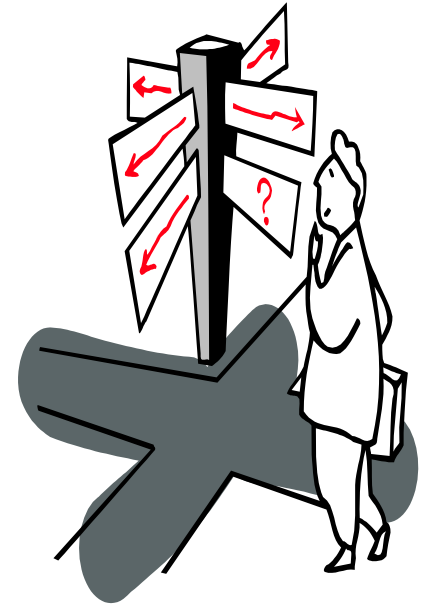


# Lecture-12

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## ■ Risk Management





# What is risk?

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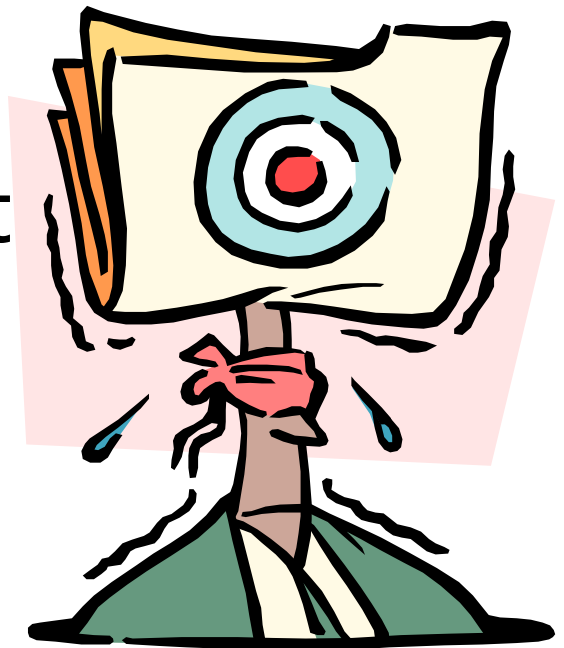
A risk is a possibility of loss.

Undesirable outcome.

Missed opportunity.

# Core Risks <sup>[1]</sup>

- Ambitious time plan
- Ambiguity in requirement
- Requirement creep
- Team turnout
- Performance variance



Project manager



# Software risk category

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- Project risk
- Process risk
- Product risk

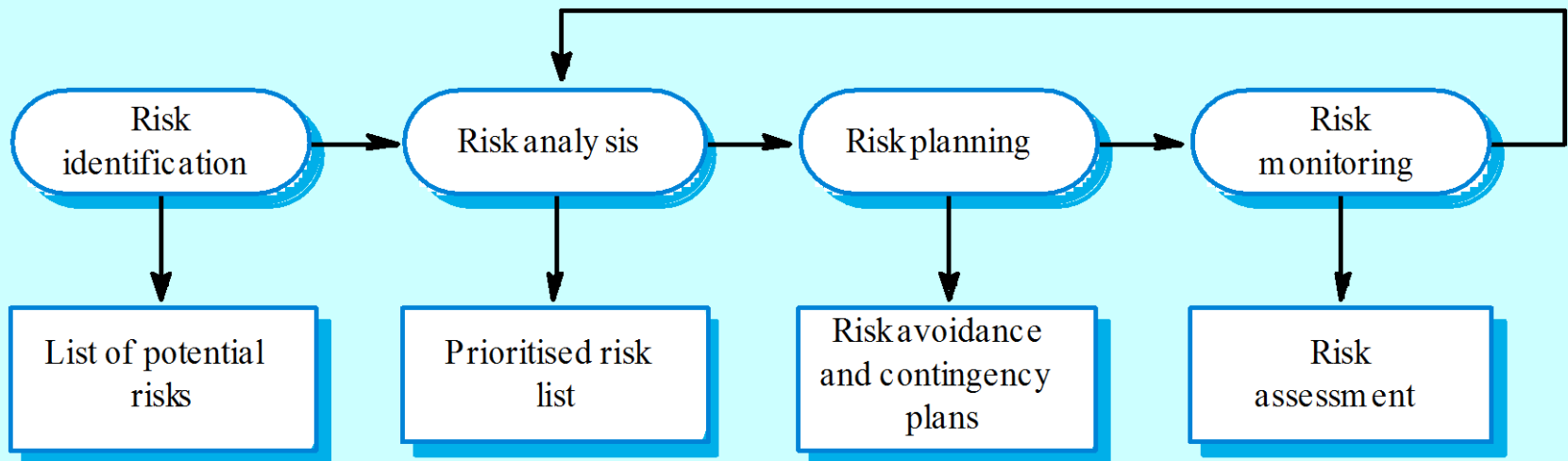


# Risk management process

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- Risk identification
- Risk analysis
- Risk planning
- Risk monitoring
- Risk resolving

# The risk management process





# The risk management process

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- Risk identification
  - Identify project, product and business risks;
- Risk analysis
  - Assess the likelihood and consequences of these risks;
- Risk planning
  - Draw up plans to avoid or minimise the effects of the risk;
- Risk monitoring
  - Monitor the risks throughout the project;



# Risk identification

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- Technology risks.
- People risks.
- Organisational risks.
- Requirements risks.
- Estimation risks.



# Risks and risk types

<b>Risk type</b>	<b>Possible risks</b>
Technology	The database used in the system cannot process as many transactions per second as expected. Software components that should be reused contain defects that limit their functionality.
People	It is impossible to recruit staff with the skills required. Key staff are ill and unavailable at critical times. Required training for staff is not available.
Organisational	The organisation is restructured so that different management are responsible for the project. Organisational financial problems force reductions in the project budget.
Tools	The code generated by CASE tools is inefficient. CASE tools cannot be integrated.
Requirements	Changes to requirements that require major design rework are proposed. Customers fail to understand the impact of requirements changes.
Estimation	The time required to develop the software is underestimated. The rate of defect repair is underestimated. The size of the software is underestimated.



# Risk analysis

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- Questions
  - What is causing the risk
  - How much will it affect
  - Are the risks dependent
  - The probability that it will occur
  - Is the exposure acceptable
- Severity
- probability



# Risk planning

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- Avoidance
- Protection
- Reduction
- Research
- Reserves
- Transfer



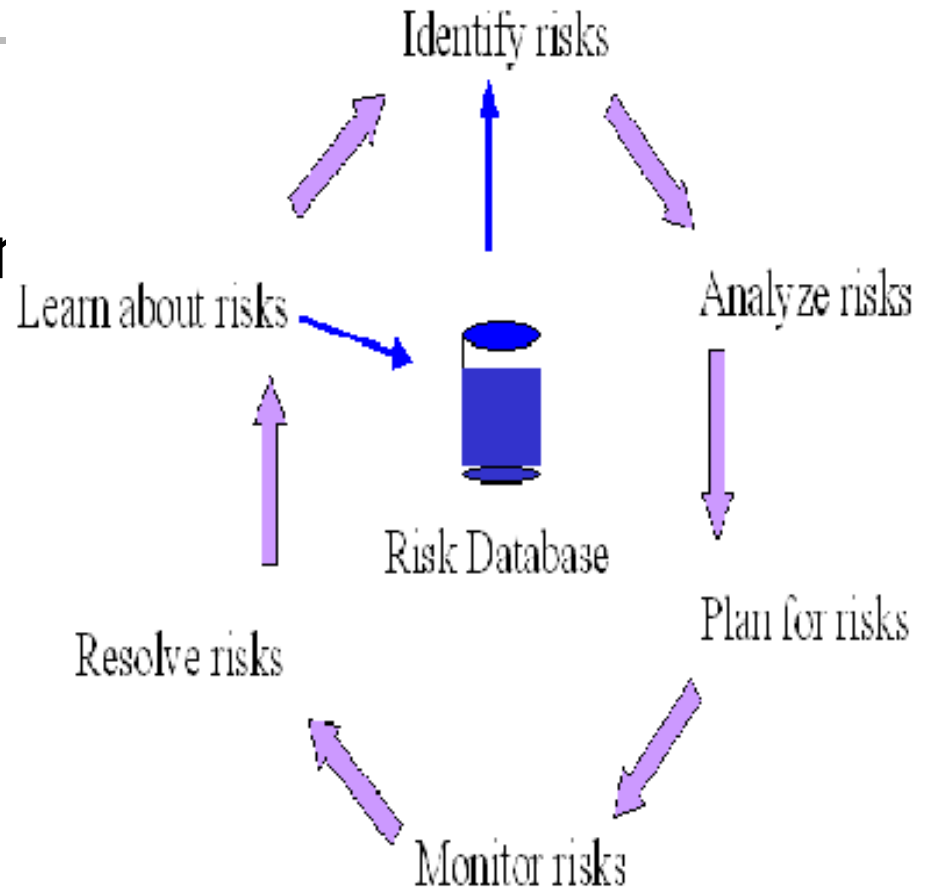
# Risk monitoring

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- Assess each identified risks regularly to decide whether or not it is becoming less or more probable.
- Also assess whether the effects of the risk have changed.
- Each key risk should be discussed at management progress meetings.

# Risk monitoring

- Risk resolving
- Risk documentation



Risk management [4]



# Levels of risk

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- Disaster management
- Repair on failure
- Risk mitigation
- Prevention
- Eliminate root cause



# Finance and risk

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- Risk management poses extra expenses
- Do we need this expense
  - Medical insurance
  - Spend on avoiding or solving



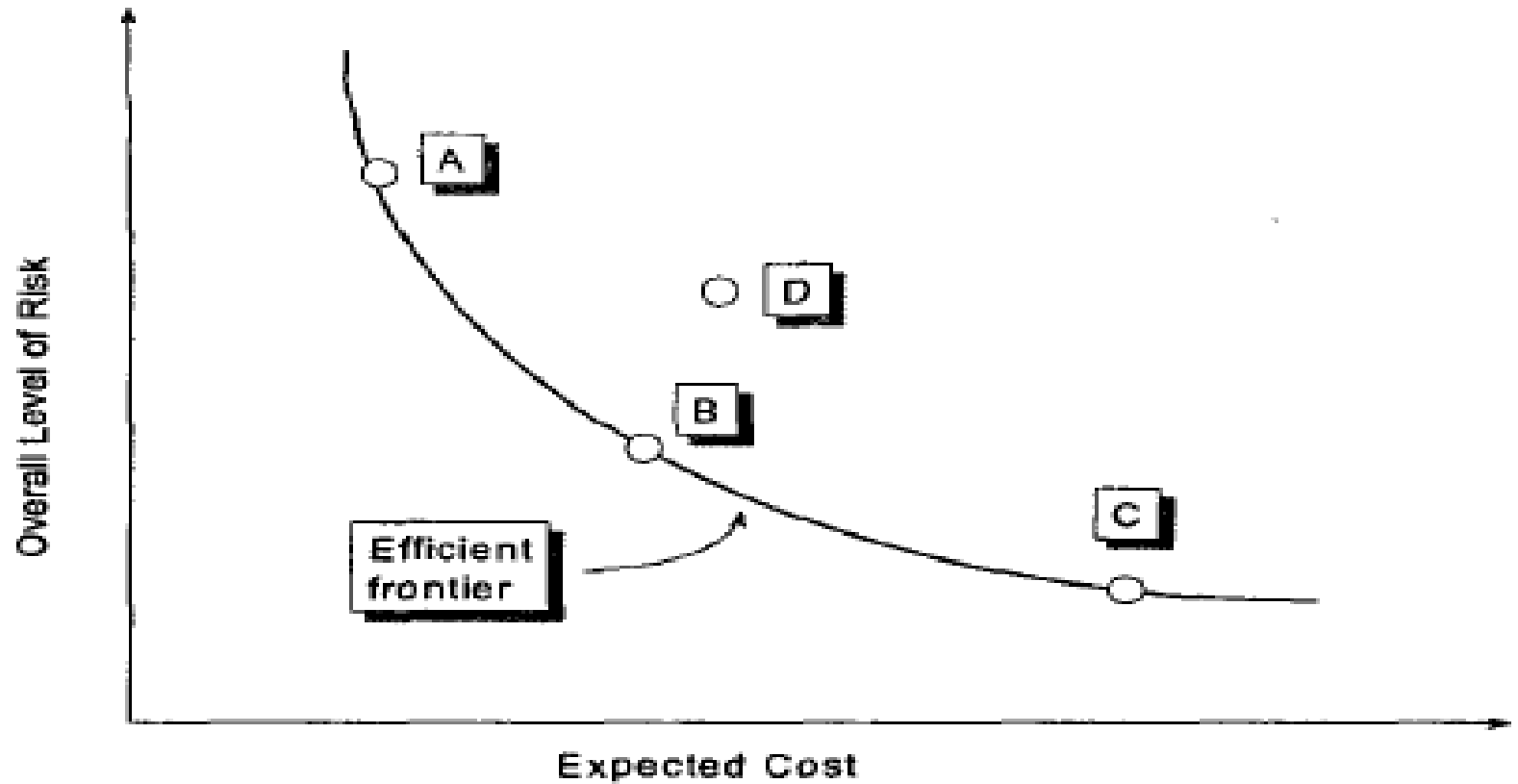
# How much to spend

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- Risk exposure is considered
- Is the risk exposure acceptable
- Price versus budget
- Which option to chose
  - Cost
  - Risk



# Risk efficient frontier [2]





# Conclusion

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- Managing risk is important
- Correct quantification gives correct picture
- Risk management with over all project view
- Balance between cost and risk