

# Lecture 4 - Project Risk Quality

## Comprehensive Note on Project Risk and Quality Management

This lecture focuses on two critical aspects of project management: **Risk Management** and **Quality Management**. Both are essential for ensuring a project meets its objectives, stays within scope, budget, and schedule, and delivers a product or service that satisfies stakeholder expectations. Below is a detailed breakdown of the content.

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### 1. Managing Issues

- **What is an Issue?**

An issue is a problem that has already occurred and requires immediate action. Unlike risks (which are potential problems), issues are current and demand resolution.

- **How to Manage Issues:**

- **Identify:** Recognize the issue as it arises.
  - **Document:** Record it in an **issue log** for tracking.
  - **Assign Responsibility:** Designate someone to handle the issue.
  - **Track Until Closure:** Monitor the issue until it is resolved or an acceptable outcome is achieved.
  - **Communicate:** Inform the team, stakeholders, and vendors as needed.
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### 2. Risk Management

Risk management is a proactive approach to identifying, analyzing, and responding to potential problems (risks) before they become issues. Here's a detailed look at this process.

## 2.1 What is a Risk?

- **Definition:**

- A risk is an uncertain event or condition that, if it occurs, can positively or negatively affect project objectives (e.g., scope, schedule, cost, quality).
- Key characteristics:
  - **Uncertainty:** Probability of occurrence is between 0 and 1 ( $0 < P < 1$ ).
  - **Impact:** Associated with potential loss or gain (e.g., money, time, reputation).
  - **Manageability:** Can be influenced by human actions to reduce likelihood or impact.
- Examples of definitions from the lecture:
  - "A potential problem that will be detrimental to project success, should it materialize" (Wiegers, 2007).
  - "An uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives" (PMI, 2017).

## 2.2 Difference Between Risk and Issue

- **Risk:** A potential problem that may or may not happen (future-focused, uncertain).
- **Issue:** A problem that has already occurred (present-focused, certain).
- Example question from the lecture:
  - Correct answer: "A risk is a problem that may occur, an issue is a problem that has occurred."

## 2.3 Risk Management Process

The risk management process is systematic and iterative. It includes the following steps:

1. **Establish Context**

- Define the scope of risk evaluation.

- Identify factors affecting the project (e.g., technical, economic, environmental, social, legal).
- Identify stakeholders (e.g., users, clients, legal bodies).
- Set risk criteria (e.g., financial loss, legal liability, negative publicity).

## 2. Risk Identification

- Explicitly state what could go wrong (risk statements).
- Categorize risks by project aspects:
  - **Scope Risks:** Unable to meet goals, low quality.
  - **Cost Risks:** Overspending, inadequate resources.
  - **Schedule Risks:** Delays, loss of personnel.
- Use tools like the **Risk Event Graph** (Larson & Gray, 2018) or standard categories (e.g., technical, external, organizational, project management).

## 3. Risk Analysis

- Assess:
  - **Likelihood (Probability):** Chance of the risk occurring.
  - **Consequences (Impact):** Effect if the risk occurs.
- Identify **trigger events:** Indicators that a risk is becoming an issue.
- Look at related areas of impact.

## 4. Evaluate Risk

- Prioritize risks using a **Risk Matrix** (likelihood vs. consequences):

Likelihood	Low Consequence	Medium Consequence	High Consequence
Low	1	2	3
Medium	2	3	4
High	3	4	5

- Decide if the risk is acceptable based on:
  - Degree of control.

- Potential losses or benefits.

## 5. Risk Response / Control

- Strategies to manage risks:
  - **Mitigation:** Reduce likelihood or impact (e.g., backups for data loss).
  - **Avoidance:** Eliminate the risk by changing plans (e.g., choosing a safer option).
  - **Transfer:** Shift the risk to another party (e.g., insurance, outsourcing).
  - **Acceptance:** Accept the risk and prepare to handle its impact if it occurs (e.g., accepting hard disk failure but making backups).
- Example: Kingdome demolition (Page 14) mitigated risks like flying concrete and dust with specific strategies.

## 6. Risk Monitoring

- Continuously monitor:
  - Risks that occur.
  - Frequency and impacts.
  - Trends and trigger events.

## 7. Review and Reiterate

- Risks evolve over time (new risks emerge, old ones fade).
- Review what happened and the effectiveness of strategies.
- Repeat the process as needed—risk management is ongoing.

## 2.4 Common Sources of Risk

- **Project:** Size, complexity, requirements, change impact.
- **Organizational:** Stakeholder involvement, funding, facilities.
- **Team:** Skills, availability, external factors.
- **External:** Market conditions, vendors, legal changes.
- **Project Management:** Planning defects, assumptions, constraints.

## 2.5 Practical Application

- **Case Study: Big Popsicle Incident** (NY Times, 2005):
    - A large popsicle melted unexpectedly, causing a mess.
    - **Risks:** Temperature control, logistics.
    - **Consequences:** Cleanup costs, safety hazards, negative publicity.
    - **Avoidance:** Better planning for temperature-sensitive items.
  - **Team Exercise:** Identify risks for your project, assess likelihood/consequences, rank them, and plan responses.
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## 3. Quality Management

Quality management ensures the project delivers a product or service that meets stakeholder expectations.

### 3.1 What is Quality?

- **Definition:**
  - "The degree to which a set of inherent characteristics fulfills requirements" (PMI, 2017).
  - "Fitness for use" (Juran, 2010).
  - Meeting customer needs and expectations (Deming, 1982; Feigenbaum, 1991).

### 3.2 Aspects of Managing Project Quality

- **Quality-Based Requirements:** Meet customer and stakeholder standards.
- **Value-Added Requirements:** Address non-functional needs (e.g., usability, reliability).
- **Product and Process:** Ensure deliverables and creation methods meet quality standards.
- **Verification:** Validate that the project is on track and deliverables are correct.

### 3.3 Seven Key Principles of Quality Management

1. **Identify Targets:** Understand customer and stakeholder expectations.
2. **Plan It:** Create a quality management plan.
3. **Right-Size It:** Balance quality with budget and schedule.
4. **Set Expectations:** Align customer expectations with project capabilities.
5. **Stay Customer-Focused:** Keep customer satisfaction central.
6. **Trust, But Verify:** Use inspections/tests to confirm quality.
7. **It's Up to You:** The project manager is responsible for quality.

### 3.4 Tools and Techniques for Project Quality

- **Requirements Traceability Matrix:** Links requirements to deliverables.
- **Checklists:** Track quality standards and verification activities.
- **Templates:** Standardize processes and outputs.
- **Reviews:** Peer reviews, inspections, testing, milestone checks.
- **Completion Criteria:** Define acceptance standards for deliverables.
- **Small Work Packages:** Enable detailed quality control.
- **Independent Audits:** External reviews for compliance.
- **Standards:** Set and communicate quality benchmarks.
- **Quality Management Plan:** Documents the quality system for stakeholders.

### 3.5 Overall Objective of Quality Management

- Understand and meet customer/stakeholder needs.
- Ensure satisfaction through consistent, high-quality delivery.

### 3.6 Practical Application

- **Team Discussion:** Identify quality measures for your project (e.g., functionality, reliability) and align them with stakeholder expectations.
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## 4. Summary

- **Risk Management:** A proactive, ongoing process to identify, analyze, and respond to potential problems using tools like the Risk Matrix and strategies like mitigation or avoidance.
- **Quality Management:** Ensures deliverables meet requirements and satisfy stakeholders through planning, verification, and tools like checklists and reviews.

By studying these concepts and applying them to your project, you'll be equipped to handle uncertainties and deliver high-quality outcomes. Good luck with your studies!