CSE347
Information System Analysis and Design

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Topic:1

- System Development Life Cycle

The System Development Life Cycle
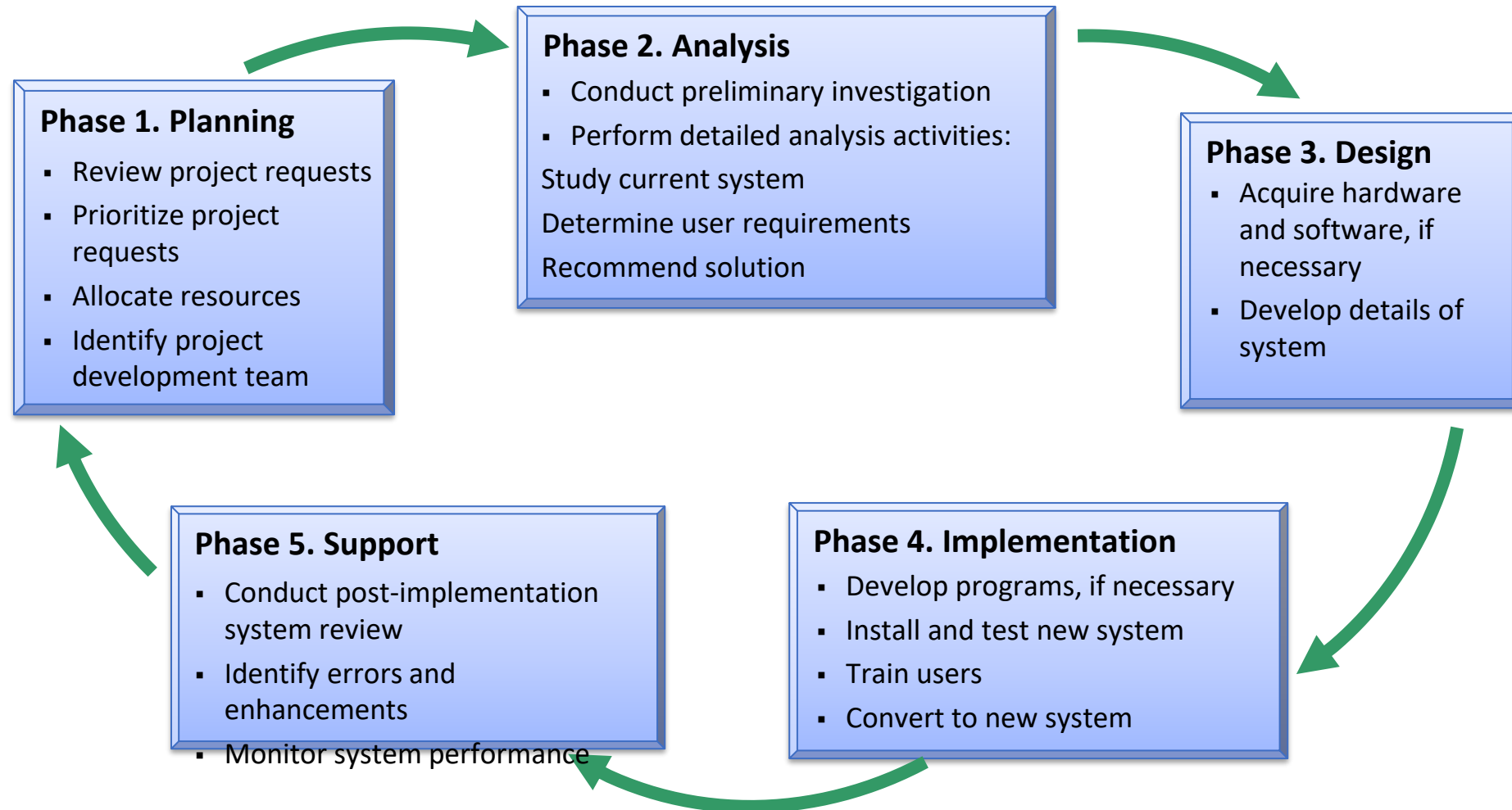
What is an information system (IS)?

Hardware, software, data, people, and procedures that work together to produce quality information

System—Set of components that interact to achieve common goal
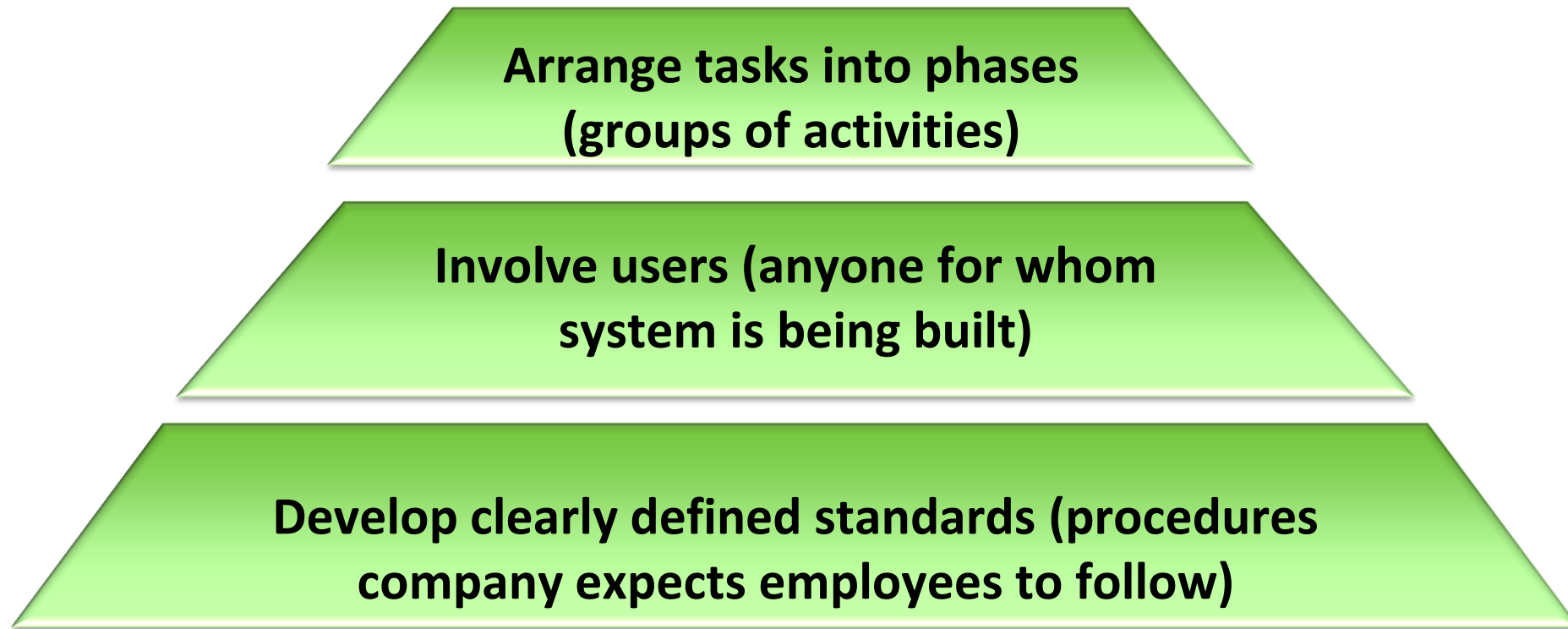
Businesses use many types of systems

The System Development Life Cycle
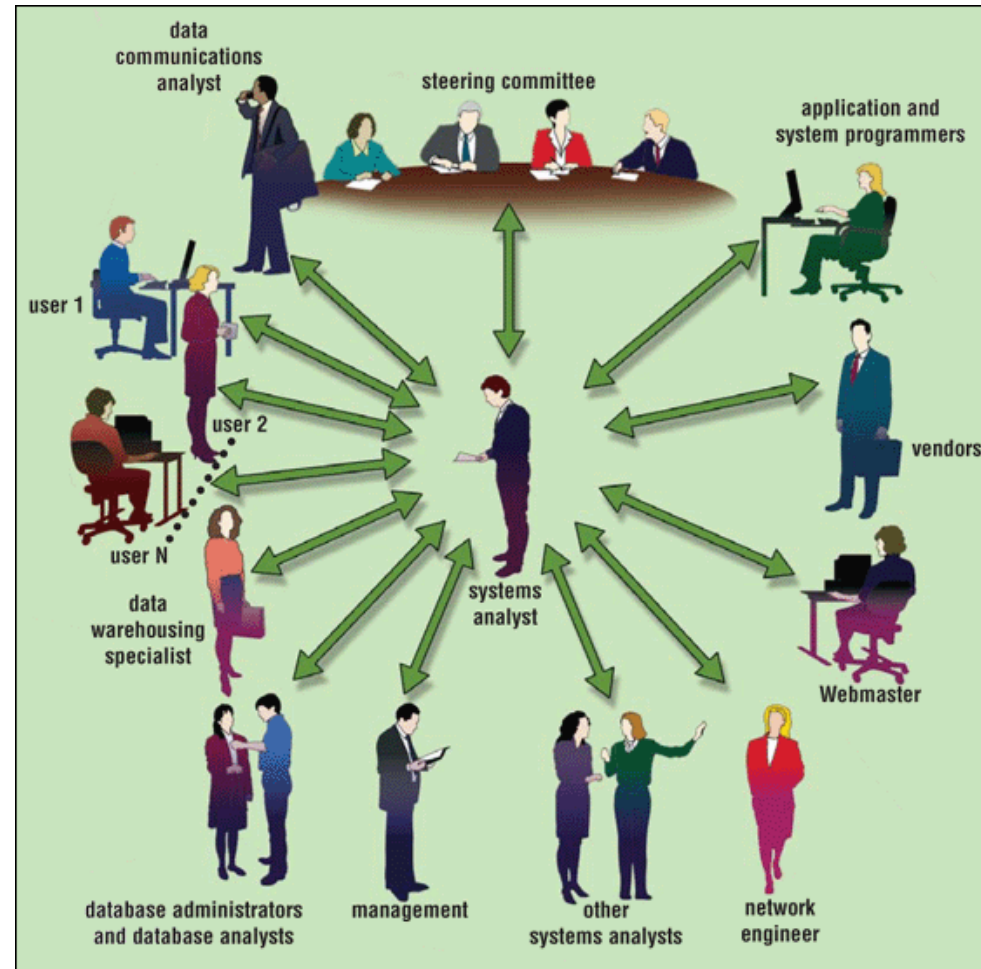
What are the phases of the system development cycle?

Phase 1. Planning
- Review project requests
- Prioritize project requests
- Allocate resources
- Identify project development team

Phase 2. Analysis
- Conduct preliminary investigation
- Perform detailed analysis activities:

Study current system

Determine user requirements

Recommend solution

Phase 3. Design
- Acquire hardware and software, if necessary
- Develop details of system

Phase 4. Implementation
- Develop programs, if necessary
- Install and test new system
- Train users
- Convert to new system

Phase 5. Support
- Conduct post-implementation system review
- Identify errors and enhancements
- Monitor system performance

The System Development Life Cycle

What are guidelines for system development?

Arrange tasks into phases
(groups of activities)

Involve users (anyone for whom
system is being built)

Develop clearly defined standards (procedures
company expects employees to follow)

The System Development Life Cycle

Who participates in the system development life cycle?

The System Development Life Cycle

What is a systems analyst?

Responsible for designing and developing information system

Liaison between users and IT professionals

The System Development Life Cycle

What is the project team?

Formed to work on project from beginning to end

Consists of users, systems analyst, and other IT professionals

Project leader—one member of the team who manages and controls project budget and schedule

The System Development Life Cycle

What is feasibility?

- Measure of how suitable system development will be to the company

Four feasibility tests	Operational feasibility
	Schedule feasibility
	Technical feasibility
	Economic feasibility (also called cost/benefit feasibility)

The System Development Life Cycle

What is documentation?

Collection and summarization
of data and information

Includes reports, diagrams,
programs, and other deliverables

The System Development Life Cycle

What are six data and information gathering techniques?

- ➤ **Review documentation**
- ➤ **Observe**
- ➤ **Questionnaire**
- ➤ **Interview**
- ➤ **Joint-application design (JAD) session**
- ➤ **Research**

The System Development Life Cycle

What are some reasons to create or modify an information system?

To correct problem in existing system

To improve existing system
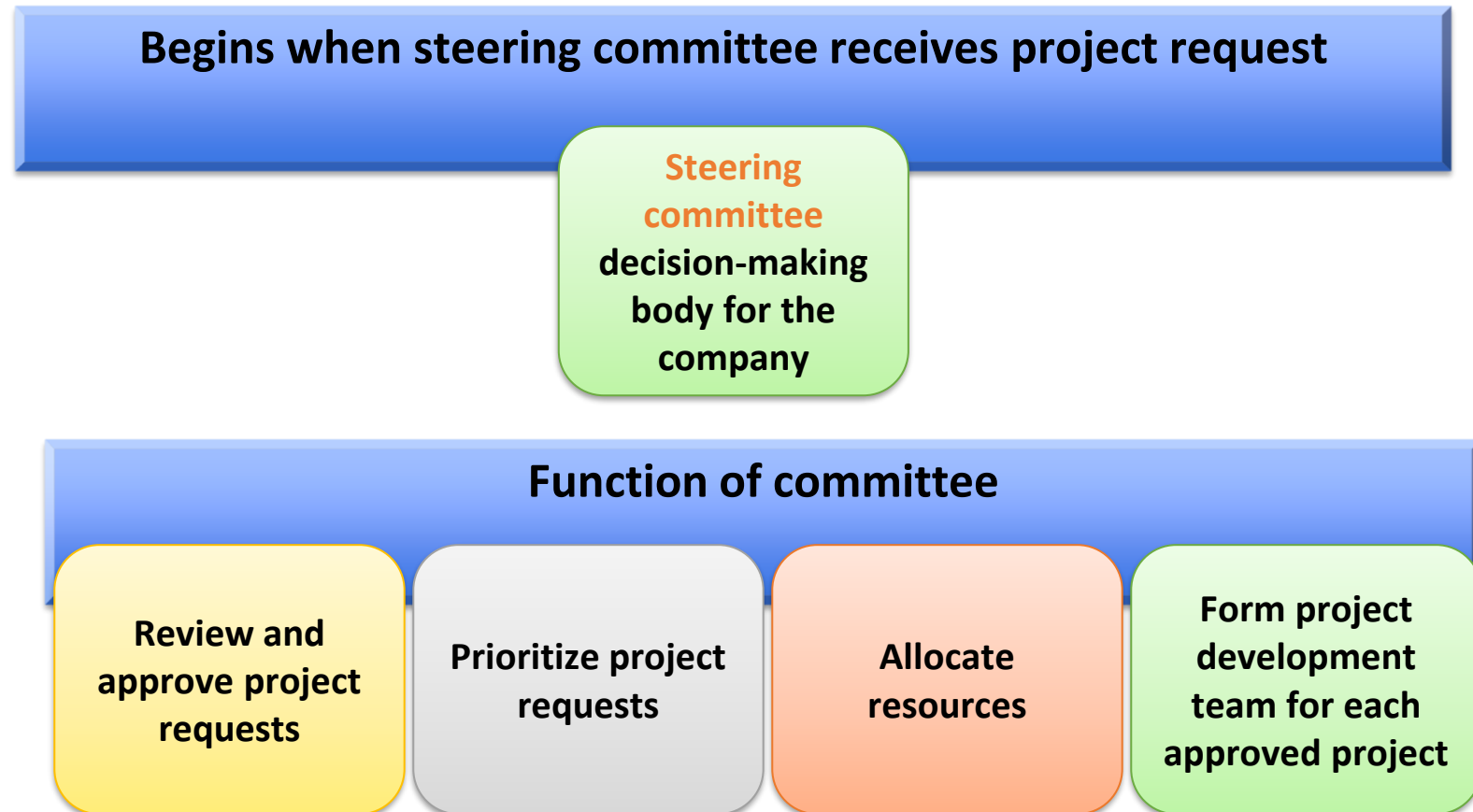
Outside group may mandate change

Competition can lead to change

The System Development Life Cycle

What is a request for system services?

➢ **Formal request for new or modified information system**
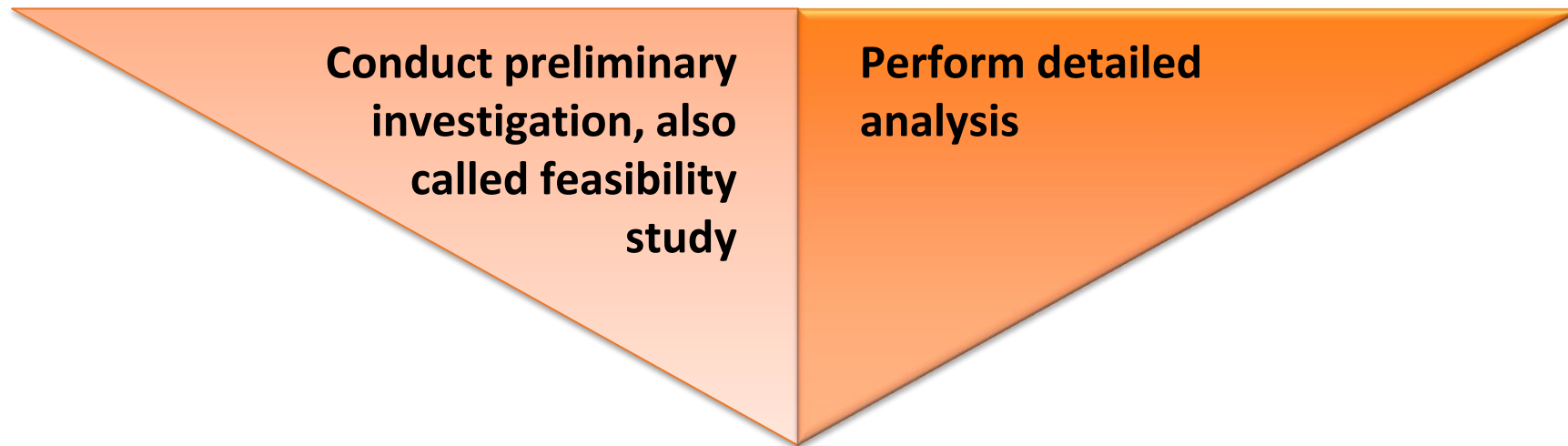
- ■ Also called **project request**

The System Development Life Cycle

What is the planning phase?

Begins when steering committee receives project request

Steering committee
decision-making body for the company

Function of committee

Review and approve project requests

Prioritize project requests

Allocate resources

Form project development team for each approved project

The System Development Life Cycle

What is the analysis phase?

Conduct preliminary investigation, also called feasibility study

Perform detailed analysis

The System Development Life Cycle

What is the preliminary investigation?

➢ **Determine exact nature of problem or improvement and whether it is worth pursuing**

- Findings are presented in feasibility report, also known as a feasibility study

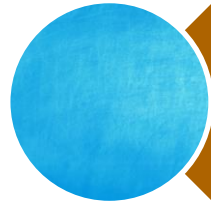# The System Development Life Cycle

What is detailed analysis?

1. Study how current system works

2. Determine user's wants, needs, and requirements

3. Recommend solution

Sometimes called logical design
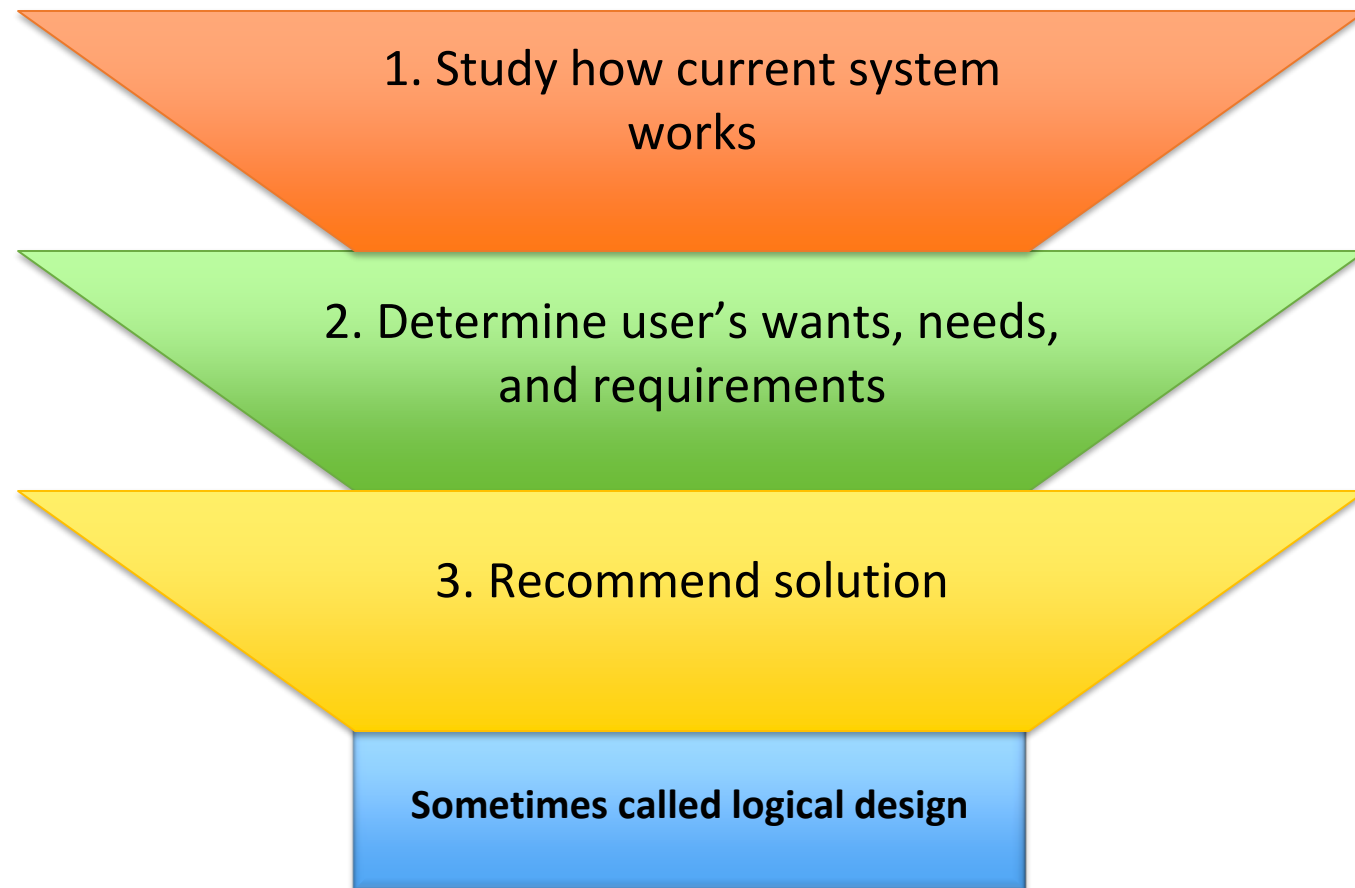
The System Development Life Cycle

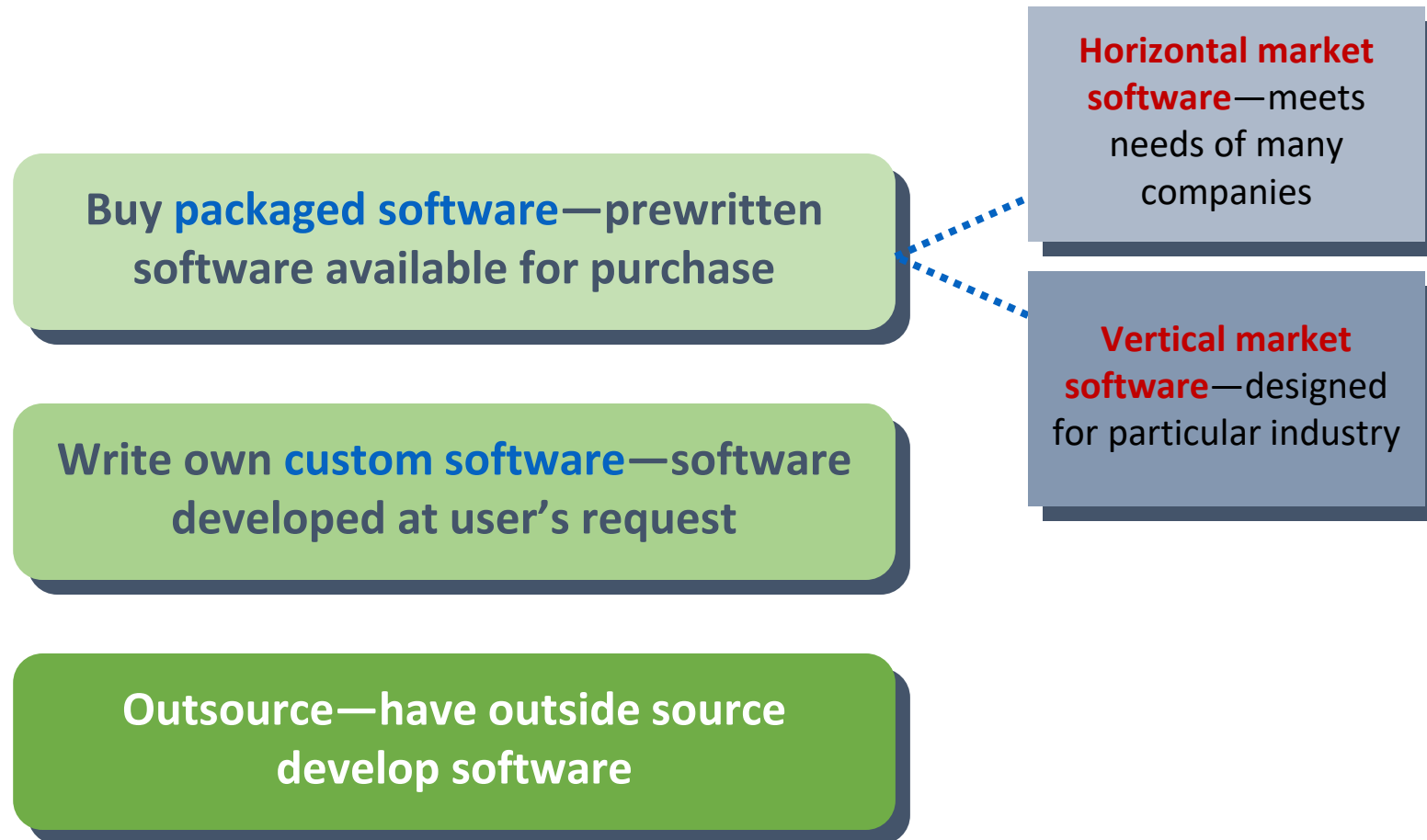What is the system proposal?

Assesses feasibility
of each alternative solution

Recommends the most feasible solution
for the project

Presented to steering committee, which
decides how system will be developed

The System Development Life Cycle

What are possible solutions?

Buy **packaged software**—prewritten software available for purchase

Write own **custom software**—software developed at user's request

Outsource—have outside source develop software

Horizontal market software—meets needs of many companies

Vertical market software—designed for particular industry

The System Development Life Cycle

What is the design phase?

Acquire hardware and software

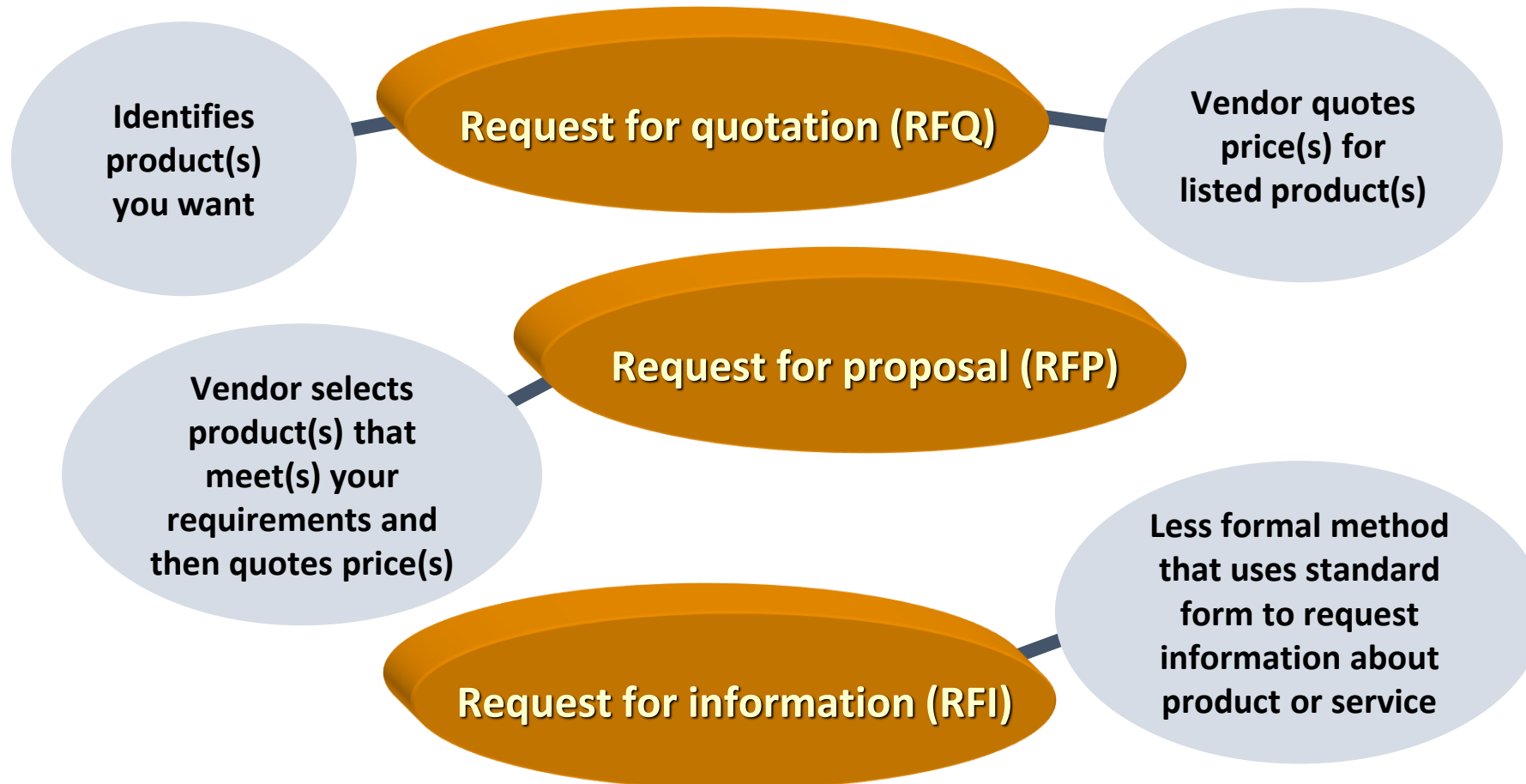Develop all details of new or modified information system

The System Development Life Cycle

What is needed to acquire new hardware and software?

➢ **Identify all hardware and software requirements of new or modified system**

Talk with other systems analysts

Surf Web

Visit vendors' stores

Read print and online trade journals, newspapers, and magazines
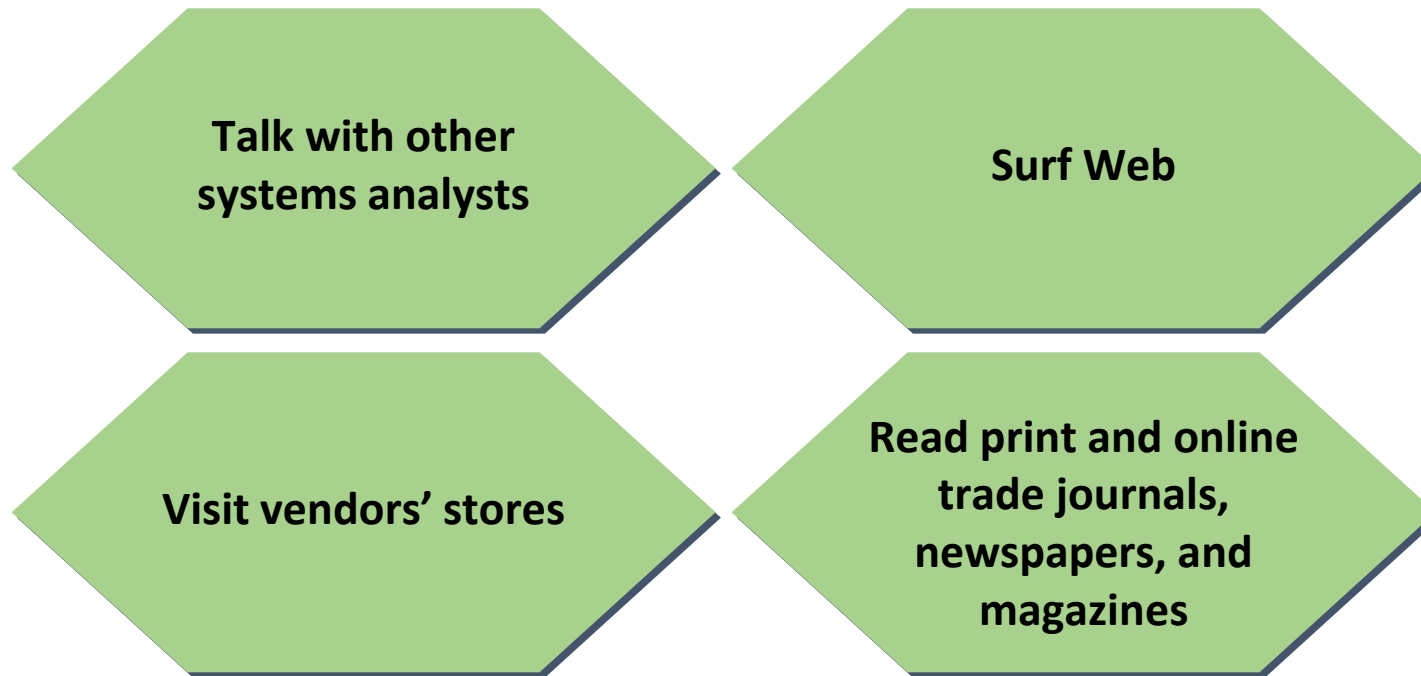
The System Development Life Cycle

What are three basic documents used to summarize technical specifications?

Identifies product(s) you want

Request for quotation (RFQ)

Vendor quotes price(s) for listed product(s)

Vendor selects product(s) that meet(s) your requirements and then quotes price(s)

Request for proposal (RFP)

Less formal method that uses standard form to request information about product or service

Request for information (RFI)

The System Development Life Cycle

How do systems analysts test software products?

- ➤ **References from vendor**
- ➤ **Talk to current users of product**
- ➤ **Product demonstrations**
- ➤ **Trial version of software**
- ➤ **Benchmark test measures performance**

The System Development Life Cycle

What is a detailed design?

Detailed design specifications for components in proposed solution

Includes several activities

| Database design | Input and output design | Program design |

The System Development Life Cycle

What is a mockup?

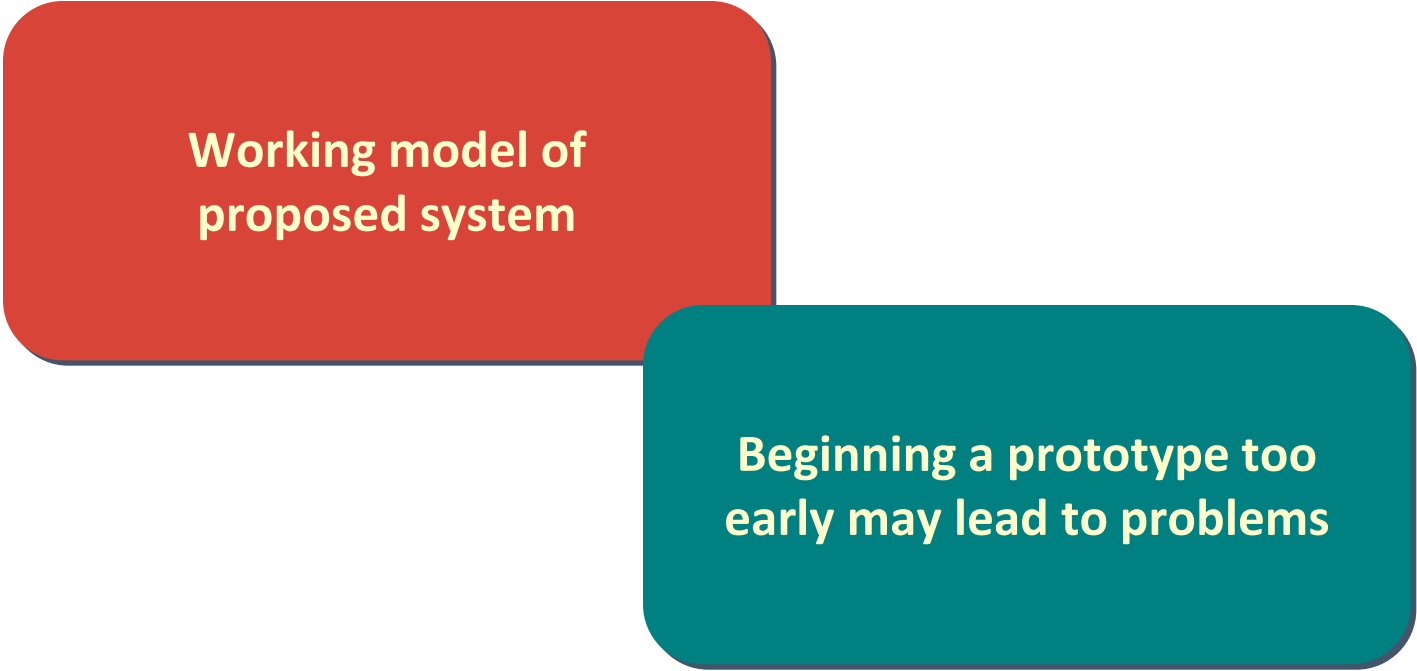➢ **Sample of input or output that contains actual data**

The System Development Life Cycle
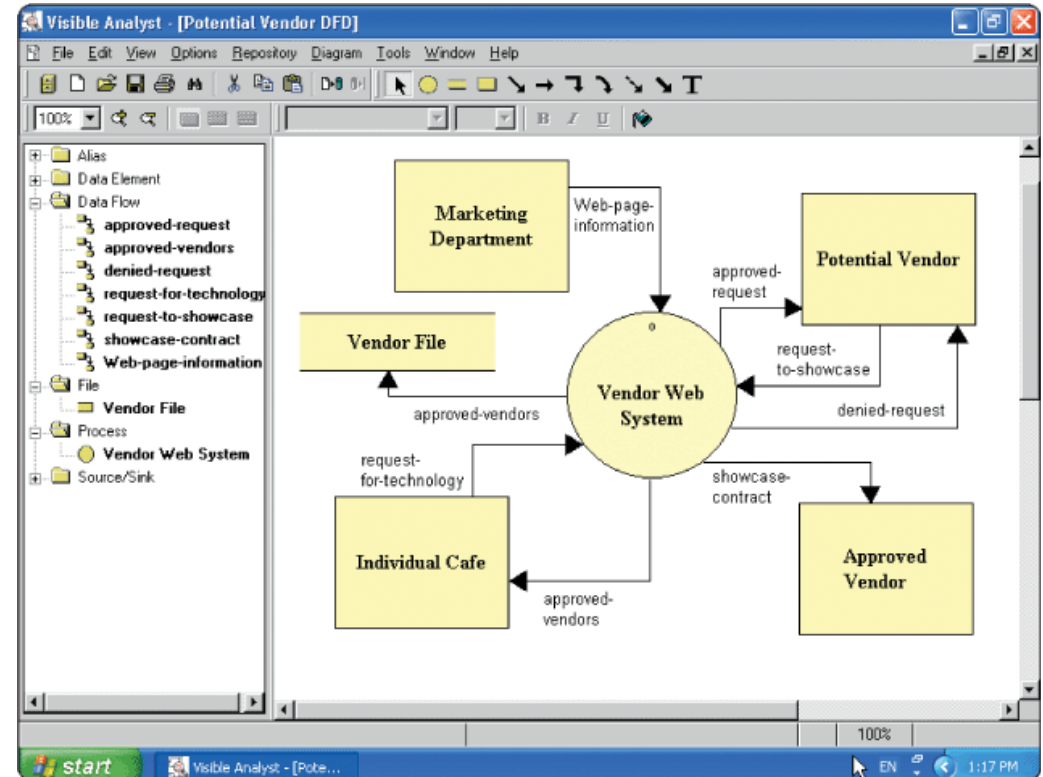
What is a prototype?

Working model of proposed system

Beginning a prototype too early may lead to problems

The System Development Life Cycle

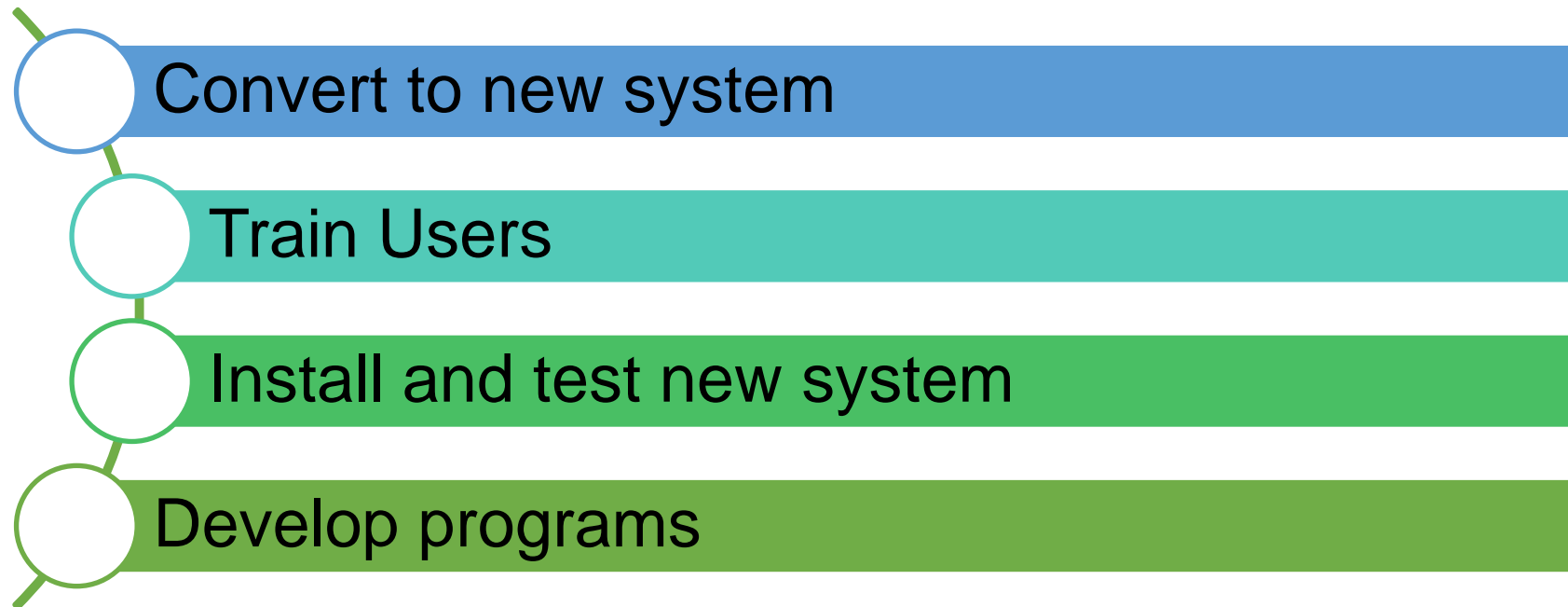What is computer-aided software engineering (CASE)?

➢ **Software tools designed to support activities of system development cycle**
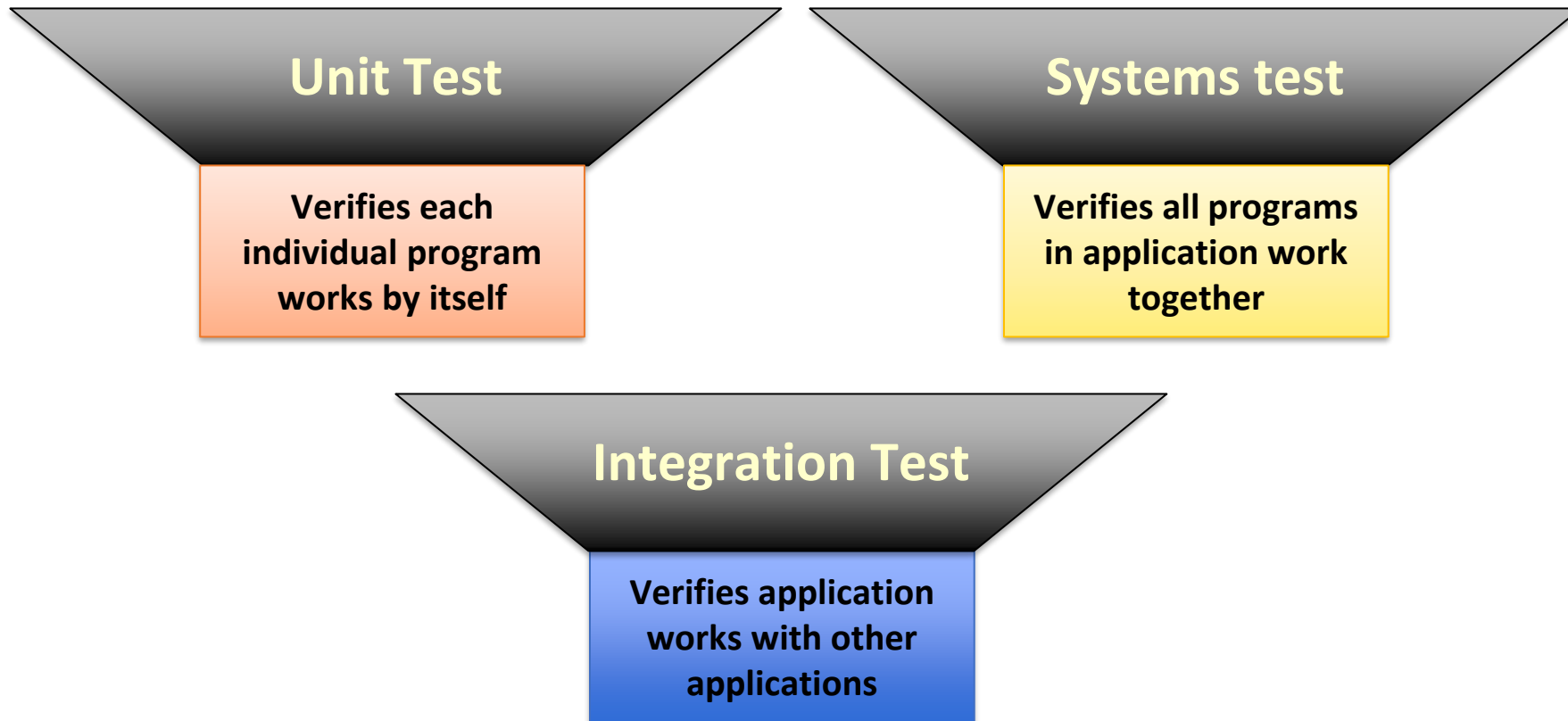
The System Development Life Cycle

What is the implementation phase?

➤ **Purpose is to construct, or build, new or modified system and then deliver it to users**

Convert to new system

Train Users

Install and test new system

Develop programs

The System Development Life Cycle

What are the three types of tests performed by system developers?

Unit Test

Verifies each individual program works by itself

Systems test

Verifies all programs in application work together

Integration Test

Verifies application works with other applications
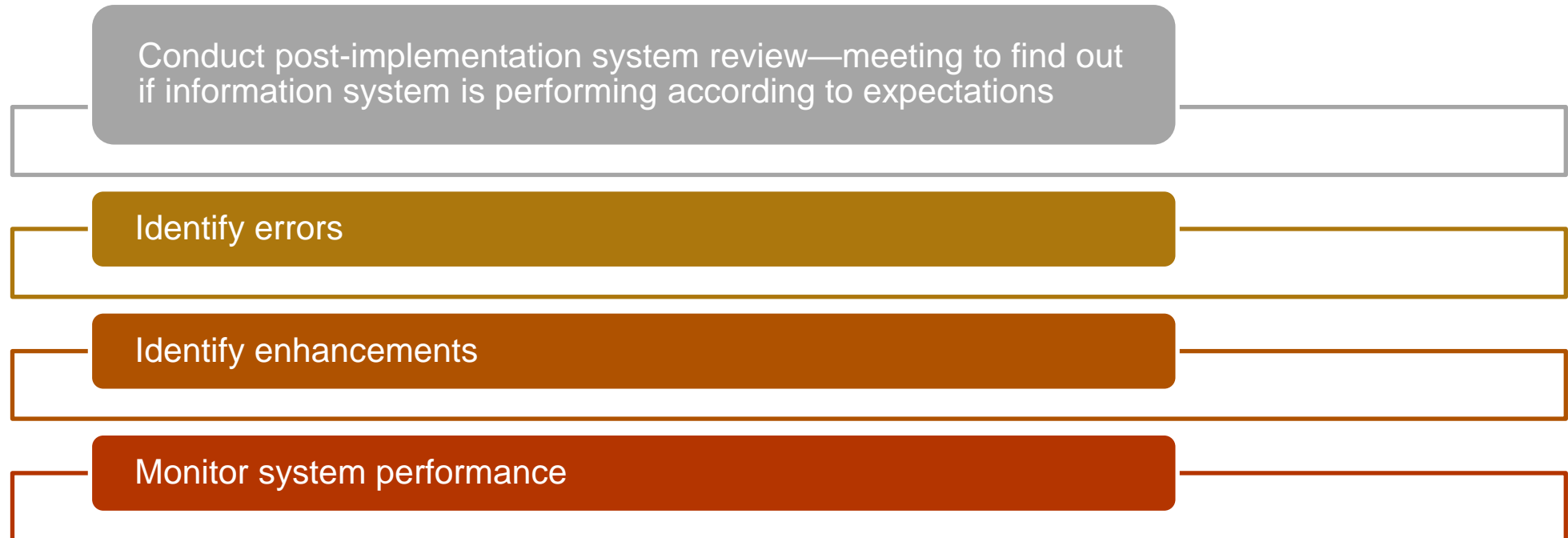
The System Development Life Cycle

What is training?

➢ Showing users exactly how they will use new hardware and software in system

The System Development Life Cycle

What is the support phase?

➢ **Provides ongoing assistance after system is implemented**

Conduct post-implementation system review—meeting to find out if information system is performing according to expectations

Identify errors

Identify enhancements

Monitor system performance

Key Points

- Importance of SDLC in system development
- Documents and deliverables in different phases
- Responsibilities of different personnel working in SDLC
- Several terms used in SDLC