Challenges in Information Systems Development

Based on Chapter 2 of Bennett, McRobb and Farmer:

Object Oriented Systems Analysis and Design Using UML, (4th Edition), McGraw Hill, 2010.

In This Lecture You Will Learn:

- The main players in an IS project
- The problems in IS development
- The underlying causes of these problems
- How the *stakeholder* concept helps identify ethical issues in IS development
- The costs of problems and ethical issues

Systems Development is a Journey

- Many possible routes
- Developers need guidance
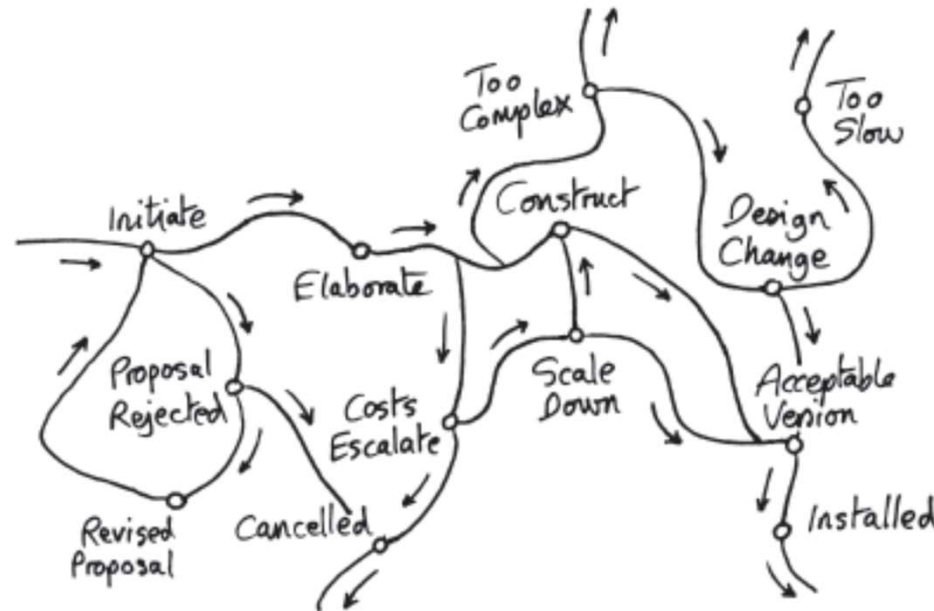
Costs of Failure

- These can be very high indeed
  - LSE Taurus project estimated at £480M - cancelled before delivery (Drummond 1996)
  - One survey shows up to 2 projects in 3 are unsuccessful in the USA (Standish 2009)
  - Another survey found less than 50% of UK projects met expectations (Veitch 2007)
- But who says a project has failed?
- A different picture from different stakeholders

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What Do We Mean by Problem?

- An IS project may fail before delivery
    - The LSE Taurus project was cancelled
- An IS may fail after delivery
    - The LAS system was withdrawn after implementation
- An IS may be continue to be used, despite causing problems to its users, its owners or its developers

The Main Players

- Three main types of stakeholder are involved in an IS development project:
    - Those who will benefit from the system's outputs, directly or indirectly (end-users)
    - Those who commission the project, pay for it or have the power to halt it (owners or sponsors)
    - Those who will produce the software (developers)

End-user View

- End-users may be those who directly operate the software

- Or they may be more remote, e.g. a manager who receives printed reports

- Typical concerns include:
  - A system that is promised but not delivered
  - A system that is difficult to use
  - A system that doesn't meet its users' needs

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End-user View (cont'd)

- Systems that are hard to use may be seen as a failure by their users

- Unhelpful error messages are just one of the ways a system can be hard to use

Some Software Package - Error ☒

❌ The program has encountered an unexpected error.:
Object reference not set to an instance of an object.

OK

Owner View

- Owners care about meeting business needs and about value for money
- Typical concerns include:
  - Projects that overspend their budget (may no longer have a net benefit)
  - Systems that are delivered too late
  - Badly managed projects
  - Systems that are rendered irrelevant by events

Developer View

- IS developers sometimes have a difficult time
  - Budget and time constraints often conflict with doing the job properly
  - Users and owners may not know how to ask for what they really want
  - Technologies, development approaches and business needs all constantly change

Why Things Go Wrong

- Whether a system is delivered or not, many things can go wrong

- Flynn (1998) categorizes the main causes as:

    - Quality problems
    - Productivity problems

Quality Problems

- ## The wrong problem is addressed

  - Failure to align the project with business strategy

- ## Wider influences are neglected

  - Project team or business managers don't take account of the system environment

- ## Incorrect analysis of requirements

  - Poor skills or not enough time allowed

- ## Project undertaken for wrong reason

  - Technology pull or political push

Productivity Problems

- Users change their minds
- "Requirements Drift"
- External events
  - E.g. introduction of the Euro currency
- Implementation not feasible
  - May not be known at start of the project
- Poor project control
  - Inexperienced management or political difficulties

Ethics Issues and Stakeholder Problems

- Some IS may affect people far beyond obvious users and owners of the system
  - Cellphone companies collect data about subscribers' calls and physical movements
  - This data can be passed to police and many other government agencies
  - Do you know what data is stored about you? Who by? And what it is used for?

Stakeholder Analysis

- This approach tries to identify everyone affected by a proposed IS
  - Who are the stakeholders?
  - How does the system affect each group?
  - What are their legitimate concerns?
  - Are there any legal implications, e.g. Data Protection Act in the UK?

Summary

In this lecture you have learned about:

- The main players in an IS project, and how they perceive the potential problems

- The origins of the main types of problem

- How stakeholder analysis can help identify ethical impacts of an IS

References

- Bennett, McRobb and Farmer (2010)
- Flynn (1998)

See also www.ccsr.cse.dmu.ac.uk

(For further bibliographic details, see Bennett, McRobb and Farmer)