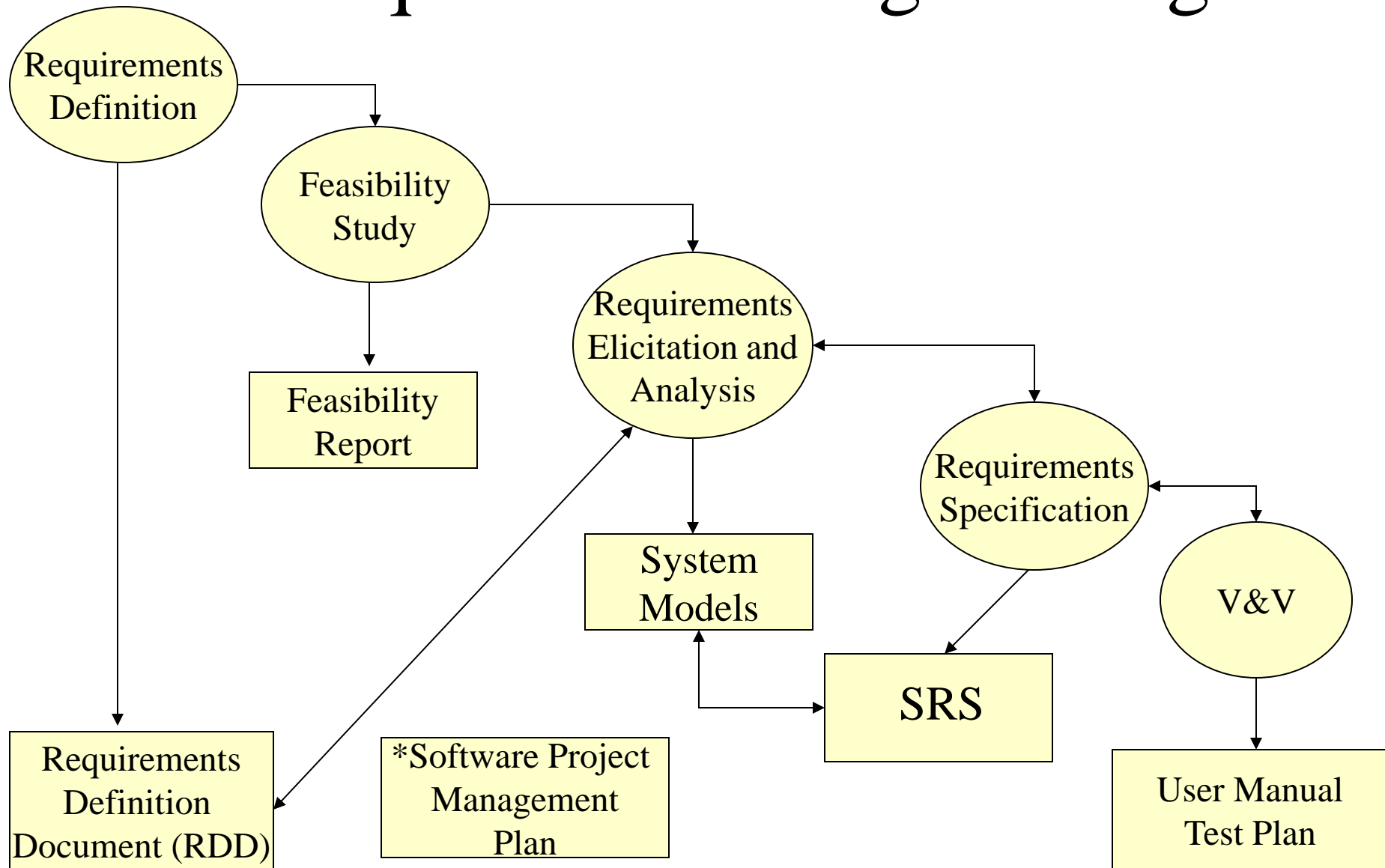
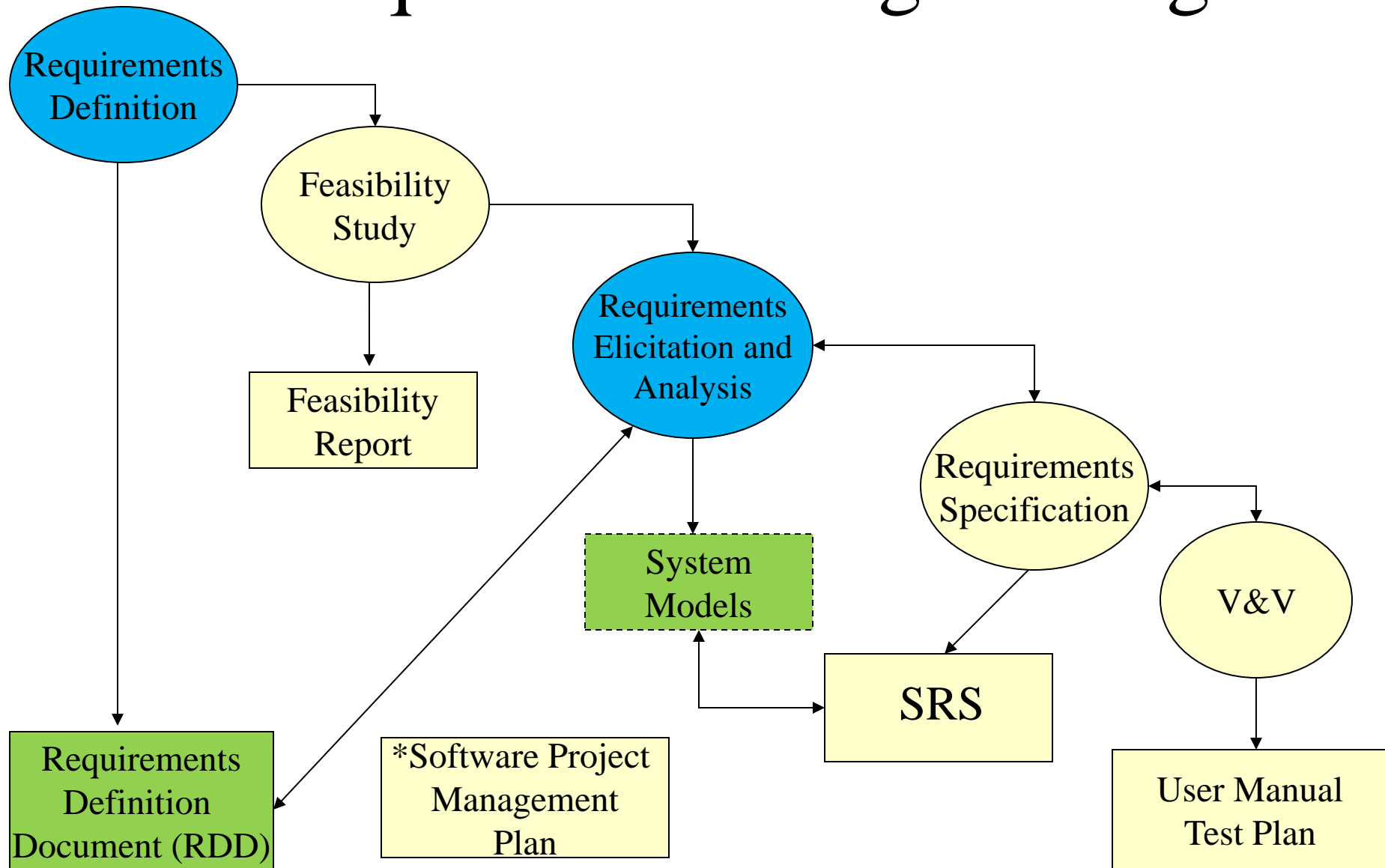


# Feasibility Study

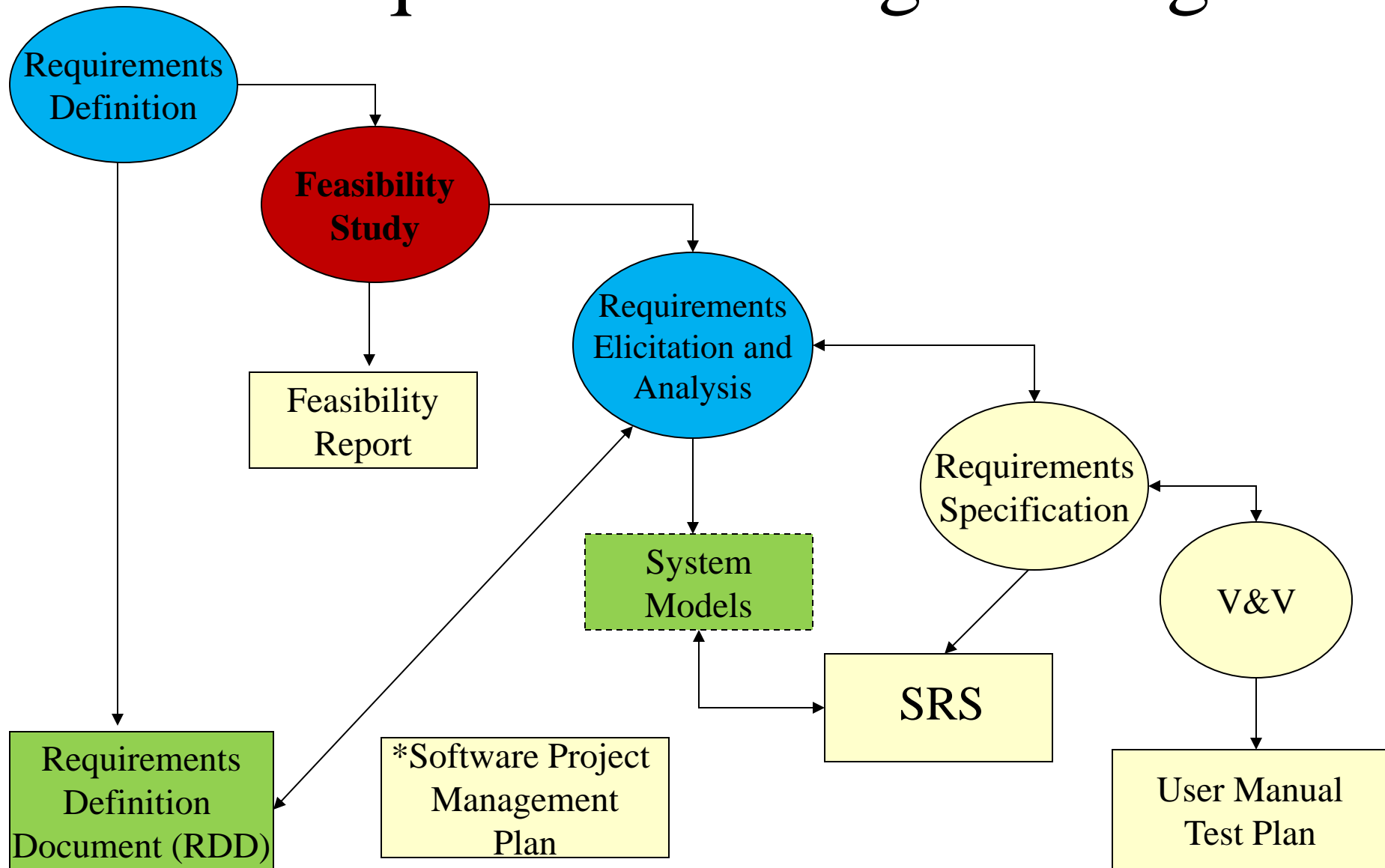
# Requirements Engineering



# Requirements Engineering



# Requirements Engineering



# Feasible

- Feasible (‘fee-ze-bel’)
  - capable of being done or carried out;
  - capable of being used or dealt with successfully;
  - reasonable, likely.

# Questions:

Can we build a (software) system to meet the client's expectations?

Can we build it under the constraints (cost, time, personnel, ...)?

# Motivation?

- Not everything that is imaginable is feasible.
- Not everything that is possible is feasible.
- Not everything that is technically feasible makes good business sense, i.e., is not feasible in the business environment.

# Three Main Questions About the Feasibility of a Project

- Does it contribute to the overall objective of the organization?
- Can it be implemented using current technology within cost and schedule constraints?
- Can it be integrated with existing systems (data transfer, procedures)?



# More Questions:

- What are problems with the current system/procedure, and how will the new system address those?
- How will the new system contribute to the business objectives?
- Does it require “new” technology (technology new to this organization)?
- What must be supported in order for the proposed system to function adequately?

# Feasibility Study Needs to be ...

- Inexpensive
  - We are deciding whether to continue the project.
  - Shouldn't invest resources with no return.
- Quick
- Accurate
  - Conflicts with other items here ...

# Cost Estimation Approaches

- Delay estimation until later
  - Accurate, but not useful
- Base estimation on similar project
  - Assumes you have this experience
- Use models to project
  - Estimates based on size
  - COCOMO (and others)

# Feasibility Study

- Dimensions of feasibility
  - Technology
  - Finance
  - Time
  - Resources

# Dimension of Feasibility Study-1

- **Technical feasibility** is a measure of the practicality of a specific technical solution and the availability of technical resources and expertise.
  - Is the proposed technology or solution practical? Is the technology mature?
  - Do we currently possess the necessary technology?
  - Do we possess the necessary technical expertise, and is the schedule reasonable?

# Dimension of Feasibility Study-1

- Finance
  - Is the project financially feasible?
  - Can development be completed at a cost the software organization, the client, or the market can afford?
  - **Economic feasibility** is a measure of the cost-effectiveness of a project or solution. This is often called a *cost-benefit analysis*.

# Dimension of Feasibility Study-2

- Time
  - Will the project's time-to-market beat the competition?
- Resource
  - Does the organization have the resources needed to succeed?

# Dimension of Feasibility Study-3

- **Operational feasibility** is a measure of how well a specific solution will work in the organization. It is also a measure of how people feel about the system/project.
  - Does management support the system?
  - How do the end-users feel about their role in the new system?
  - What end-users or managers may resist or not use the system? Can this problem be overcome? If so, how?
  - Usability analysis
    - Ease of use, Ease of learning, User satisfaction



# Document Outline

## 1. Introduction

1.1 Overview of the Project

1.2 Objectives of the Project

1.3 The Need for the Project

1.4 Overview of Existing Systems and Technology

1.5 Scope of the Project

1.6 Deliverables .

## 2. Feasibility Study

2.1 Financial Feasibility

2.2 Technical Feasibility

2.3 Resource and Time Feasibility

2.4 Risk Feasibility

2.5 Social/Legal Feasibility

## 3. Considerations

## 4. References

# Contents of Report

- Definition of the problem.
- Criteria for comparing solutions.
- Alternate solutions
  - Cost estimation
  - Resources
- Input: outline of system description and how it will be used.
- Output: brief report recommending if it is worth doing.

# Introduction

- Introduction
  - Purpose of the Feasibility Report.
  - Project Description.
  - Justification for the Proposed System.
  - Desired System Functionality.
  - User Interface Description.

# Considerations

- This section establishes the criteria upon which you will evaluate possible solutions.
- Identify the primary concerns related to this project.
- Decide what aspects of the system are most important. Performance? Security? Usability?
- What features in the system matter most?
  - Reliability
  - Robustness
  - Maintainability
  - Delivery time

# Existing Systems

- Describe existing systems that achieve or partially achieve the goals of the proposed system.
- The section includes
  - language discussions.
  - software development tools and libraries.
  - database systems.
  - other tools or software that you might use to build a solution.

# Solutions

- Describe possible solutions.
  - Each solution should be complete in the sense that it will fully achieve the goals of the proposed system.
- Solution X.
  - Description (include requirements met).
  - Resources Needed.
    - Include software, hardware, experience, training.
  - Limitations.

# Risks

- Risks and Cost Estimates.
  - Risks and risk mitigations.
  - Schedule and cost estimates
    - Hardware & software
    - Level of effort
  - Ability to build
  - Stability of technology

# Level of Detail

- Assume that the reader is a competent graduate of a CS program.
  - Don't tell us about Java, C++, or SQL.
  - Tell us about technology for the system.
- Provide information, not advertising.
  - What does a technology do for us?
  - The solution you recommend may be the one you implement.



# Grand Challenge Question

- Can you trace requirements to the *Feasibility Report* ?