CSSE 372 Software Project Management:
Software Risk Analysis

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Learning Outcomes: Risks

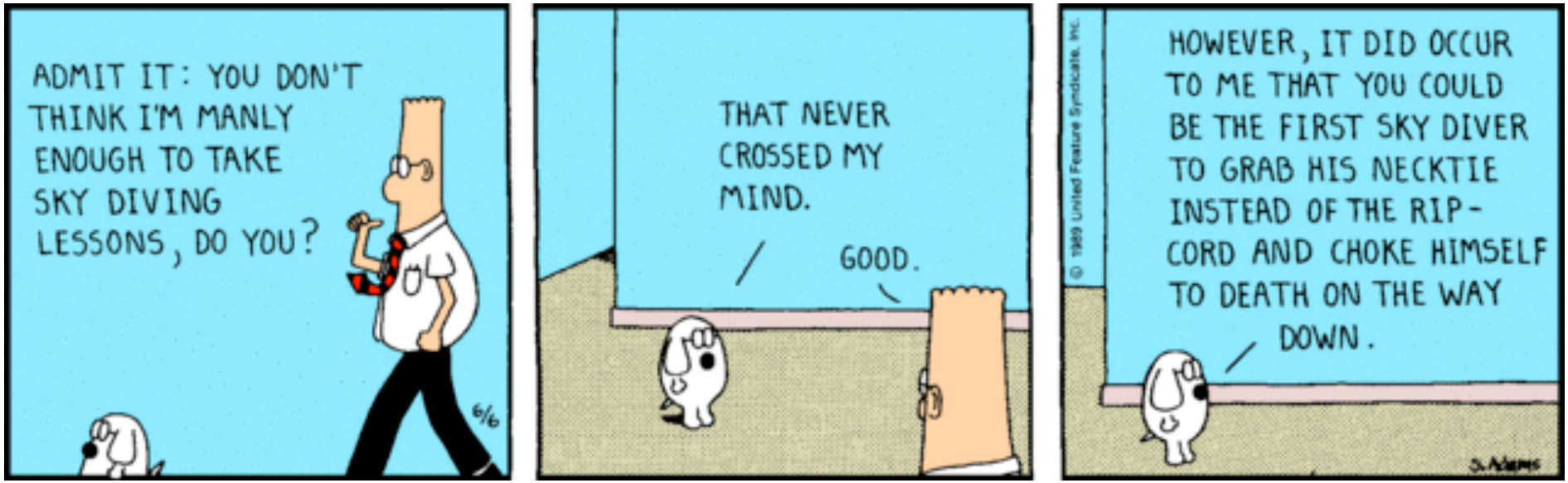
Identify, analyze, and manage software project risks

- Define risky software situations
- Identify common software risks
- Analyze software risks

What is Risk?

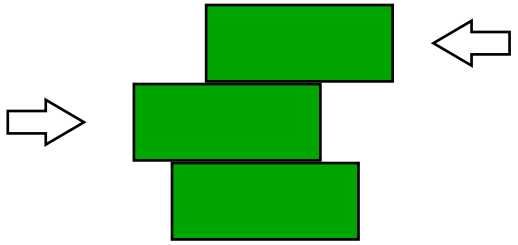
- Think for 13.1427 seconds…
- Turn to a neighbor and discuss it for a minute
- Let's talk about it…

Dilbert on Risk



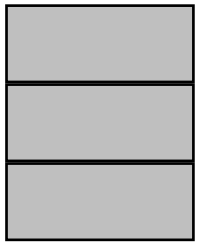
Software Projects are all about Risk

- Risk translates to:
  - Lack of information
  - Lack of time, and/or
  - Lack of control

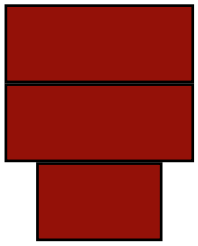


Must Effectively Balance
Risk & Opportunity

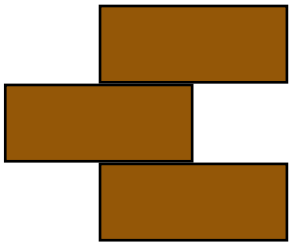
- Risk = Impact X Exposure



Banker's Risk



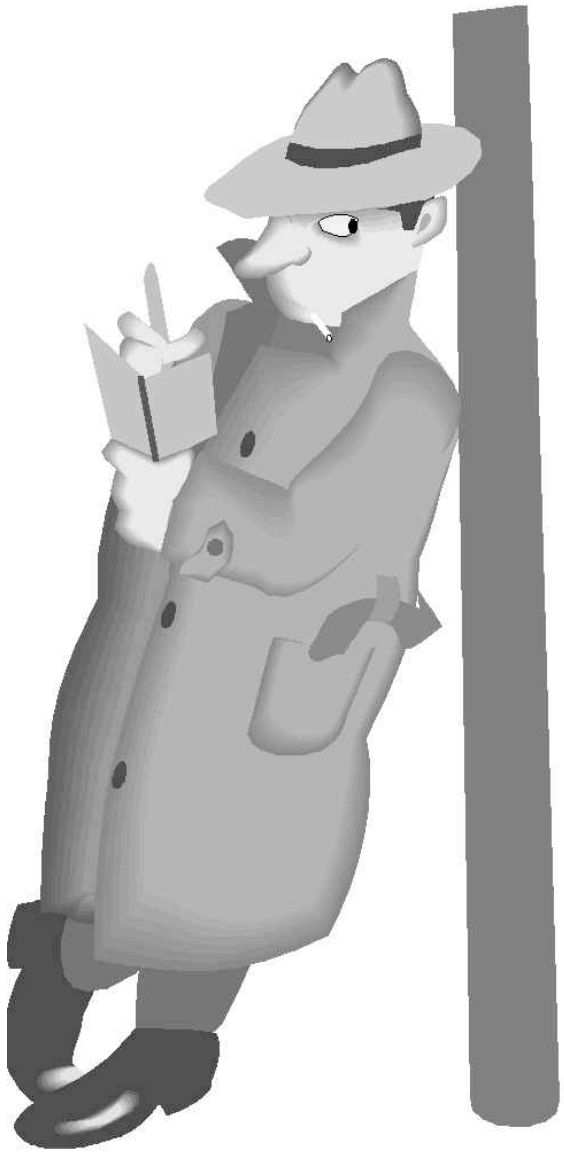
Investor's Risk



Gambler's Risk

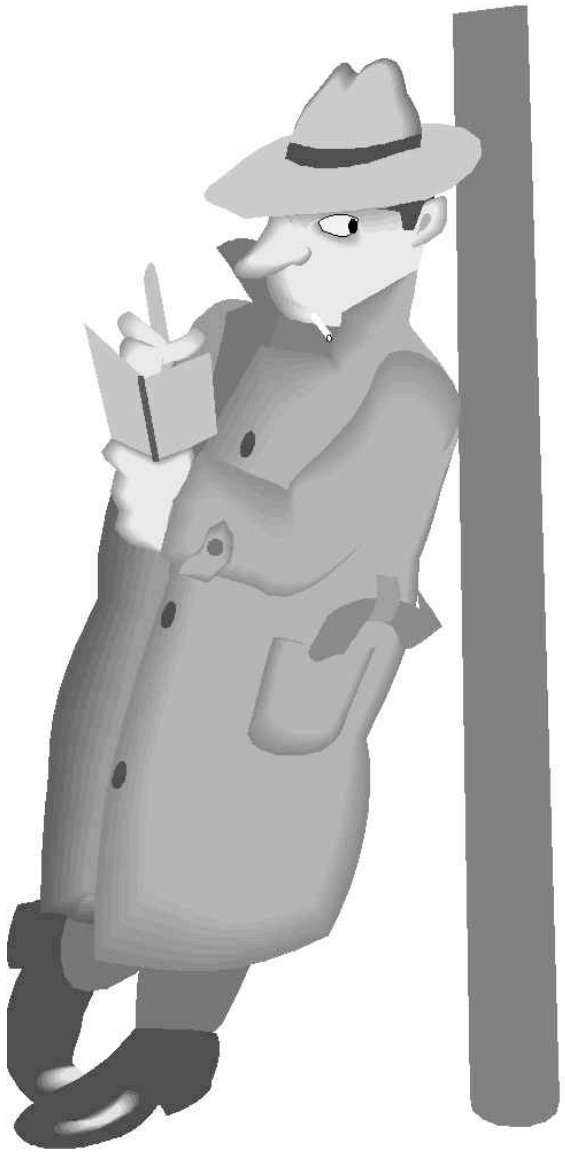
Risk Identification (1 of 2)

- *Product size*
- *Business impact*
- *Customer characteristics*
- *Process definition*



Risk Identification (2 of 2)

- *Development environment*
- *Technology to be built*
- *Staff size and experience*



Common Project Risk Components

- *Performance Risk*—the degree of uncertainty that the product will meet its requirements and be fit for its intended use
- *Cost Risk*—the degree of uncertainty that the project budget will be maintained
- *Support Risk*—the degree of uncertainty that the resultant software will be easy to correct, adapt, and enhance
- *Schedule Risk*—the degree of uncertainty that the project schedule will be maintained and that the product will be delivered on time

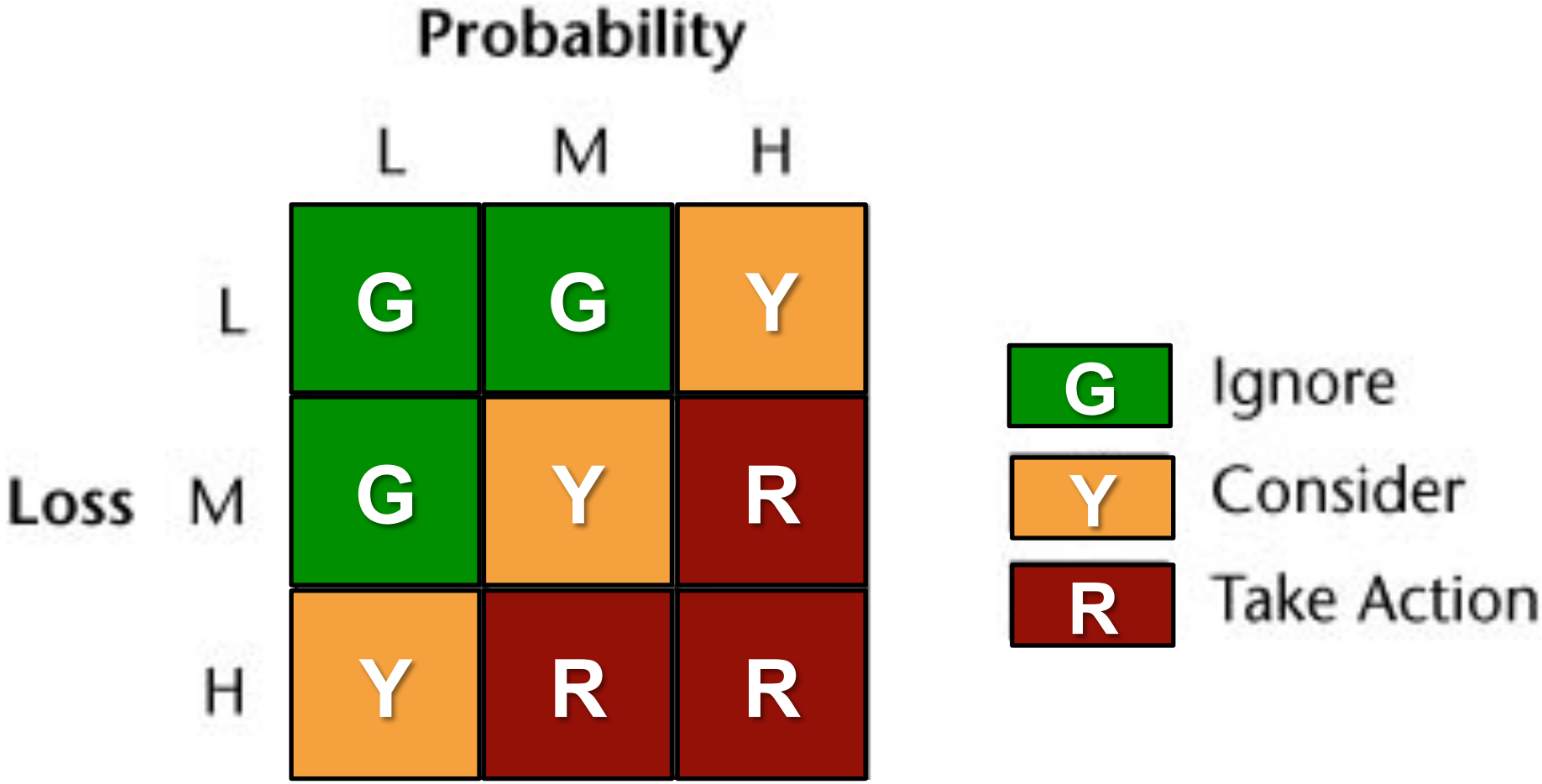
Landscape of Software Project Risks

Some Origins of Software Project Risks

- Poor risk management practices
- Under-defined scope or goals
- Misunderstanding context, options, & opportunities
- Poor time and priority management
- Cultural inability to cut our losses *(failure not an option)*

It's obvious in retrospect

Qualitative Estimation



Dynamic Risk Estimation

Project Activity	A	B	C	D	E	F	G	H	I	J	Score
Rqmnts Anlys	2	3	3	2	3	3	2	2	1	1	22
Specifications	2	1	3	2	2	2	1	2	2	3	20
Prel Design	1	1	2	2	2	2	1	2	2	2	17
Design	2	1	2	2	2	3	1	2	2	1	18
Implement	1	2	2	3	3	2	1	2	2	1	19
Test	2	2	2	2	2	3	2	2	2	2	21
Integration	3	2	3	3	3	3	2	3	3	2	27
Checkout	1	2	2	3	3	3	2	3	2	2	23
Operation	2	2	3	3	3	3	3	3	1	1	24
Score	16	16	22	22	23	24	15	21	17	15	191

Maximum score is 270. Risk level for this project is 191/270 = 71%.

Risks are 1 = low, 2 = medium, 3 = high

More Dilbert on Risk

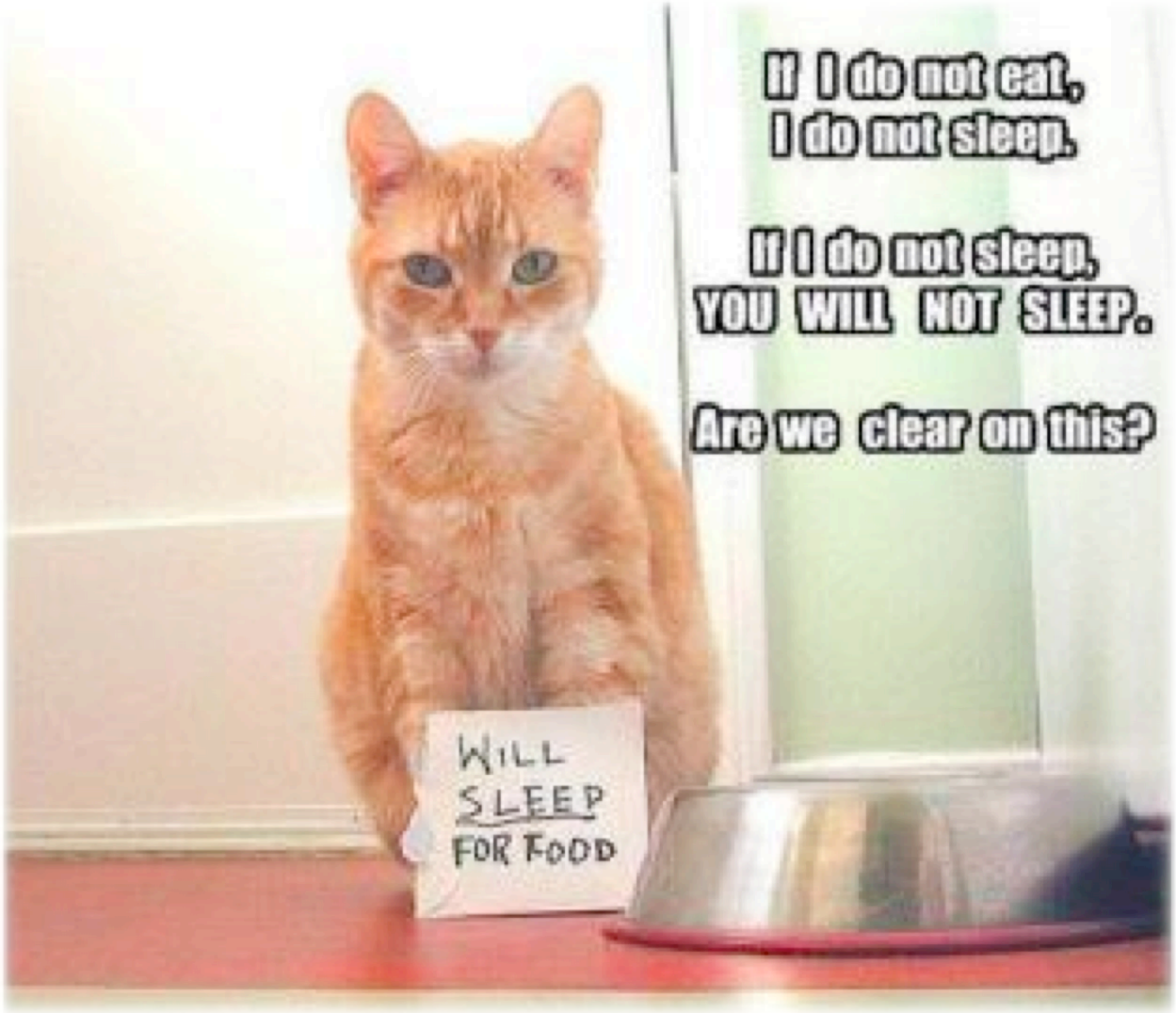
Discussion Problem

- You and 7 others are going to fly 1500 miles in a pedal-powered airplane.
- The plane can carry 3000 pounds of freight (including passengers) at 30 mph, when powered by 4 pedallers.
- Each team member can pedal for 4 hours continuously.
- If you lose power the plane crashes.

Your Task

1. Break up into five teams
2. Identify the risks
3. For each risk, estimate its probability and impact
4. Prioritize risks
5. Identify mitigation strategies for the most important half of the risks
6. Share your results with rest of class

Risks of Having a Cat...



Homework and Reading Reminders

- Please remember to bring laptop Monday for completing Course Plus/Delta on Angel
- Read Mythical Man Month Paper for Monday's class
- Complete Homework 3 – Software Estimate Using COCOMO-II or Costar
  - Due by 5pm, Tuesday, September 25th, 2012