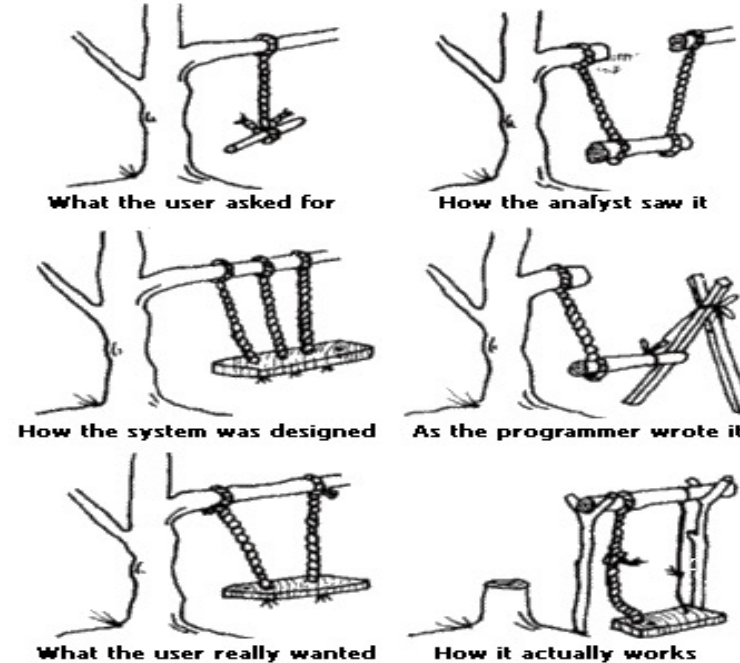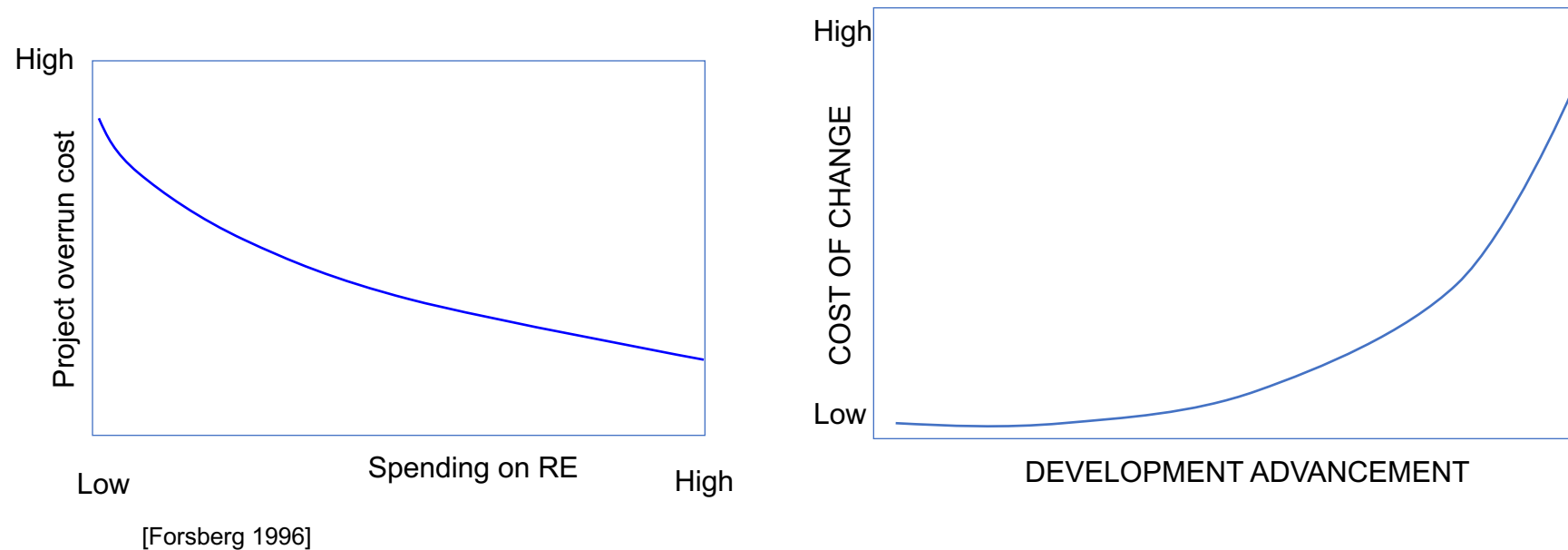# What is Software Project Requirement?

- The Definition of **what** the product should do. Includes graphical models and textual description of

- Brooks, 1995: The hardest part of building a software system is deciding precisely **what** to build.

What the user asked for

How the analyst saw it

How the system was designed

As the programmer wrote it

What the user really wanted

How it actually works

- Also known as "Requirements Engineering":
  - concerns how to decide what system we are going to build…
    - Understand, analyze, and build the systems requirements models, and focus on 4-Ws:
    - What problem to be solve
    - Why such a problem should be solved
    - Who should be involved
    - And How-good should be built

Why Requirements Analysis Is Important

- Alternative ways to handle the same problem

- Possibility to break the traditions

- Volume of the requirement

- Requirements conflicts

- must be measurable and testable

- must be documented carefully to be sufficient for system design.

- Time and budget limitations

High

Project overrun cost

Low   Spending on RE   High

[Forsberg 1996]

High

COST OF CHANGE

Low

DEVELOPMENT ADVANCEMENT

Knowledge Elicitation

What is Knowledge Elicitation?

- Elicitation: the process of learning, uncovering, extracting, surfacing, or discovering needs of customers, users, and other potential stakeholders.

  - Business and technical requirements are mostly residing in the minds of stakeholder, and rarely documented somewhere. Therefore, it needs a logical and meticulous methodology.

- Usually project requirements need to be elicited, as thorough discovery of business requirements is rarely readily available at the system analysts' fingertip.

Elicitation Challenges

- Bias
  - People may not be free to tell you what you need to know
    - Political climate & organizational factors•
- Hidden Agendas
  - People may not want to tell you what you need to know
- Conflicting goals
  - People have different understandings
  - Conflicting understanding
- Thin spread of domain knowledge
  - It might be distributed across many source
- Tacit knowledge:
  - The knowledge that is hard to explain
- (The "say-do" problem)
  - There is significant difference between what people say and what they do
- Limited observability
  - Presence of an observer may change or affect the process

Required Understanding

- Business objectives, goals, and policies
- Information about people need to do the job
- Data and its movement
  - Places that data rests
  - Sequence and dependencies of data handling activities.
- Rules governing data:
  - Security, sensitivity, back up.
- Key events affecting data. Eg:
  - Sale of item.
  - New customer
  - New staff

Common Elicitation Techniques

Knowledge Elicitation Techniques

- Interviews and Questionnaires
- Observations and Review of Protocols and Documents.
- Group discussions and meeting
- Diagram-based techniques
- Hierarchy-generation techniques
  - Goal analysis trees
  - Decision trees
  - Fault analysis tree
  - Laddering techniques such as concept ladder, decision ladder
- Matrix-based techniques:
  - Decision Matrix