SWINBURNE UNIVERSITY OF TECHNOLOGY

SWE30010
Development Project 2: Design, Planning and Management

Lecture 7c

Risk Items
(extracted from Lecture 9
Risk Management)

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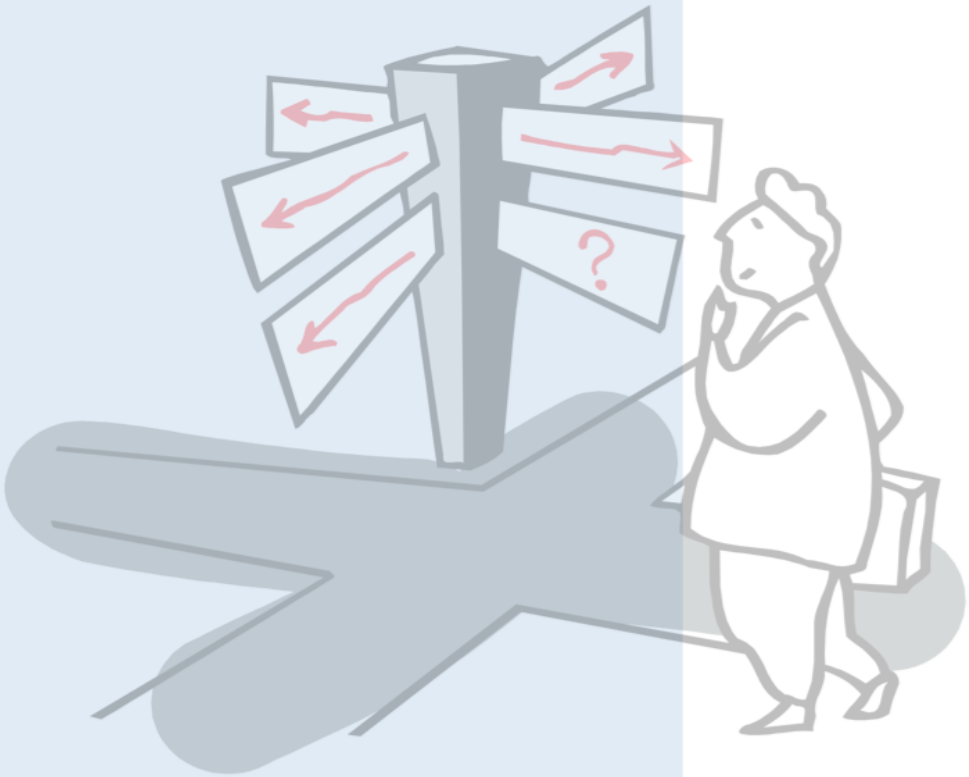
Principal References

- Roger S. Pressman, *Software Engineering - A Practitioners Approach* (7th Edition), McGraw Hill, 2010, Chapter 28.
- Bob Hughes and Mike Cotterell, *Software Project Management* (4th Edition), Wiley, 2006, Chapter 7.
- Pankaj Jalote, *Software Project Management in Practice*, Addison-Wesley, 2002, Chapter 6.

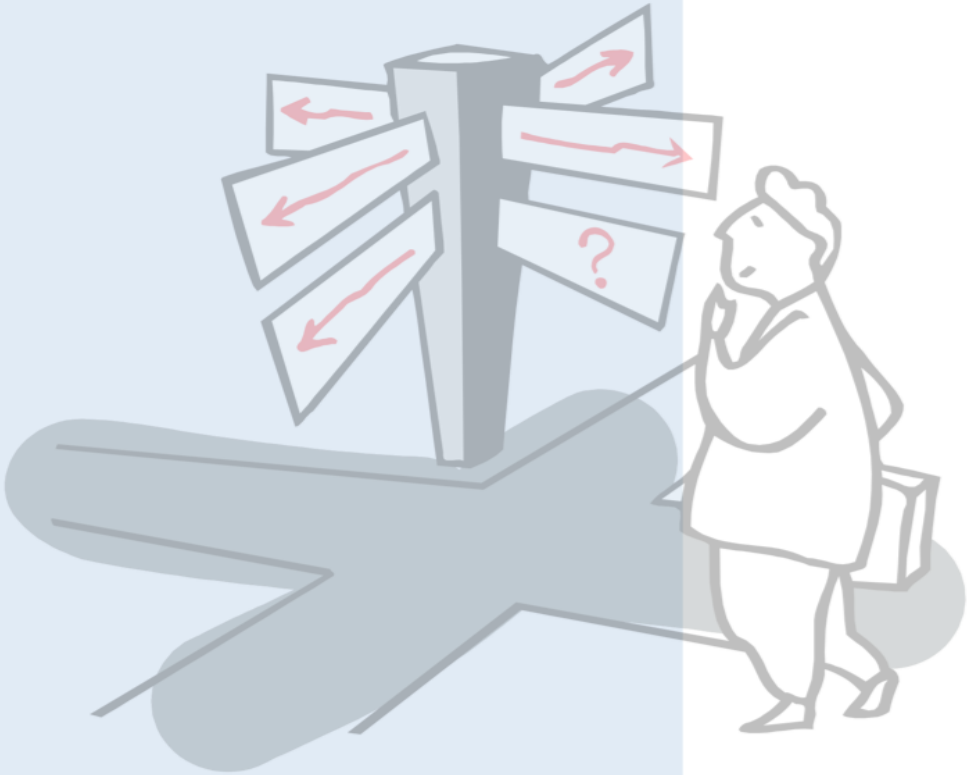
Roadmap

- What are Risks?
- Identifying Risks



Roadmap

- **What are Risks?**
- Identifying Risks



What are Risks?

"First, risk concerns future happenings. Today and yesterday are beyond active concern, as we are already reaping what was previously sowed by our past actions. The question is, therefore, by changing our actions today, create an opportunity for a differently and hopefully better situation for ourselves tomorrow. This means, second that risk involves change, such as in changes of mind, opinion, actions, or places. Third, risk involves choice, and the uncertainty that choice itself entails."

– Robert Charette, 1989

What are Risks (cont.)?

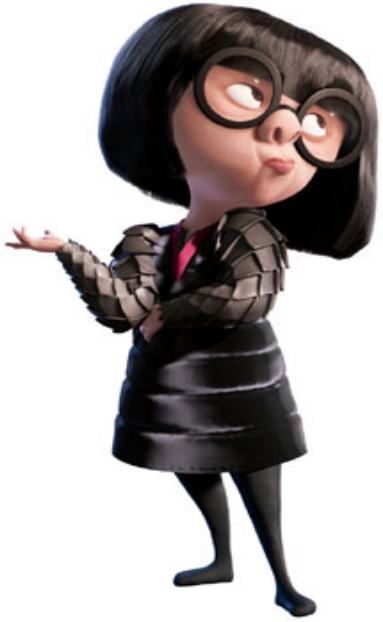
- PMBOK: *"an uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives."*
- PRINCE2: *"the chance of exposure to the adverse consequences of future events."*

☞ Key elements:

- ☐ Risks relate to the future (*"speculating about future events"*)
- ☐ Risks involve cause (*"why"*) and effect (*"measurable consequence"*).

“I never look back, dahling. It detracts from the now.”

– Edna Mode, The Incredibles



Risk Items

- Hazard → Problem → Risk Item
- Chances of Happening
- Impact / Damage caused by the risk item

- Examples of hazards
  - ☐ New, unproven technology
  - ☐ Unclear requirements
  - ☐ Lack of experience in problem domain
  - ☐ Overall size/complexity of problem

Roadmap

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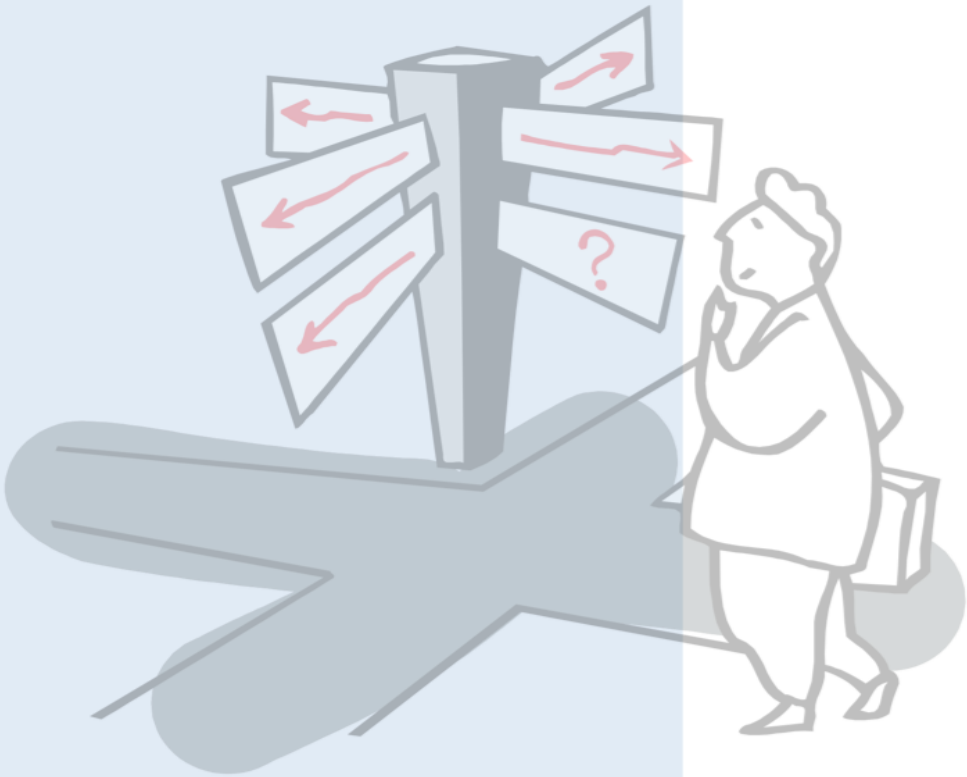
- **Identifying Risks**



Identifying Risk

- Guidelines:
  - Use checklist that lists the potential hazards and their corresponding factors
    - Knowledge
    - Risk Drivers (Gap Analysis)
    - Risk Causes
  - Identify both, *cause* **and** *effect* of risks!
  - Maintain an updated checklist for future projects
  - Think of other things that may go wrong…

Knowledge

Information = Data + Meaning

Knowledge = Information + Processing (Domain Context)

Domain Knowledge: scopes context we are dealing with!

Risk Drivers

Principal risk drivers (KoST):

- Knowledge Gap (*don't know*)
- Skill Gap (inexperience)
- Technology Gap (unknown/young or unavailable)

Other important risk drivers:

- Team Dynamics + Management
- Research & Development Component

Risk Causes

The two most common causes for project failures are:

- Problem framing (solving “wrong” problem)
- Project approach (methodology, resources, processes etc.)

Other, more “traditional” risks causes include:

- Project planning:
  - budget, schedule, resources, size, personnel, morale, ...
- Business:
  - market, sales, management, commitment, ...

Project vs. Business Risks

- Typically, a *project risk*, if it occurs, will threaten a project's cost and schedule.
- A *business risk* will threaten the viability of the software to be built.
  - Examples:
    - Building a product that no one really wants.
    - Building a product that does not fit into the overall business strategy of the organization (any more).
    - Losing support from senior management due to a change in focus or a change in people.
    - Losing budgetary or personnel commitment.

Barry Boehm's Top Ten Risks

1. Personnel shortfalls
2. Unrealistic schedules and budgets
3. Developing the wrong software functions
4. Developing the wrong user interface
5. Gold Plating
6. Continuing stream of requirements changes
7. Shortfalls in externally performed tasks
8. Shortfalls in externally furnished components
9. Real-time performance shortfalls
10. Straining computer science capabilities

Other Common Risks

- *Lack of communication*
  - ☐ within team
  - ☐ between team and client/customer
- Lack of resources/time for *testing*
  - ☞ or Quality Assurance in general
- Lack of trust
- Development platform vs. deployment platform
- “Uninformed” decision making (about technology etc.)
- “Heroism”

“The Truck Factor”