance
  - Irreplaceable materials
- Rehabilitation

Any questions on Disaster planning?

- Just remember - if you think it will never happen to you - it will!

- And talking of that... Let me tell you a story...

What is Risk?

- Anything that can affect the achievement of objectives is a risk

- Risk can be positive (opportunities) or negative (threads)

- Projects are risky because they are unique, constrained, based on assumptions, performed by people and subject to external influences.

- Risks can be predictable or completely unforeseeable.

- Might be caused by the physical elements or they could be political, economic, commercial, technical or operational in origin.

- The potential effects of risks range from trivial inconvenience to project disaster.

What is Risk Management?

- Project risk management (and much of mainstream project management) is concerned with attempting to **identify** all the foreseeable risks, **assessing** the chance and severity of those risks, and then **deciding** what might be done to reduce their possible impact on the project or avoid them altogether.

Risk Management Process

- Identifying the possible risks

- Risk appraisal and analysis

- Risk register

- Methods for dealing with risks

- Obtaining insurance

Identifying the possible risks

- Risks must be identified to be able to manage them.
- Some of the techniques are:
  - Brainstorming with the right people with the necessary perspective and experience
  - SWOT analysis for the organisation and the project.
  - Checklist or prompt lists to capture learning from previous risk assessment.
  - Detailed analysis of project management and constraints to expose those which are most risky.
  - Interviews with key stakeholders to gain their perspectives on possible risks.
  - Review of completed similar projects to identify common risks and effective responses.

Risk appraisal and analysis

- Once identified and listed, risks can be ranked according

- to the probability of their occurrence and the severity of

- the impact if they should occur.

    o Qualitative risk analysis involves considering each risk in a purely descriptive way, to imagine various characteristics of the risk and the effect that it might have on the project.

    o Quantitative risk analysis goes at least one stage further than qualitative analysis by attempting to quantify the outcome of a risk event or to attach a numerical score to the risk according to its perceived claim for preventive or mitigating action.

Qualitative example:

- Company Summer Party!

Risk	Failure mode	Cause of failure	Effect
Catering failure	• Wrong menu • Not enough • Bad quality	• Lack of communication • Lack of planning • Bad choice of chef	Hungry guests
Photography	• No show • Not equipped • Faulty equipment	• Lack of communication • Bad choice of photographer	No graduation photos
Technology failure	• No sound • Bad quality	• Lack of planning • Mismanagement	Board quests
Unexpected weather	Rain!	Bad LUCK!	!!
Long queues	• Mismanaged organizers • Misbehaving crowd	• Lack of planning • Mismanagement	Disruption and delay

Quantitative example:

- Company Summer Party!

Risk	Probability	Impact	Detection Difficulty	Risk factor
Catering failure	5	8	2	80
No show photographer	4	9	4	144
Technology failure	3	5	2	30
Unexpected weather	8	8	5	320
Long queues	6	4	2	48

Risk Register

- When all the known risks have been listed, assessed and ranked it is time to consider what might be done about them. That process requires that all potential risks be listed in a risk register (or risk log).

ID	Risk	Proposed Action	Action by
1	Catering failure	Outsource catering	Event Organiser
2	No show photographer	Hire more than one, Have a plan B	Event Organiser
3	Technology failure	Ask AV XP	AV Office
4	Unexpected weather	Marquees, Umbrellas	Premises MNG
5	Long queues	More entry gate	Security officer

Methods for dealing with risks

1. Avoid the Risk
   - Cancel the project or tasks
2. Prevent or mitigate the Risk
   - High-level risk prevention strategy (culture)
3. Accept the Risk
   - Not serious effect or correctable
4. Share the Risk
   - Dividing the responsibilities between different parties
5. Limit the Risk
   - Step by step (stage gating)
6. Transfer the risk to third party
   - Outsourcing
   - Insurance

Obtaining Insurance

- Insure against the risk – the financial impact of many risks can be offset by insuring against them.

- The client pays the insurance company a premium for this service, and the insurer might itself choose to spread the risk by sharing it with one or more other insurance companies

Obtaining Insurance

- Risks that can and must be insured
  - Statutory requirements
  - Contractual requirements
- Risks that can be insured if required
  - Management choice
- Risks that are difficult or impossible to insure
  - The contractor or customer must accept the risk

Questions?

OK...

Take a break!

Presentations from last week

Activity – 30 minutes

- Look on the seminar activity on moodle