ĐẠI HỌC ĐÀ NẴNG

TRƯỜNG ĐẠI HỌC CÔNG NGHỆ THÔNG TIN VÀ TRUYỀN THÔNG VIỆT - HÀN

Vietnam - Korea University of Information and Communication Technology

Software Project Management

Software is Different

http://vku.udn.vn/

Lecture Learning Objectives

- State of the Practice for Software Projects
- Software Project Management
- Observation: Why do so many software projects still fail, even with experienced project managers?
- Software Project Failures

Current Environment

“Why does software cost so much and take so long?”

A Chief Financial Officer

- **“I'd rather have it wrong than late. We can always fix it later.”**

A Software Project Manager

- **“The bottom line is the schedule. My promotions and raises are based on meeting schedule.”**

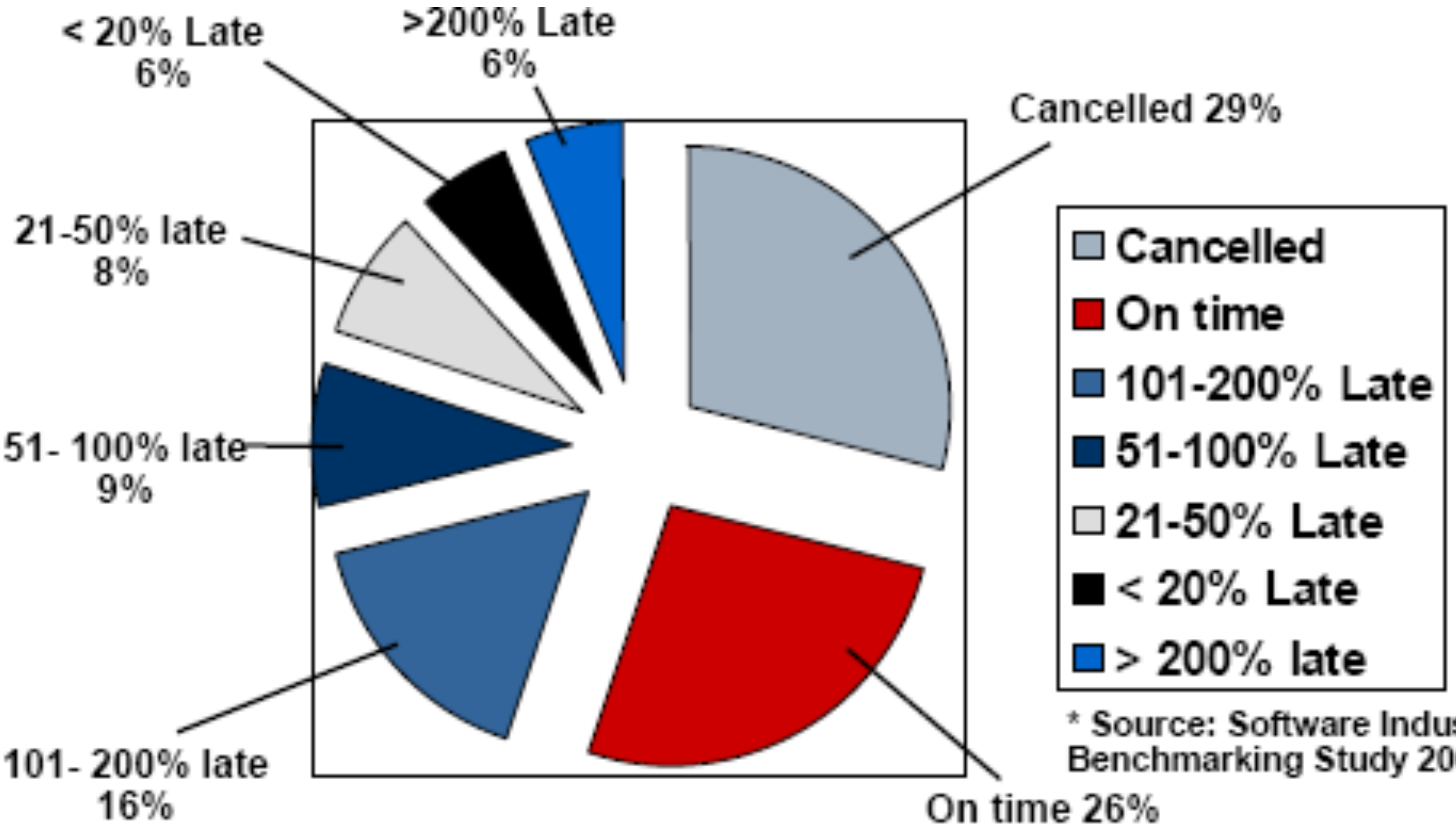
A Program Manager

State of the Practice

- Commitment to meet project schedule (mostly unreasonable) is the norm in software projects.
- Most schedules are not accurately estimated.
- Software is often shipped full of defects.
- Software work is high stress and requires long hours.
- Software development incurs large expenses due to its poor quality that requires lots of rework and tests.
- Accurate & correct status on projects are difficult to get due to unrealistic schedule pressure & over-commitment.

All of these issues can be attributed to lack of knowledge in project management, inadequate training, and inefficient application of skills and tools to manage software projects.

State of the Practice



* Source: Software Industry Benchmarking Study 2001

State of the Practice

- U.S. Government study on software project failure:
  - Most failed software projects were overly ambitious.
  - Management problems were the dominant causes, rather than technical problems.
  - Schedule overruns were more common (89%) than cost overruns (62%).
  - Of failed projects, 55% have not performed any risk management, and 38% who did, have not used risk findings to mitigate problems.
  - Using COTS packages did not help reduce the incidence of project failures.
  - Most organizations (94%) were very reluctant to discuss project failure.

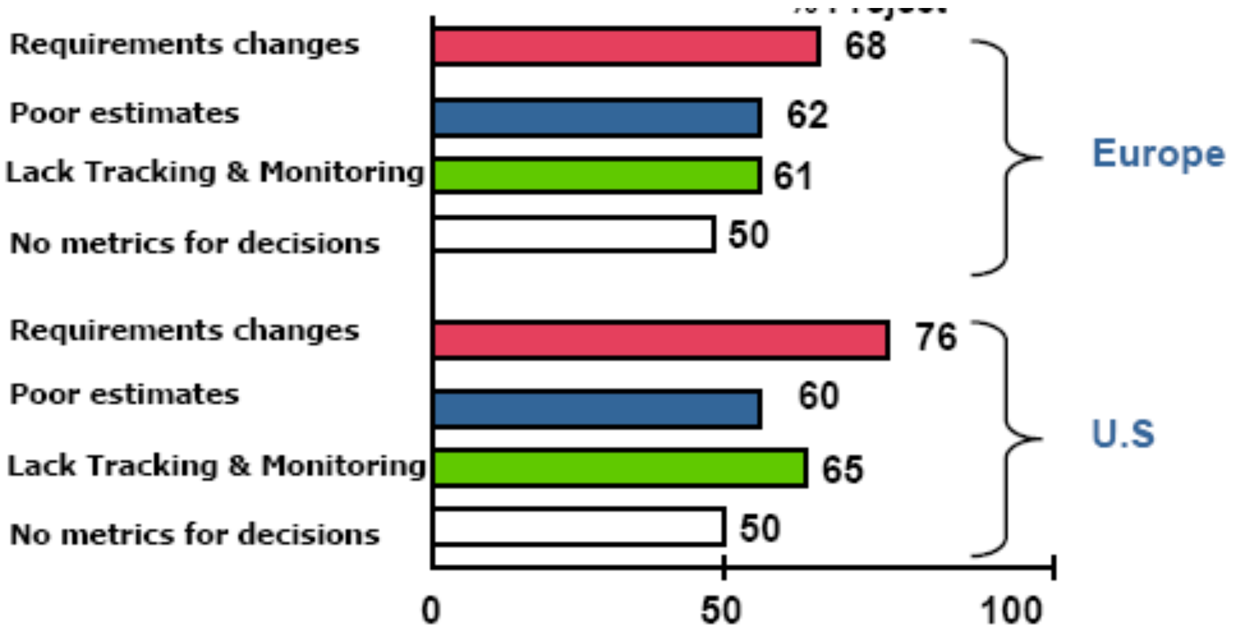
State of the Practice

- From 2001 Software Industry Benchmark Study:
  - Software costs and schedule are not estimated accurately.
  - Software is often shipped with lots of defects.
  - Software development work is high stress and requires long hours.
  - Software development incurs large expense due to rework and retest.
  - Accurate project status is difficult to obtain.

State of the Practice

- Software disasters have become common:
  - “Software Hell” Business Week (11/6/1999)
  - “Software Debacles are Routine” NY Times (1/22/2005)
  - “Lists of software problems and horror stories” (see references)
  - Book on “massive software project failures” (see references)
- Software Project Terminology:
  - “Software Crisis,” “Death March,” “Crunch Mode”

Reasons for Project Failure



Coopers & Lybrand Study of 536 software projects in 8 countries - 1995

Failed Software Projects ...

- Failed software projects have experienced, competent project managers and teams assigned to them, so why do so many still fail?

Why So Many Software Project Failures?

- “In most cases, [the software projects] simply failed to fulfill original expectations. I am convinced that most project failures are of this very nature, and, in most cases, it is not the fault of the project team at all. It is rather the fault of *inflated and unreasonable expectations.”*

Tom DeMarco, Controlling Software Projects, Page 4

Why So Many Software Project Failures?

- Poor use of estimation techniques
  - Poor understanding of the problem to be solved.
  - Consider the consequences of ‘Committing’ to schedules & budgets that are too big or small.
- Limited data collection & use during project execution
  - Don’t know how.
  - Culture doesn’t encourage/reward open & honest reporting & analysis of project data.
  - Do your stakeholders “want to know”? (can blame the project manager if they don’t know)
  - Have your stakeholders misrepresented the project? (on purpose)

Why So Many Software Project Failures?

- Inability to manage change
  - Death by 1,000 cuts.
  - Project structure unable to support change.
- Inaccurate reporting to stakeholders
  - You don’t know the actual status of your project.
  - You can’t predict your project’s future progress.
  - You are too busy to communicate.
  - There is no communication without rapport.
- Poor collection of historical data
  - You are too busy to learn.

Non - Software vs. Software Projects

- Static versus dynamic requirements
- Tangible versus intangible Product
- Disciplined versus non-disciplined
- Long history versus short history
- Physical versus mental

Summary

- Software is different.
- To avoid typical project failures a software project manager must be able to:
  - Use estimation techniques to accurately establish project size, schedule & budget.
  - Negotiate reasonable expectations with stakeholders.
  - Implement infrastructure improvements such as change management, configuration management and automated test and release.
  - Gather metrics and use them during project execution and for historical purposes.
  - Communicate accurate project status, progress & risks.

Questions & Answers

Software is Different