

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Software Requirement Engineering

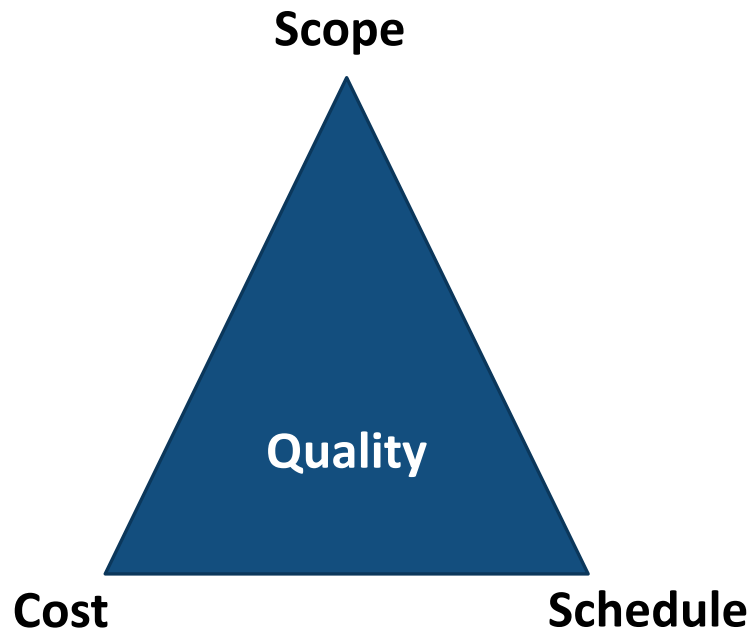
LECTURER: SYED HASNAIN ABBAS BUKHARI

Which one?



Software Engineering

- ❑ “The application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software”. [IEEE]



Software Engineering

☐ “Successful software development **is about creating value, not software**”

☐ Fitness of purpose

☐ Quality

☐ Risk

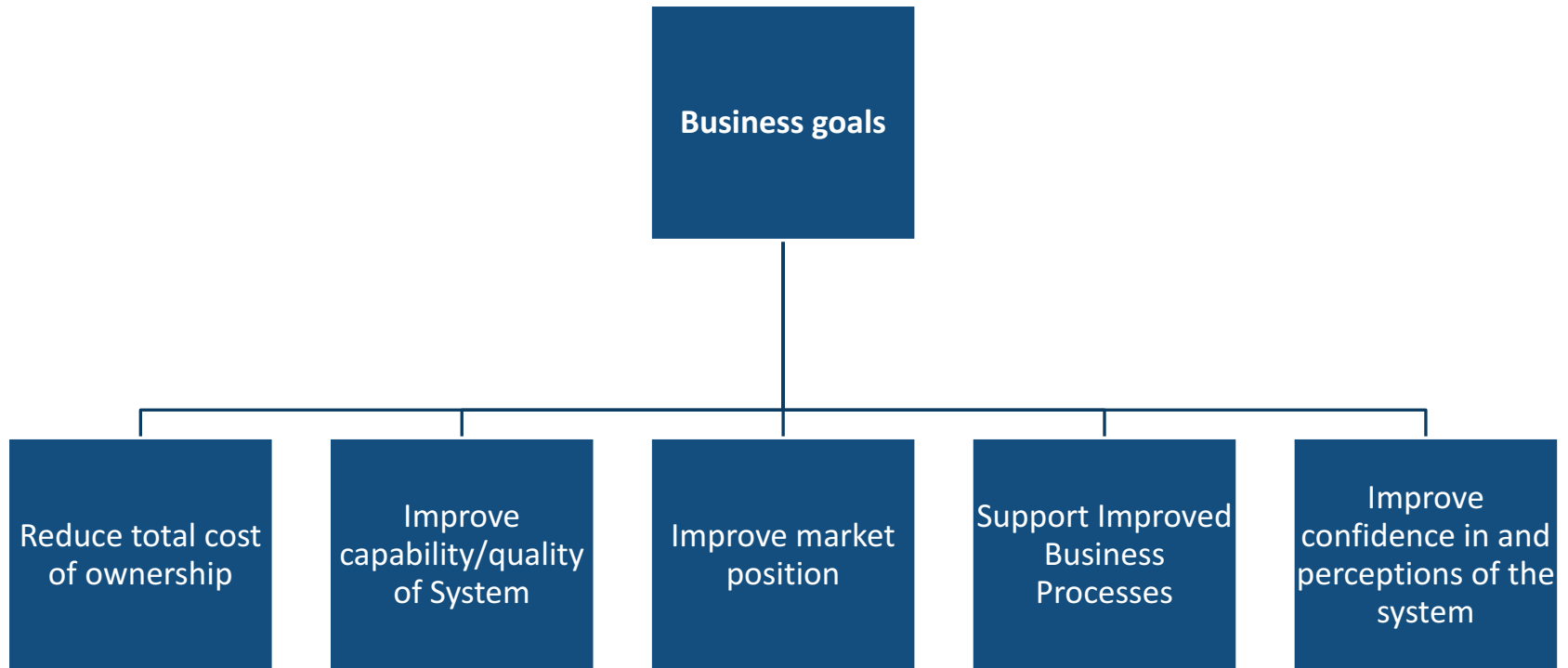
☐ Cost of Operation

☐ Warranty

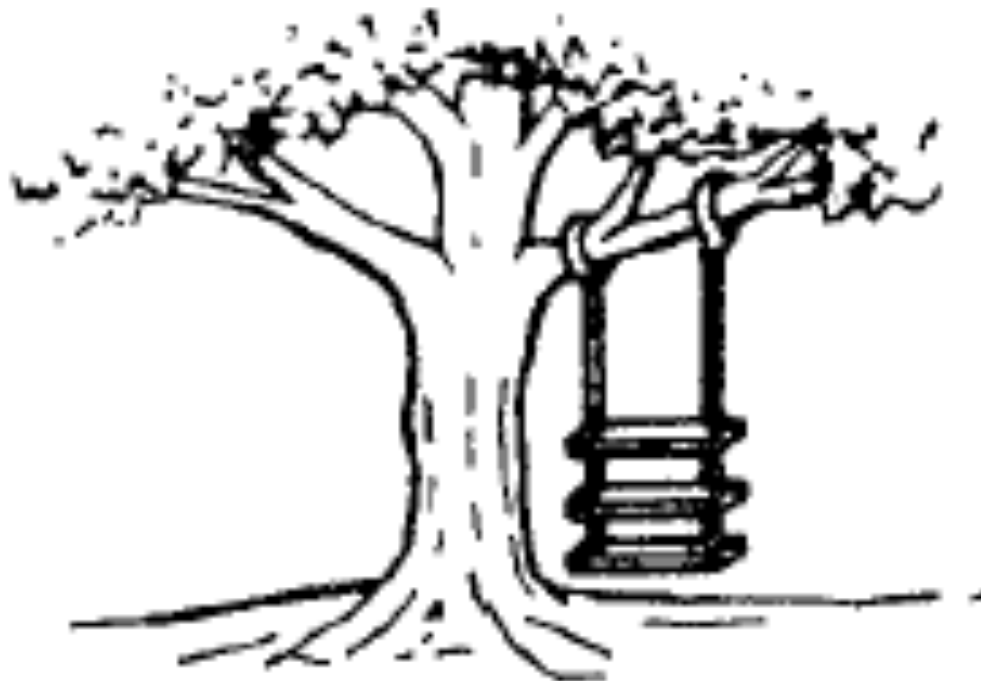
☐ Life

☐ Cost

Goals of a software system

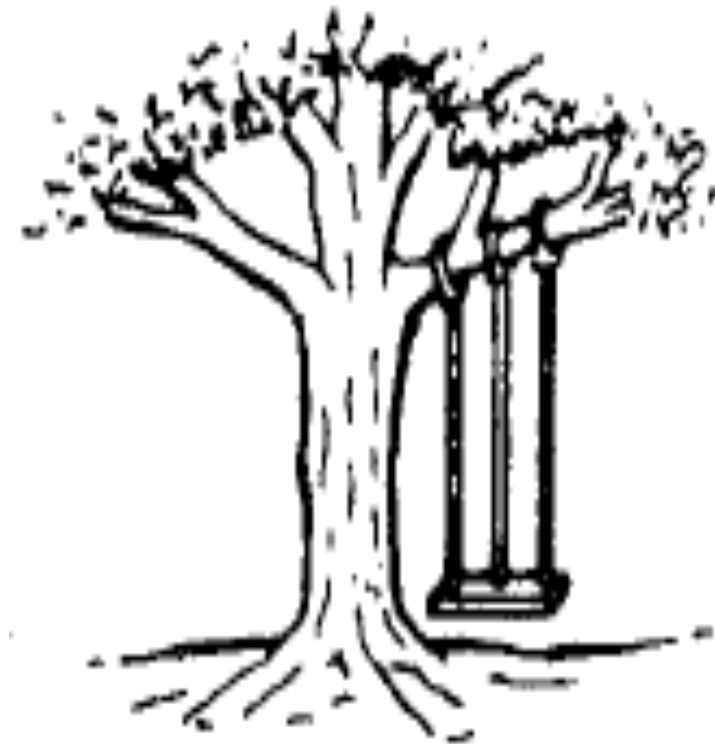


User Requirements



**AS PROPOSED BY THE
PROJECT SPONSOR**

User Requirements



**AS SPECIFIED IN THE
PROJECT REQUEST**

User Requirements



**AS DESIGNED BY THE
SENIOR ANALYST**

User Requirements



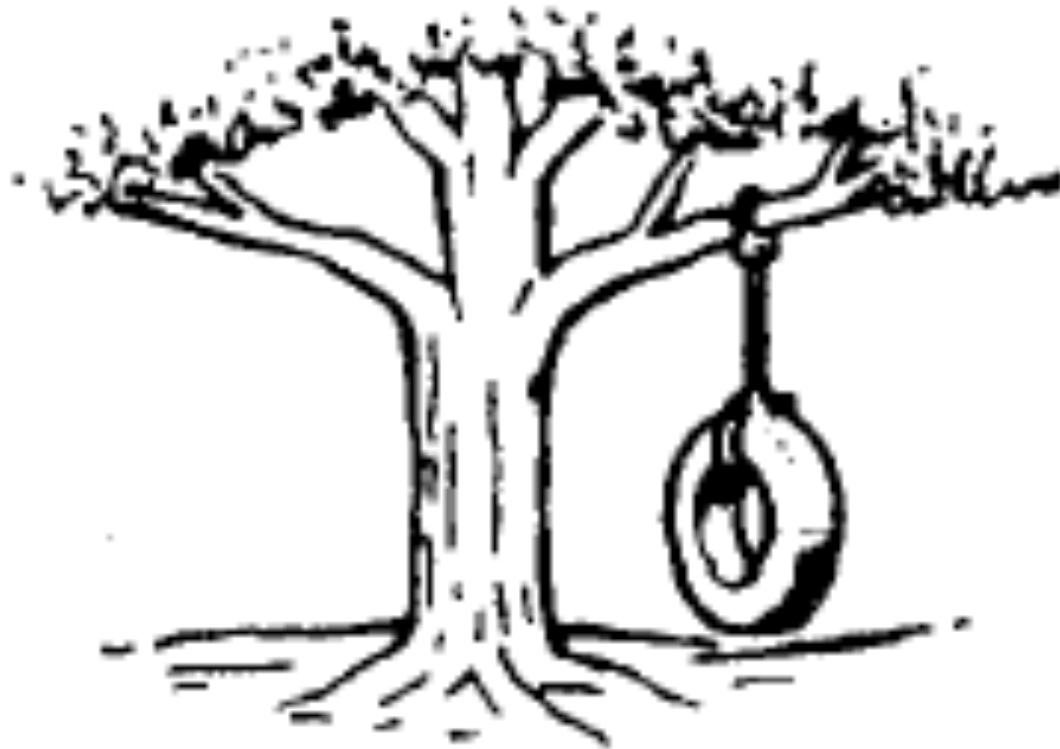
**AS PRODUCED BY
THE PROGRAMMERS**

User Requirements



**AS INSTALLED AT
THE USER'S SITE**

User Requirements

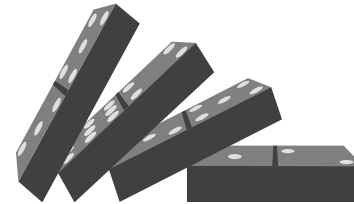


WHAT THE USER WANTED

Requirements – A Problem

Approximately 60%-70% of IT project failures result from poor requirements gathering, analysis, and management.

– Meta Group, March 2003



“If you do a post-mortem evaluation on unsuccessful software projects, you'll find that most of them failed because the person responsible didn't properly manage the project's requirements and expectations.”

Requirements – A problem

☐ A study by project management consulting company identifies five top causes of troubled projects:

☐ **Requirements:**

☐ Unclear

☐ Lack of agreement

☐ Lack of priority

☐ Contradictory

☐ Ambiguous

☐ Imprecise

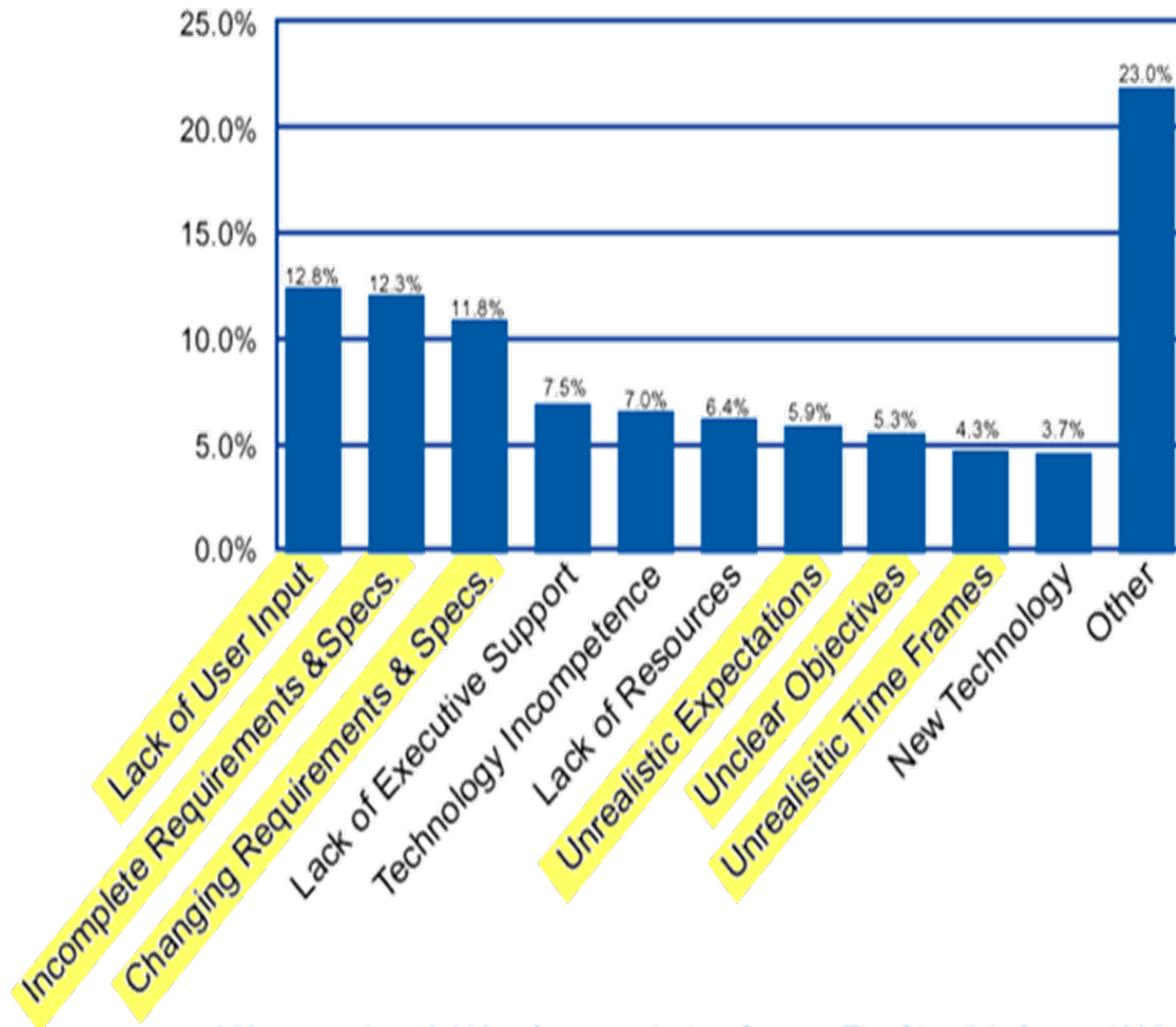
☐ **Resources:** Lack of resources, resource conflicts, turnover of key resources, poor planning.

☐ **Schedules:** Too tight, unrealistic, overly optimistic.

☐ **Planning:** Based on insufficient data, missing items, insufficient details, poor estimates.

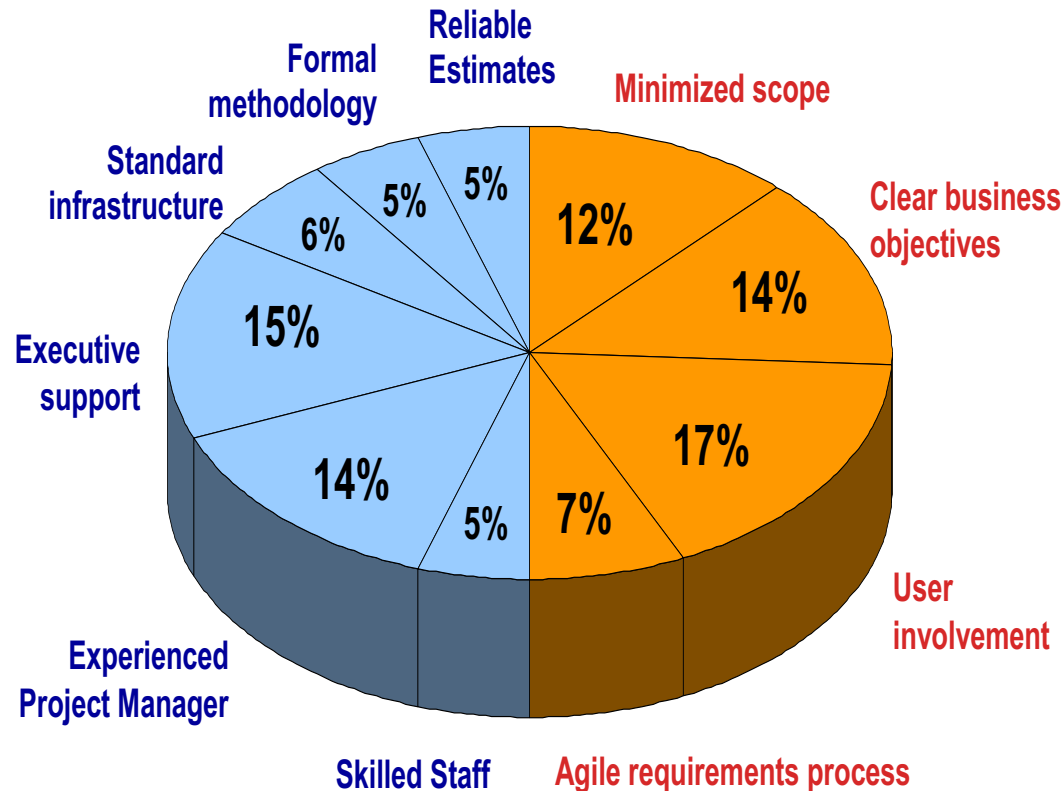
☐ **Risks:** Unidentified or assumed, not managed.

Requirements - A problem



352 companies - 8,000 software projects. Source: *The Standish Group, 1995*

Project Success & Requirements



Source: "Chaos Chronicles, III, 2003".
www.standishgroup.com

The hardest single part of building a software system

□ “... is **deciding what to build**. ... No other part of the work so cripples the resulting system if done wrong. No other part is more difficult to rectify later”

-F.P. Brooks

“No other part is more difficult to rectify later”

**❑ Companies pay a premium of as much as 60% on
time and budget when they use poor
requirements practices on their projects.**

Requirements?

❑ A condition or capability to which a system must conform.

-(RUP)

❑ “The *descriptions of* the **services** and **constraints** are the requirements for the system”.

-(Sommerville)

Requirements?

□ The IEEE definition

1. A condition or capability needed by a user to solve a problem or achieve an objective.
2. A condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document.
3. A documented representation of a condition or capability 1 or 2.

Requirements Engineering

□ “The *process of* finding out, analyzing, documenting and checking these services and constraints is called Requirements Engineering.”

-(*Sommerville*)

□ A systematic approach to eliciting, organizing, and documenting the requirements of the system, and a process that establishes and maintains agreement between the customer and the project team on the changing requirements of the system.

سب سے زیادہ جاہل وہ ہے جو گناہ سے باخبر
ہوتے ہوئے بھی گناہ کرے۔۔۔!!

حضرت (امام) شافعیؒ