

SOFTWARE PROJECT MANAGEMENT

RISK MANAGEMENT

Today

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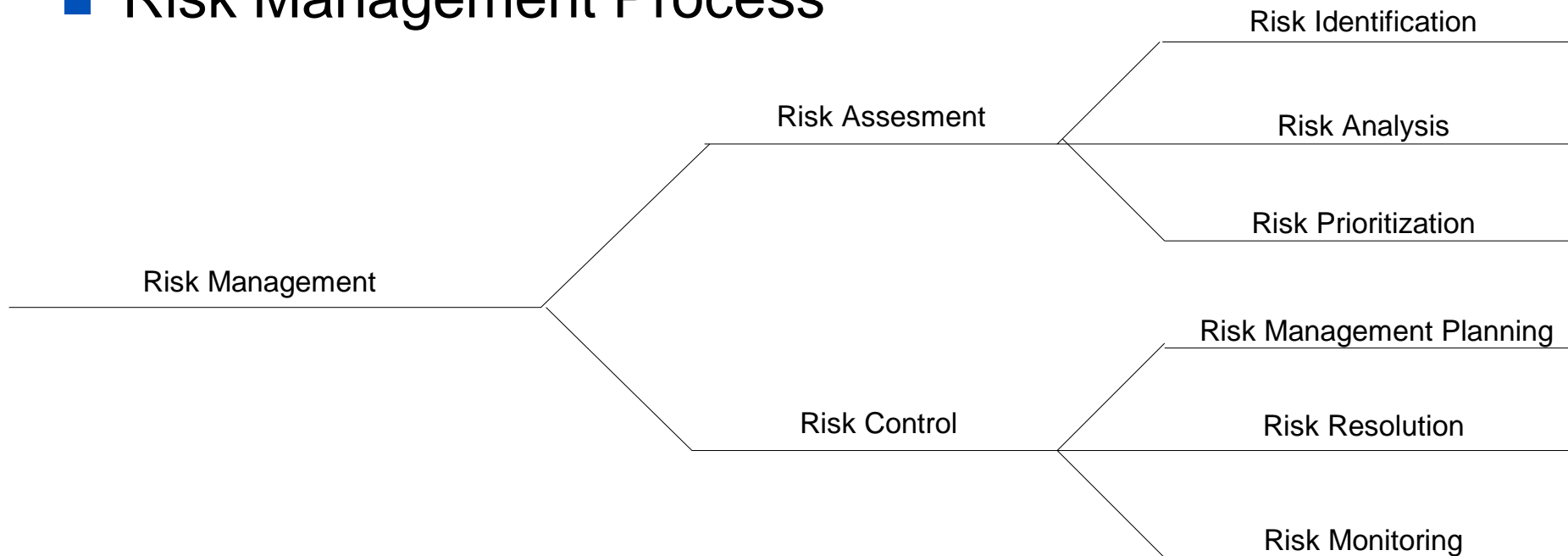
- Introduction
- Identifying project risks
- Ranking risks
- Preparing the Risk Response Plan

Introduction

- One of the toughest jobs for any project manager is managing project risks.
- Project risks include the following: time, cost, scope, quality, project team, ...
 - ◆ Inadequate time for completing the project
 - ◆ Inadequate budget for completing the project
 - ◆ Unrealistic scope expectations
 - ◆ A project team that needs additional time to ramp up development technology.
 - ◆ Stakeholders that do not or cannot provide clear project requirements

Introduction

- The goal of risk management is to identify, quantify, plan for, and then react to the risk potential to keep the risks from affecting the project's success.
- Risk Management Process



Identifying project risks

- Eight risks every software project has
 - ◆ Time
 - ◆ Costs
 - ◆ Scope
 - ◆ Feasibility
 - ◆ Quality
 - ◆ Stakeholder expectations
 - ◆ Human Resources
 - ◆ Technical accuracy

Identifying project risks

- Common risks you encounter in your project management activities:
 - ◆ Employees quit
 - ◆ Mistakes are made in the requirements gathering process
 - ◆ The software is full of bugs, errors, and failures
 - ◆ The scope of the project grows, but the budget (or the timeline) doesn't

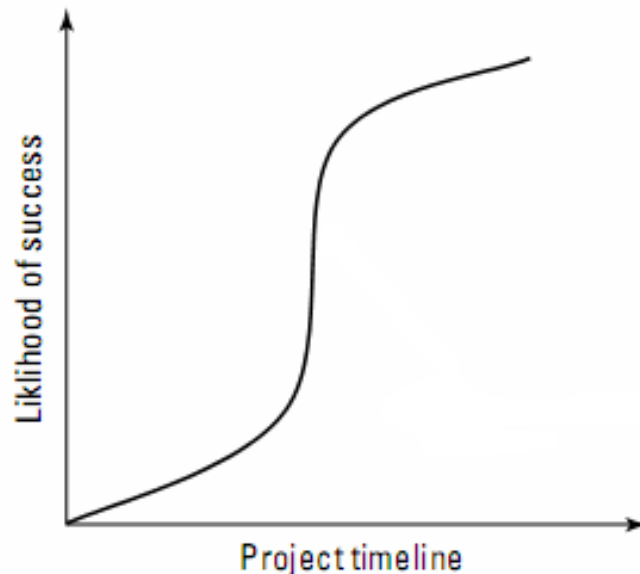
Identifying project risks

- Common risks you encounter in your project management activities:
 - ◆ The expectations of the project time, cost, and scope are not realistic to begin with
 - ◆ The project is larger than the capacity of the project team
 - ◆ The project manager, sponsor, or other stakeholders are not as knowledgeable as you would hope

Identifying project risks

■ Mitigating Risks Early On

- ◆ Projects are more likely to fail at the beginning and more likely to succeed at the end
- ◆ A failure to capture requirements, develop concepts, and plan,...is a poor foundation for project success.



Identifying project risks

- Identifying risks
 - ◆ Set up a risk identification party
 - ◆ Brainstorming
 - ◆ Following the Delphi method

Ranking risks

■ Ranking risks

- ◆ After you and the key stakeholders identify all the risks you can think of, you need to rank them
- ◆ Two different approaches to risk ranking
 - Ordinal
 - This assessment simply ranks risks as high, medium, or low
 - Cardinal
 - When you use this ranking system, you assign scores with hard numbers, like 0.67 or 0.99

Ranking risks

■ Ranking risks

◆ Steps:

- Evaluate the probability of the risk actually happening and assign that risk a score.
- Score the impact of each risk.
- Multiply the probability and the impact to get a risk score.

Ranking risks

■ Ranking Risks

Sample Qualitative Risk Impact Matrix

<i>Risk</i>	<i>Probability</i>	<i>Impact</i>	<i>Risk Score</i>
Server crashes	Low	Medium	Low
Lack of developers	High	Medium	High
Firmware changes	Low	Medium	Low
Requirement to install service packs	High	Medium	Medium

Ranking risks

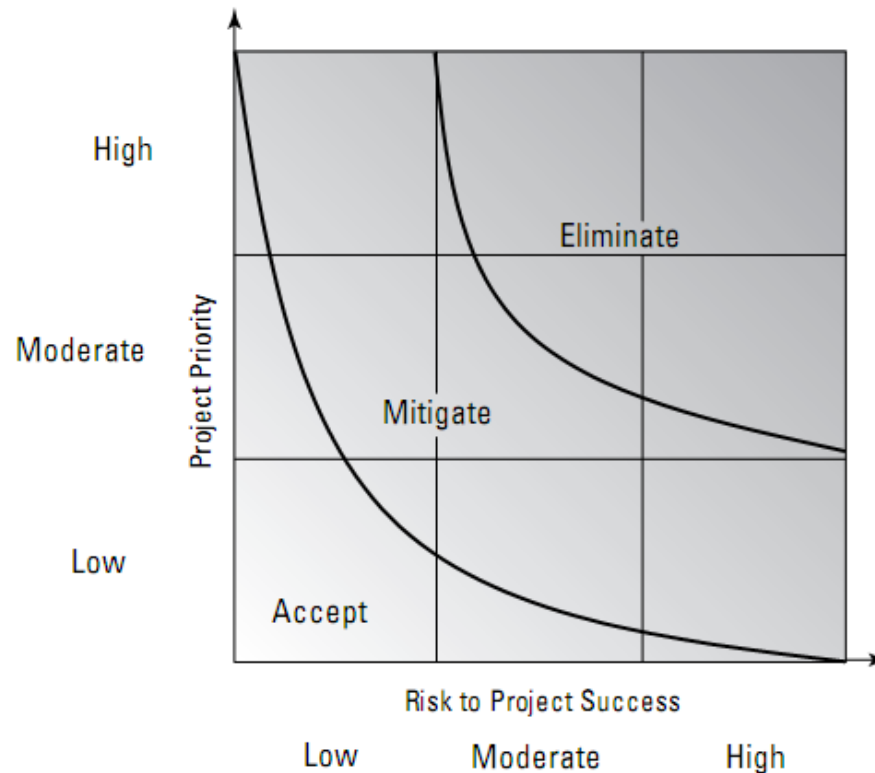
■ Ranking Risks

Sample Quantitative Risk Impact Matrix

<i>Risk</i>	<i>Probability</i>	<i>Impact</i>	<i>Risk Score</i>
Server crashes	.10	(\$5,000)	(\$500)
Lack of developers	.90	(\$80,000)	(\$72,000)
Firmware changes	.20	(10 days)	(2 days)
Requirement to install service packs	.70	(\$2,000)	(\$1,400)

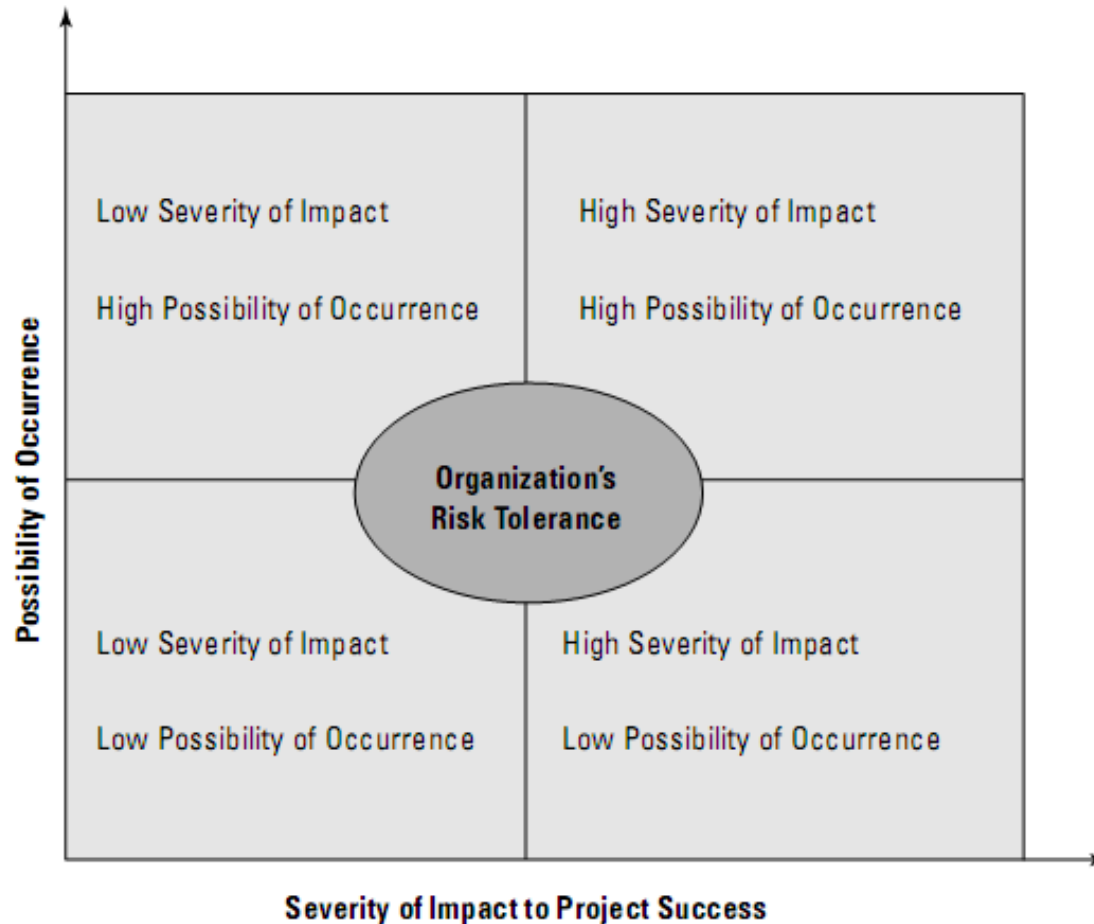
Preparing the Risk Response Plan

- The risk response plan is a document that details the identified risks within a project, their impact and then identifies how the project team will respond to the risks.



Preparing the Risk Response Plan

- Determining Stakeholder Risk Tolerance



Preparing the Risk Response Plan

- Strategies
 - ◆ Avoiding risks
 - ◆ Transferring risks
 - ◆ Mitigating risks
 - ◆ Accepting the risks

Preparing the Risk Response Plan

- Avoiding risks
 - ◆ Change a project plan to avoid risk
 - ◆ Use an established approach to software development
 - ◆ Hire experts to consult the project team during the development process
 - ◆ Spend additional time with the project stakeholders to clarify all project objectives and requirements
 - ◆ Assign senior developers to key activities
 - ◆ ...

Preparing the Risk Response Plan

■ Transferring risks

- ◆ Transference means that the risk doesn't go away. It's just someone else's responsibility now.
- ◆ You can
 - Purchase insurance
 - Hire experts to complete a portion of the project work
 - Demand warranties from vendors
 - ...

Preparing the Risk Response Plan

- Mitigating risks

- ◆ Risk mitigation is about reducing the impact and/or the probability of risk
- ◆ Typically examine the risks with medium to high scores for risk mitigation opportunities.

Preparing the Risk Response Plan

■ Mitigating risks

- ◆ Add extra testing, verification, or customer approval activities to ensure that the software conforms to requirements.
- ◆ Develop and test prototypes, use user acceptability testing processes, or launch pilot groups within your organization before releasing the software.
- ◆ ...

■ Accepting risks

- ◆ ONLY risks that have a very low probability, a very low impact, or both.

Preparing the Risk Response Plan

■ Risk Response Plan Information

- ◆ Risk ID
- ◆ Risk Description
- ◆ Risk Likelihood - Risk Impact
- ◆ Preventative Actions
 - Any actions that should be taken to prevent the risk from eventuating.
- ◆ Contingent Actions
 - Any actions that should be taken, in the event that the risk happens, to minimize its impact on the project



References

- The Project Management Life Cycle, Jason Westland
- Software Project Management For Dummies, Teresa Luckey & Joseph Phillips
- Project Management Text Book, Nguyen Thi Bich
- Software Project Management Slides, John Musser