Project Risk Management

Agenda

→ 12:15-12:45: Lecture on identifying risks
→ 12:45-13:15: Group work

→ 13:15- 13:30: Break

→ 13:30-13:45: Presentation by groups 5 and 8

→ 13:45-14:15: Lecture on risk responses
→ 14:15-15:45: Group work

Today’s table of content

1. Plan risk management
2. Identify risks
3. Analyze and prioritize risks
4. Plan risk responses

SDU

“The objectives of project risk management are to increase the probability and/or impact of positive risks and to decrease the probability and/or impact of negative risks, in order to optimize the chances of project success.”

Risk Management on two levels

Individual project risk: An event or a condition that poses a risk for the specific project objectives.

Overall project risk: Uncertainty of the project as a whole (including individual risks).

Risk Management Process

- The objectives of project risk management are to increase the likelihood of positive events and decrease the probability of negative events.
- We do this by implementing a formal risk management strategy complete with contingency plans.

1. Plan risk management

- The process of defining how to conduct risk management activities for a project
- Output: A risk management plan

The risk management plan

Performed once or at predefined points in the project

Part of the project management plan

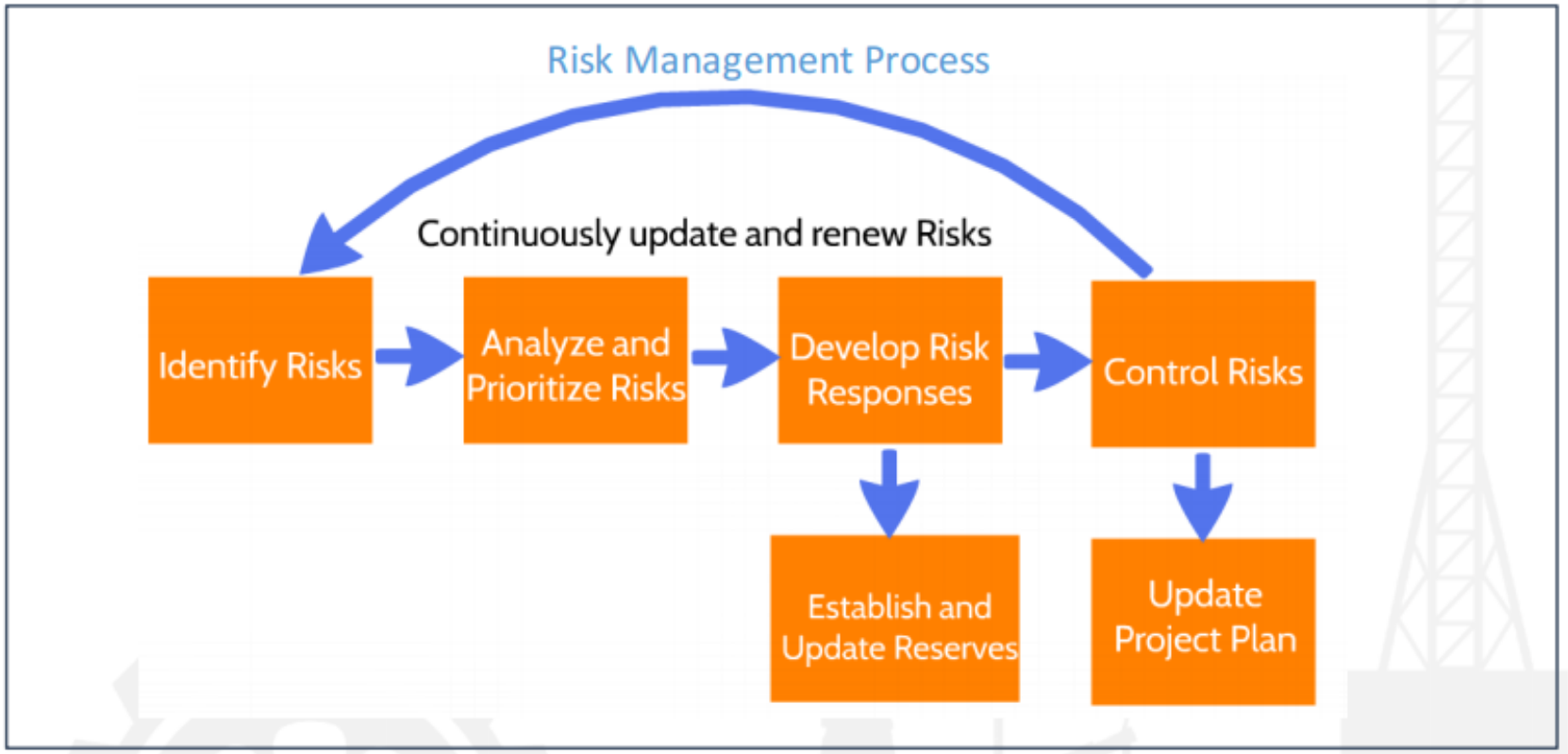
Documents how to conduct the risk management activities

Communicates project risks to stakeholders and help gather their support

Key inputs to Risk Management Plan:

- Project Charter
- Stakeholder Register

Risk Management Process



The risk management plan

Typical table of content

- Risk strategy
- Methodology
- Roles and responsibilities
- Funding
- Timing
- Risk categories
- Definitions of risk probabilities and impact
- Probability of impact matrix
- Risk tolerance
- Reporting formats
- Tracking/monitoring

2. Identify risks

"… *the process of* ***identifying individual project*** *risks as well as sources of overall project risk and* ***documenting their characteristics****. It also brings together information so the project team can respond appropriately to identified risks*"

- Outputs: **Risk register, risk report** and project document updates

RBS LEVEL 0	RBS LEVEL 1	RBS LEVEL 2
0. ALL SOURCES OF PROJECT RISK	1. TECHNICAL RISK	1.1 Scope definition
		1.2 Requirements definition
		1.3 Estimates, assumptions, and constraints
		1.4 Technical processes
		1.5 Technology
		1.6 Technical interfaces
		Etc.
	2. MANAGEMENT RISK	2.1 Project management
		2.2 Program/portfolio management
		2.3 Operations management
		2.4 Organization
		2.5 Resourcing
		2.6 Communication
		Etc.
	3. COMMERCIAL RISK	3.1 Contractual terms and conditions
		3.2 Internal procurement
		3.3 Suppliers and vendors
		3.4 Subcontracts
		3.5 Client/customer stability
		3.6 Partnerships and joint ventures
		Etc.
	4. EXTERNAL RISK	4.1 Legislation
		4.2 Exchange rates
		4.3 Site/facilities
		4.4 Environmental/weather
		4.5 Competition
		4.6 Regulatory
		Etc.

Risk Categories

Extract from Sample Risk Breakdown Structure (RBS)

Identifying risks: risk register

"… **captures details of identified individual project risks**. The results of Perform Qualitative Risk Analysis, Plan Risk Responses, Implement Risk Responses, and Monitor Risks are recorded in the risk register as those processes are conducted throughout the project. The risk register **may contain limited or extensive risk information** depending on project variables such as size and complexity"

Risk Category	Risk Category 2	Risk Category ….	Risk Description	Risk owner
External Risk	Legislation	Health and Safety	New legislation on health and safety for workers	Stine

Identifying risks: risk report

"…The risk report presents information on **sources** of overall project risk, together with **summary information** on identified individual project risks"

On completion of the Identify Risks process, information in the risk report may include but is not limited to:

- Sources of overall project risk, indicating which are the most important drivers of overall project risk exposure
- Summary information on identified individual project risks, such as number of identified threats and opportunities, distribution of risks across risk categories, metrics and trends, etc.

Data gathering techniques

Identifying Risks

Enterprise Environmental Factors

- Published Information
- Academic Studies
- Benchmarking
- Industry Studies
- Risk Attitudes

Organization Process Assets

- Project Files
- Organizational and project process controls
- Risk Statement Formats or templates
- Corporate Risk Lists
- Lessons Learned

Interviews

Conduct interviews of -

- Subject Matter Experts
- Key Stakeholders
- Project Managers from Similar Projects
- Risk Managers

Consolidate the results of the interviews with the Risk List from the previous sessions.

Review Project Documentation

- Assumptions
- Project Charters
- Contact or other agreements
- Estimates and schedules
- Plans

Brainstorm and Checklists

- Identify any Risk Checklists that may be available
- Distribute them to the Risk Team
- Ask each member to brainstorm potential risk and submit them to the facilitator
- Review the consolidated list and checklist in a facilitated team meeting to identify any further risks based on the shared lists
- Consolidate similar risks into a single item to avoid duplication

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Group work 1

Brainstorm all possible risks and create a list of risk categories and a risk register

Have a look at appendix 6a, b in Lego report for inspiration (Report Example 2)

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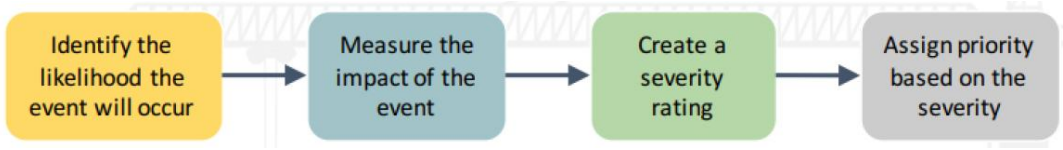
3. Analyze and prioritize risks



- Estimate likelihood and impact of each risk!
- Prioritize and shortlist identified risks according to likelihood/impact estimate
- Perform a Qualitative Risk Analysis for each identified risk

Likelihood	Definition	Impact	Definition	Combined risk
Rare	May occur in exceptional circumstances	Insignificant	Minimal damage or disruption	Insignificant
Unlikely	Could occur at some time	Minor	Some damage or disruption	Minor
Likely	Will probably occur in most circumstances	Major	Serious damage or disruption	Major
Almost certain	Expected to occur in most circumstances	Significant	Massive damage or disruption	Significant

Examples of likelihood/impact matrix

Remember!

This is an **assessment**. There are no definite right/wrong.

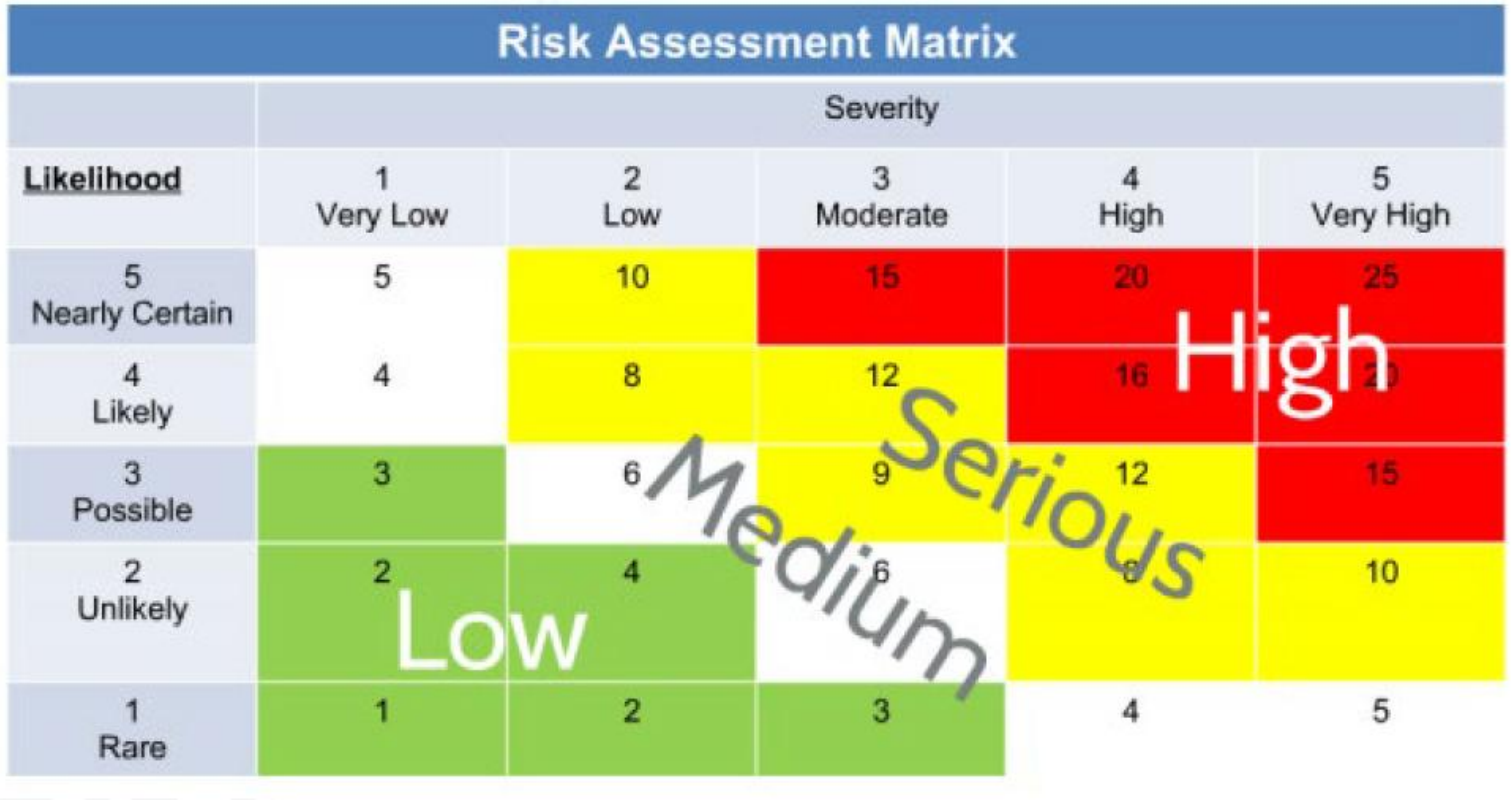
Example of likelihood rating matrix

Likelihood Rating		Description
5	Nearly Certain	>80% Probability of occurring
4	Likely	50-80% Probability of occurring
3	Possible	21-49% Probability of occurring
2	Unlikely	1-20% Probability of occurring
1	Rare	<1% Probability of occurring

Examples of impact rating matrix

		Description				
Impact Rating		Cost	Schedule	Scope	Quality	Health, Safety and the Environment
5	Very High	>40% Cost Increase	>20% time increase	Product end item is effectively useless	Product end item is effectively useless	Severe Injury, fatality or major impact
4	High	20-40% Cost Increase	10-20% time increase	Scope Reduction unacceptable to sponsor	Quality Reduction unacceptable to sponsor	
3	Moderate	10-20% Cost Increase	5-10% time increase	Major areas of scope impacted	Quality reduction requires sponsor approval	Minor injury or impact
2	Low	<10% Cost Increase	<5% time increase	Minor areas of scope impacted	Only very demanding applications are affected	
1	Very Low	Insignificant Increase	Insignificant Increase	Scope decrease insignificant	Quality decrease insignificant	No Impact

Examples of likelihood/severity rating matrix



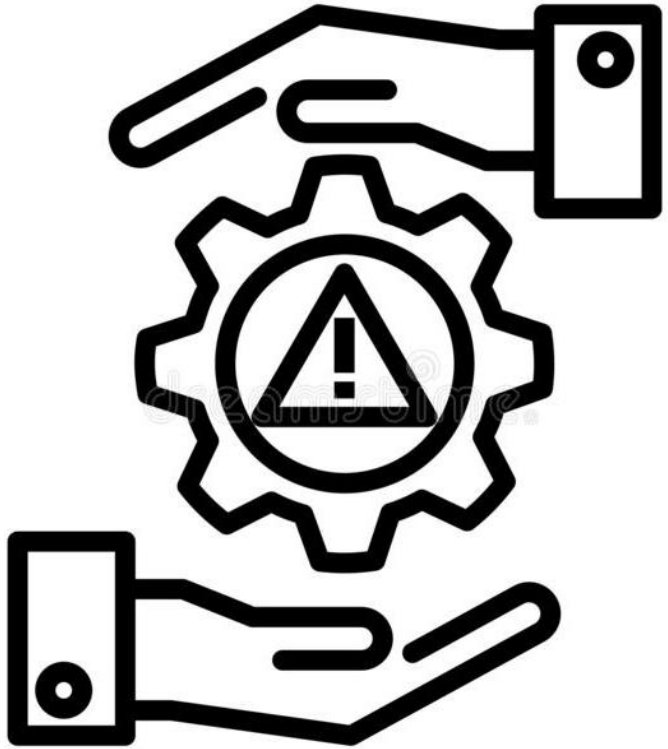
4. Plan risk responses

- 4 strategies for negative risks are:
  - **Avoidance**
  - **Mitigation/reduction**
  - **Sharing/insuring/transferring**
  - **Acceptance**

Risk response 1: Avoidance

Usually have a high impact on the project (e.g. cost or time). Should only be employed when the risk is assessed as too high for project success.

- **Strategies to avoid the risk:**
- Modify the execution plan to eliminate the risk
- Change project objective to avoid the risk
- Clarify requirements
- Acquire expertise

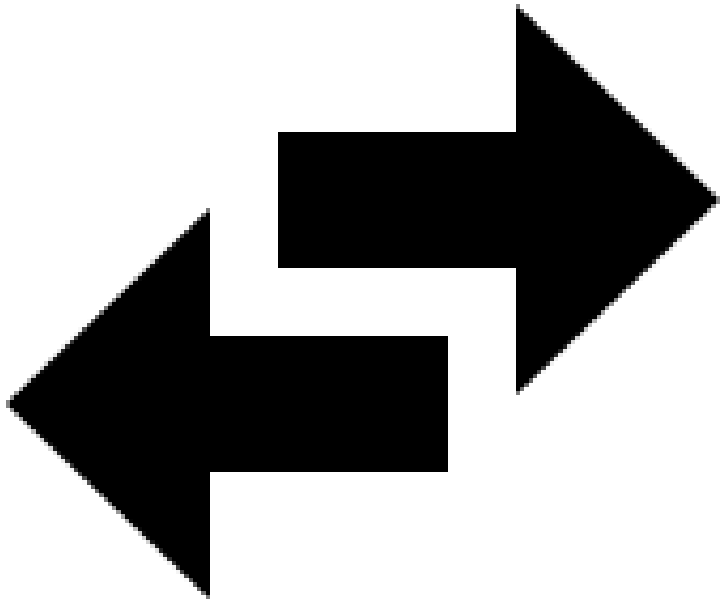


Risk response 2: Mitigation

Take actions that reduce the likelihood of the risk occurring or the impact if it occurs. Consider if the mitigation measures warrant their cost. Mitigating measures should be in place prior to the allocation of funds – or be part of the project activities.

Strategies to mitigate risks:

- Conduct more tests
- More monitoring
- Select better suppliers
- Develop a prototype
- Add resources



Risk response 3: Share/transfer

Sharing risk with other stakeholders or moving risks to a third party who is better equipped to handle it.

- **Strategies to share/transfer risks:**
  - Insurance
  - Bonds
  - Warranties and guarantees
  - Hiring special expertise
  - Contracts/agreements are used to affect the share/transfer

Risk response 4: Accept

Accepting the risk based on a cost/benefit or cost/effectiveness analysis. Should typically only be employed for low-ranking risks and/or if the impact of risk strategy would be higher than the risk itself.

- **Strategies to accept risks:**
- Continue to monitor risks
- Establish a “contingency reserve”, which can be observed as a *cushion* against the known unknown.

Examples of risk assessment - Electric car

Risk ID	Priority		WBS	Responsible Person	Risk Description	Open	Closed	Impact Rating	Likelihood Rating	Severity	Prior to Mitigation	After Mitigation	Mitigation Strategy	Contingency	Status
1	1		1.1.3	Harry	Sufficient funds cannot be raised in the required time frame	1-Sep-16		5	3	15	>4 week delay	<1 week delay	Target fund raising at 20% over budget. Pursue using club funds as a stop gap measure.	$6,000	
2	2		1.2.1	Jill	Design is not approved by competition committee	1-Sep-16		5	2	10			Double check design. Have independent design review.		
3	2		1.2.1	Jill	Design is not completed in a timely manner	1-Sep-16		3	3	9			Add schedule contingency in plan to allow design to be complete. Add additional staff.		
4	3		1.1.1	Jack	Selected team members are not available.	1-Sep-16		4	1	4			Confirm team members early in process. Identify alternates		
5	1		1.1.3,1.2.2	Mariela	Cost estimate is incorrect. Not enough funds based on estimate	1-Sep-16		5	3	15	>4 week delay	<1 week delay	Target fund raising at 20% over budget. Double check estimate after design approval.	$6,000	
6	2		1.3.1	Ralph	Delay in materials arriving, or materials unavailable	1-Sep-16		4	3	12			Use expedited shipping. Confirm availability with suppliers during design. Modify design if required.		
7	2		1.3.4	Martha	Construction takes longer than expected.	1-Sep-16		4	3	12			Add schedule contingency in plan to allow construction to be complete. Add additional staff.		
8	3		1.2.1,1.4.1	Jill	Tests find fatal flaws in design.	1-Sep-16		5	1	5			Double check design. Have independent design review.		
9	3		1.5.1	Jack	Travel is delayed due to weather, or vehicle is delayed in transport	1-Sep-16		2	4	8			Allow 2-3 extra days of travel time. Add cost for additional stay at competition.		

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Group work v2

	Create a probability and impact table	LEGO appendix 6c
	Fill out impact/likelihood matrix	LEGO appendix 6d
	Create/Adjust risk register	LEGO appendix 6e