Software Development: Tools and Processes

Lecture - 15: Software project failures
Software projects failure

Software project failure is very common and according to statistics, **95% projects are at least done for the second time**. The failure ranges from total failure (project abandonment) to partial failure (not fulfilling all the needs of the customers). This situation is alarming and needs immediate attention.
Software projects failure

With growing complexity in today's business environment and more reliance on IT, the software solutions have become more critical and their success is much desired.

These days the software not just the means of improving the productivity of business but these are the means of doing business.
Definition of Successful Project

Therefore, we can call the projects successful if the project satisfies the following:

- Completed in time
- Completed within budget
- Has got the desired functionality
Software projects failure

There are two approaches to address the current problem of project failure

Find the major reasons for failure

Find the actions which increase the chances of success of project (key success factors)
Attempt to avoid failure: learning from hindsight

the idea:
if we can find generic failure factors, then we will be able to identify troubled projects, quite early, and take remedial measures

We can call these factors “critical failure factors”
Attempt to avoid failure: learning from hindsight

Using the critical failure factors framework, we can achieve one of the below mentioned objectives:

• Check the status of the project, its deviations from planned so that actions can be taken to put project back on track

• Terminating the project before the failure becomes a disaster

Project may be moving from success to failure
OR
from failure to disaster
What are the major failure reasons?
We will develop a framework to study identify the Critical Failure Factors (CCF)
The critical failure factors framework

- Project
- Project management
- Organizational context of project
CFF: The organizational context of project

“Success has many parents but failure is orphan”

Hostile culture

One should not bring the bad news

Messenger of bad news is shot down

Messenger of problems is required to find solution

Tendency to make scapegoats

As a result, bad news fail to be passed on

Evaluate the culture, and remove hostility
CFF: The organizational context of project

**Poor reporting structure**

Senior management is not aware of progress

Senior management is not involved

Usually this happens when the projects are long and complicated

Responsibility is assigned to project managers …

*Project reviews can be the solutions*

*Management reviews vs. external reviews*

*Anonymous suggestion box*
CFF: The management of project

Over-commitment

Project managers should be committed to success of project
But commitment can turn into over-commitment?
Over commitment turns a failure into a disaster
Biased view thus creates optimistic reporting
Un-necessary perseverance creates problems
Success of project is linked with people
Recognition of over-commitment by the project manager
Establishing an open-project-culture
Impartial reviews of progress?
Reassign the project managers
CFF: The management of project

Over-commitment & decision making escalation

There is a tendency of throwing good money after bad money.

There is a four stage escalation model which helps us understand the pattern and reasons for over commitment:

1. Project factors
2. Psychological factors
3. Social factors
4. Structural factors
CFF: The management of project

Political Pressures

Influential outsiders
  e.g. setting an early date for going live

Internal power struggles
  projects becoming symbol of power & struggle

External power struggles
  advantage over the competitors – reputation in market
CFF: Conduct of the project: initiation phase

Technology-focused developments

Technical solutions tend to ignore the human factors
Financial and political realities are ignored

Focus should be on organizational, human, & technical factors
CFF: Conduct of the project: initiation phase

**The lure of leading edge**

Latest technology does not always give the competitive edge
Financial and political realities are ignored
Failure to identify the risk in adopting the new technology

**Complexity underestimated**

In order to gain project approval, complexity is ignored
Time slippages and unforeseen problems are indicators
CFF: Conduct of the project: Analysis & Design

**Poor consultation**
Inadequate consultations with major stakeholders
Defer the system development, in face of such risks
All affected groups should be involved early

**Design by committee**
Committees are formed from diverse groups of organizations
CFF: Conduct of the project: Analysis & Design

**Technical fix for management problem**

New tools should not be used to fix management problems?

e.g. attempt to overcome understaffing using technology

**Poor procurement**

Involvement of un-related staff in technology procurement systems
CFF: Conduct of the project: Development phase

Staff turnover

It happens in almost all projects
It should be low and manageable
Regular turnover is indicator and alarm should be raised
Look for staff morale, project problems, management problems

Competency

Non-technical managers cannot assess technical competency
People should be competent in their areas: QA, Dev, SCM

Split Sites

Communication problems and work group problems?
CFF: Conduct of the project: Implementation

Receding deadlines
Continuous deadline slippages is alarm indicator
Disasters are due to termites; not the tornadoes?

Inadequate testing and training
Inadequate testing is one indicator of under pressure project
People go Live with partially tested systems
Staff should be given training before the system goes live

Split Sites
Communication problems and work group problems?
Another view of the problem

Failures can be analyzed from two aspects:

• Failure due to discrepancies in development process – vendor

• Failure due to lack of support of project sponsor - customer
Another view of the problem

Failure due to discrepancies in development process – vendor

- Project does not get completed within budget and time
- Requirement were not properly gathered and scope of the software was not estimated properly –
- Rework on the project is too much – sometimes rework on the project is greater than initial development cost
Another view of the problem

Failure due to lack of support of sponsor – customer

- No RFP is prepared for the project. OR its too vague and incomplete to qualify for RFP
- Ownership of the project is not properly defined within the organization – Person who is involved in development process, is not the actual owner.
- ROI is not calculated before undertaking a software project – just like any other business activity, ROI should be calculated to justify the execution of a software solution. In this way, the objectives of the project, expected benefits will become more clear.
Conclusion:
The development process should be designed and engineered in such a way which helps in overcoming the problems in both domains