

Paper Presentation

CSC 548

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The Paper

Dedolph, M., " **The Neglected Management Activity: Software Risk Management**", Bell Labs Technical Journal, 2003, Vol. 8 Issue 3, p91-95.

What is Risk Management?

Risk: the possibility of harm or loss.

Risk Management: The set of activities used to manage risks (reduce it to an acceptable level).

The Three Primary Goals

Risk Management has 3 primary goals:

1. Risk Identification.
2. Risk Analysis.
3. Risk Mitigation.

Qualitative Risk Analysis

Prioritizing risks by assessing their probability of occurrence and impact.

Qualitative Risk Analysis

- A **probability/impact matrix** or **chart** lists the relative probability of a risk occurring on one side of a matrix or axis on a chart and the relative impact of the risk occurring on the other.
- List the risks and then label each one as high, medium, or low in terms of its probability of occurrence and its impact if it did occur.

Qualitative Risk Analysis

High	Risk 1		Risk 3
Medium	Risk 4	Risk 6	
Low	Risk 5		Risk 2
	Low	Medium	High

Probability Impact Matrix

Quantitative Risk Analysis

- **Risk Exposure** measures the impact of a risk in terms of the expected value of the loss. It is defined as the probability of an undesired event times the expected loss if that event occurs.

Risk Exposure= Probability (0.1-1) * Loss (1-10)

Risk Reduction Leverage = $\frac{\text{RE(before)}-\text{RE(after)}}{\text{Risk Reduction Cost}}$

Example 1

Consider a project dependency on having a necessary component delivered from a subcontractor on schedule. The potential schedule loss if this delivery doesn't happen is 4 weeks, and the probability as 0.3.

Probability	Loss	Risk Exposure
0.3	4 weeks	1.2 weeks

Example 2

Consider a project dependency on having a necessary component delivered from a subcontractor . The potential loss if this delivery doesn't happen is 7 out of 10, and the probability as 0.6.

Probability	Loss	Risk Exposure
0.6	7	4.2

Example 3

Suppose the probability of an experienced staff turnover is 0.1 and the cost of hiring and training new staff is 10,000\$.

Probability	Loss	Risk Exposure
0.1	10,000 \$	1000 \$

Why is Software Risk Management Important?

Every software development risks event affects **schedule** , **quality** and consequently **cost**.

Why is Software Risk Management Neglected ?

The main reason is that organizations by nature **resist** changes.

Why is Software Risk Management Neglected ?

- Visible development costs get more attention than intangibles.
- The value of risk management cannot easily be proved; the savings do not seem real.
- Project teams are too busy fire-fighting; there are no resources available for any extra work.
- Risk management—particularly formal methods with a high initial overhead—seems difficult.
- Project teams and managers are rewarded for problem-solving, not prevention.
- Mitigation actions may require organizational or process changes.

Why is Software Risk Management Neglected ?

Attitudes can also stand in the way of doing risk management. Some of the common barriers resulting from attitudes are:

- Discussing risks goes against cultural norms (negative thinking),
- Overconfidence
- Fatalism (software is always late anyway; there is no way to change that).

Examples of Bad Software Risk Management

- Setting schedules before the scope of the software effort is known,
- Not using code inspections for software that must be highly reliable,
- Shortening test cycles to make ship dates.
- Not reviewing lessons learned from previous projects

Examples of Good Software Risk Management

A large Air Force project had experienced three consecutive late releases with unacceptable quality.

A risk team was formed comprising the developer, customer, systems architecture group, and contract management. An outsider was brought in to do an initial risk evaluation, facilitate monthly team risk meetings.

Examples of Good Software Risk Management

issues were addressed proactively resulting in three on-time releases with improved quality and profit.

Conclusion

Risk management can be viewed as proactive as opposed to reactive management. It can be formal or informal and can be driven top-down or bottom-up, but it requires sustained effort and good communication to be effective.

References

1. Schwable, K. "Information technology Project Management", Thomson Course Technology Inc.,2006.
2. Dedolph, M., " The Neglected Management Activity: Software Risk Management", Bell Labs Technical Journal, 2003, Vol. 8 Issue 3, p91-95.



Merci !