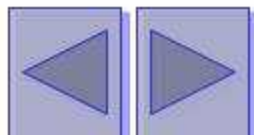# Modern Systems Analysis and Design

Chapter 2

Initiating and Planning Systems Development Projects

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# Learning Objectives

✓ Describe steps involved in the project initiation and planning process (the first two phases of project management)

✓ Explain the need for and the contents of a Statement of Work and Baseline Project Plan

✓ List and describe various methods for accessing project feasibility

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Learning Objectives

✓ Describe the differences between intangible and tangible costs and benefits and between recurring and one-time benefits and costs

✓ Detail various methods of cost/benefit analysis

✓ Describe the general rules for evaluating the technical risks associated with a systems development project

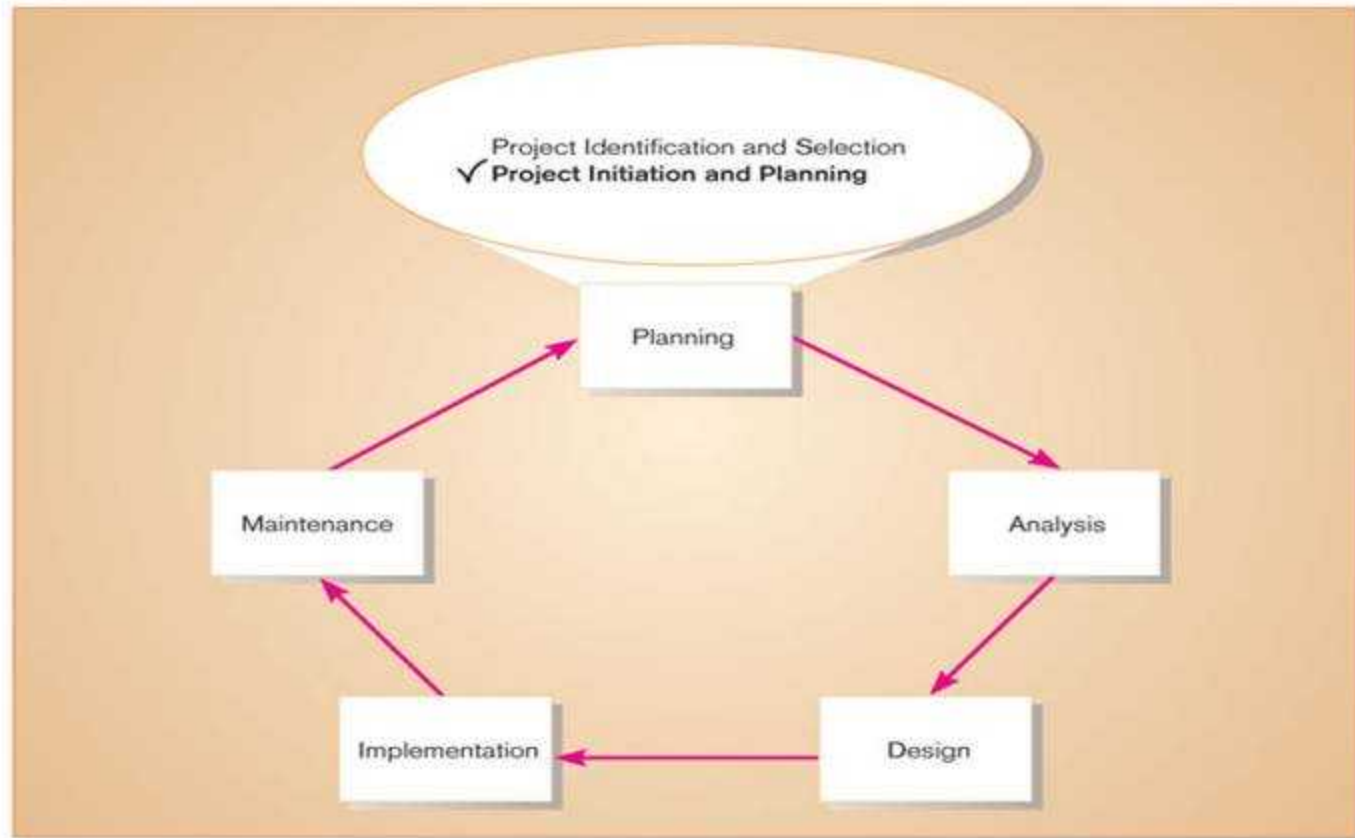✓ Describe the activities and participant roles within a structured walkthrough

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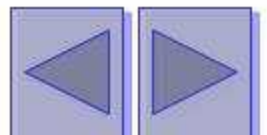
Initiating and Planning Systems Development Projects

◈ What must be considered when making the decision on the division between project initiation and planning (PIP) and analysis.

◈ How much effort should be expended on the PIP process?

◈ Who is responsible for performing the PIP process?

◈ Why is PIP such a challenging activity?
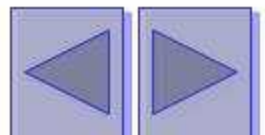
The Process of Initiating and Planning IS Development Projects

Figure 5-1 Systems development life cycle with project initiation and planning highlighted

Project Identification and Selection
✓ Project Initiation and Planning

Planning

Analysis

Design

Implementation

Maintenance

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The Process of Initiating and Planning IS Development Projects

- Project initiation focuses on activities designed to assist in organizing a team to conduct project planning.

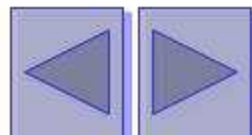# Initiating and Planning System Development Projects

◆ Elements of Project Initiation

- Establishment of project team
- Development of relationship with customer
- Establishing the project Initiation Plan
- Establishment of Management Procedures
- Establishment of Project Workbook and Project Management Environment
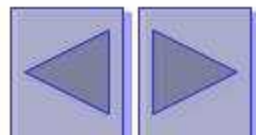- Develop the project charter
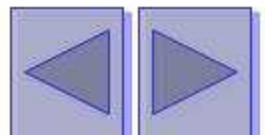
The Process of Initiating and Planning IS Development Projects

- The key activity of project initiation is the development of the *project charter*.
  - A short document that is prepared for both internal and external stakeholders.
  - Provides a high-level overview of the project.
  - Useful communication tool that helps to assure that the organizations and other stakeholders understand the initiation of a project.
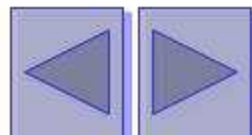
The Process of Initiating and Planning IS Development Projects

◆ **A project charter typically contains**:

- Project title and date of authorization
- Project manager name and contact information
- Customer name and contact information
- Projected start and completion dates

The Process of Initiating and Planning IS Development Projects

- Key stakeholders, project role, and responsibilities
- Project objectives and description
- Key assumptions or approach
- Signature section for key stakeholders

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# The Process of Initiating and Planning IS Development Projects

◈ The key activity of project planning is the process of defining clear, discrete activities and the work needed to complete each activity within a single project.

◈ The objective of the project planning process is the development of a *Baseline Project Plan* (*BPP*) and the *Project Scope Statement* (*PSS*)
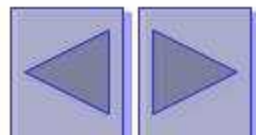
Project Planning

◆ **Is the process of defining clear, discrete activities and the work needed to complete each activity, the elements are:**

- describe the project scope, alternative, and feasibility.
- Divide project into manageable tasks.
- Estimate resources, and create resource plan.
- Developing a preliminary schedule.
- Developing a communication plan.
- Determining project standards and procedures.
- Identifying and assessing risks.
- Creating a preliminary budget.
- Developing a Statement Of Work.
- Setting a Baseline Project Plan.

Go back through the slides previously studied ☺ for detail !

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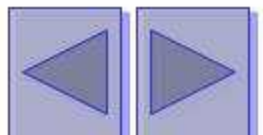
Initiating and Planning System Development Projects

◈ **Major Deliverables and Outcomes of the plan:**
- **Business Case**
  - Justification for an information system.
  - Presented in terms of the tangible and intangible economic benefits and costs.
  - The technical and organizational feasibility of the proposed system
- **Project Scope Statement (PSS)**
  - A document prepared for the customer.
  - Describes what the project will deliver.
  - Outlines at a high level all work required to complete the project. \
- **Baseline Project Plan (BPP), contains the best estimates of :**
  - A major outcome and deliverable from the PIP phase.
  - Contains the best estimate of a project's scope, benefits, costs, risks, and resource requirements.
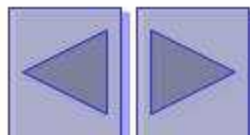- **Statement of Work (SOW)**
  - Describes deliverables
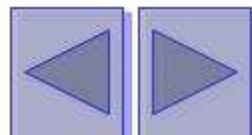 - Outlines work needed to be performed

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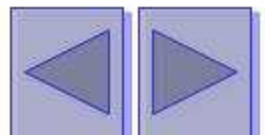
Assessing Project Feasibility

◆ **Six Categories of feasibility:**

- **Economic**
- **Technical**
- **Operational**
- **Schedule**
- **Legal and contractual**
- **Political**

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Assessing Economic Feasibility

◈ A process of identifying the financial benefits and costs associated with a development project.

- Often referred to as *cost-benefit analysis*.
- Project is reviewed after each SDLC phase in order to decide whether to continue, redirect, or kill a project.
- Determine Benefits
- Tangible Benefits
  - ◆ Refer to items that can be measured easily
    - Examples
      - Cost reduction and avoidance
      - Error reduction
      - Increased flexibility
      - Increased speed of activity
      - Improved management planning and control
      - Opening new markets and increasing sales opportunities
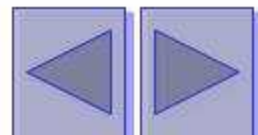
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Assessing Economic Feasibility

- **Intangible Benefits**
  - are benefits derived from the creation of an information system that cannot be easily measured in dollars or with certainty. **Cannot be measured easily**
  - **Examples**
    - Increased employee morale
    - Competitive necessity
    - More timely information
    - Promotion of organizational learning and understanding
- **Determine Costs**
  - **Tangible Costs**
    - a cost associated with an information system that can be measured in dollars and with certainty.
    - IS development tangible costs include:
      - Hardware costs,
      - Labor costs, or
   - Operational costs including employee training and building renovations.

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Assessing Economic Feasibility

◆ **Determine Costs (Continued)**

  ■ **Intangible Costs**

   ◆ a cost associated with an information system that cannot be easily measured in terms of dollars or with certainty.

    ■ Intangible costs can include:

     ■ Loss of customer goodwill,

     ■ Employee morale, or

     ■ Operational inefficiency.

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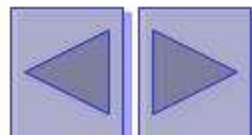
Assessing Economic Feasibility

- **One-Time Costs**
 - Associated with project startup, initiation and development
  - Includes
    - System Development
    - New hardware and software purchases
    - User training
    - Site preparation
    - Data or system conversion

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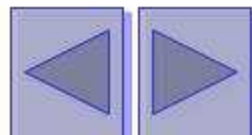
# Assessing Economic Feasibility

- **Recurring Costs**
  - ◆ a cost resulting from the ongoing evolution and use of a system.
    - Examples of these costs include:
      - Application software maintenance,
      - Incremental data storage expenses,
      - Incremental communications,
      - New software and hardware leases, and
      - Supplies and other expenses (i.e. paper, forms, data center personnel).

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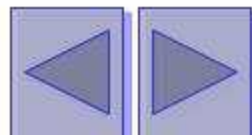
Determining Project Costs

- Both one-time and recurring costs can consist of items that are fixed or variable in nature.

- *Fixed costs* are billed or incurred at a regular interval and usually at a fixed rate.

- *Variable costs* are items that vary in relation to usage

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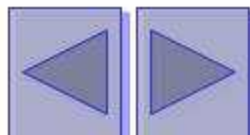
Determining Project Costs

- ◈ **Procurement**
  - ▪ Consulting, equipment, site preparation, capital, management time
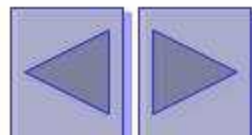- ◈ **Start-up**
  - ▪ Operating systems, communications installation, personnel hiring, organizational disruption
- ◈ **Project-related**
  - ▪ Application software, software modification, personnel overhead, training, data analysis, documentation
- ◈ **Operating**
  - ▪ System maintenance, rental, asset depreciation, operation and planning

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The Time Value of Money

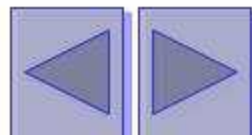- ◈ Net Present Value (NPV)
  - Use discount rate to determine present value of cash outlays and receipts
- ◈ Return on Investment (ROI)
 - Ratio of cash receipts to cash outlays
- ◈ Break-Even Analysis (BEA)
  - Amount of time required for cumulative cash flow to equal initial and ongoing investment

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The Time Value of Money

- **Time value of money (TVM)**: the concept that money available today is worth more than the same amount tomorrow.

- **Discount rate**: the rate of return used to compute the present value of future cash flows (*the cost of capital*).

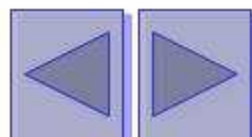- **Present value**: the current value of a future cash flow

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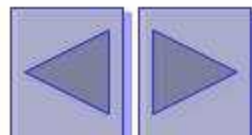
The Time Value of Money

Net Present Value

- PV*n* = *present value* of *Y* dollars *n* years from now based on a *discount rate* of *i*.

- NPV = sum of PVs across years.

- Calculates *time value of money*.

$$\mathrm{PV}_n = Y \times \frac{1}{(1 + i)^n}$$

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Assessing Technical Feasibility

◆ **Technical Feasibility,** a process of assessing the development organization's ability to construct a proposed system.

◆ The potential consequences of not assessing and managing risks can include the following:

- Failure to attain expected benefits from the project,
- Inaccurate project cost estimates,
- Inaccurate project duration estimates,
- Failure to achieve adequate system performance levels, and
- Failure to adequately integrate the new system with existing hardware, software, or organizational procedures.

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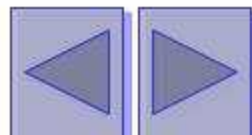
Project Risk Factors

- ◆ Project size
  - Team size, organizational departments, project duration, programming effort
- ◆ Project structure
  - New vs. renovated system, resulting organizational changes, management commitment, user perceptions
- ◆ Development group
  - Familiarity with platform, software, development method, application area, development of similar systems
- ◆ User group
  - Familiarity with IS development process, application area, use of similar systems

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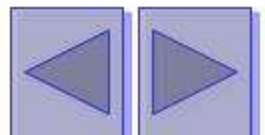
Assessing Technical Feasibility

◆ Risk can be managed on a project by:

- Changing the project plan to avoid risky factors,

- Assigning project team members to carefully manage the risky aspects,

- Setting up monitoring methods to determine whether or not potential risk is, in fact, materializing.

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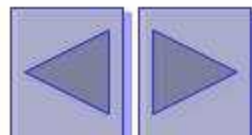
Assessing Technical Feasibility

- Four general rules emerged as technical risk assessments:
  - *Larger projects are riskier than smaller projects.*
  - *A system in which the requirements are easily obtained and highly structured will be less risky than one in which requirements are messy, ill structured, ill defined, or subject to the judgment of an individual.*
- *The development of a system employing commonly used or standard technology will be less risky than one employing novel or nonstandard technology.*
- *A project is less risky when the user group is familiar with the familiar with the systems development process and application area than if unfamiliar.*
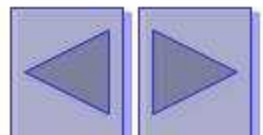
Assessing Technical Feasibility

Figure 5-9 Effects of degree of project structure, project size, and familiarity with application area on project implementation risk

		Low Structure	High Structure
High Familiarity with Technology or Application Area	Large Project	(1) Low risk (very susceptible to mismanagement)	(2) Low risk
	Small Project	(3) Very low risk (very susceptible to mismanagement)	(4) Very low risk
Low Familiarity with Technology or Application Area	Large Project	(5) Very high risk	(6) Medium risk
	Small Project	(7) High risk	(8) Medium-low risk

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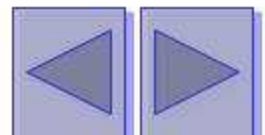
Assessing Other Project Feasibility Concerns

- ## Operational
  - Does the proposed system solve problems or take advantage of opportunities?
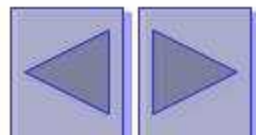- ## Scheduling
  - Can the project time frame and completion dates meet organizational deadlines?
- ## Legal and Contractual
  - What are legal and contractual ramifications of the proposed system development project?
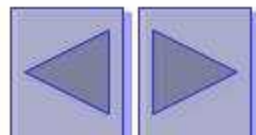- ## Political
 - How do key stakeholders view the proposed system?

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Building the Baseline Project Plan

◈ **Baseline Project Plan (BPP)** is a document intended primarily to guide the development team.

◈ Sections:
  - Introduction
  - System description
  - Feasibility assessment
  - Management issues

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Building the Baseline Project Plan

- ◈ Project Scope statement is part of the BPP introduction.

- ◈ Sections:
  - Problem statement
  - Project objectives
  - Project description
  - Business benefits
  - Deliverables
  - Expected duration

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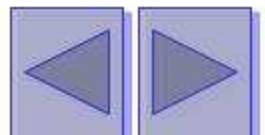
Factors in Determining Scope

- ◈ Organizational units affected by new system
- ◈ Current systems that will interact with or change because of new system
- ◈ People who are affected by new system
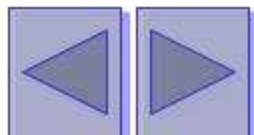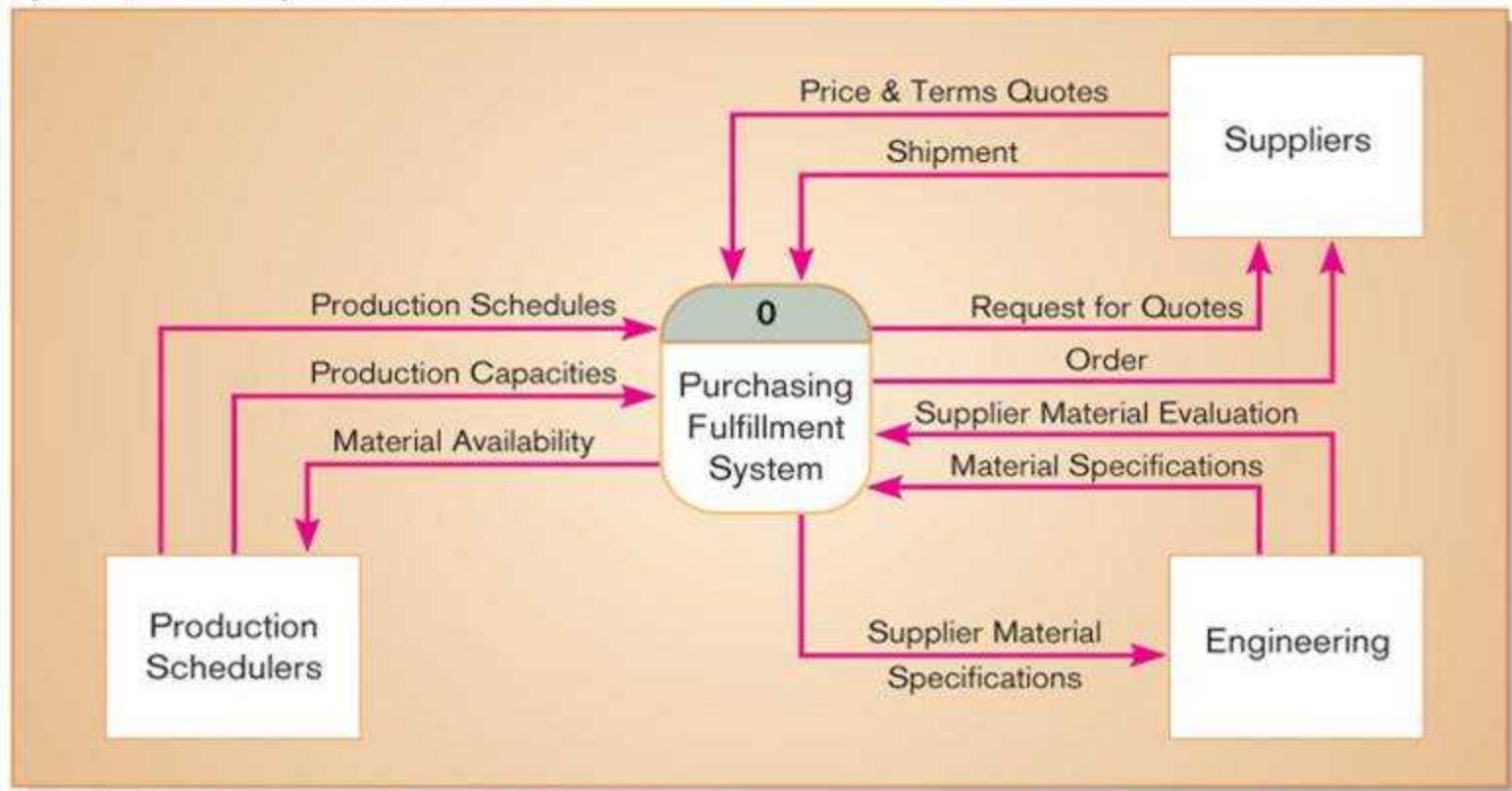- ◈ Range of potential system capabilities

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Diagram Depiction of Project Scope

Figure 5-12 Context-level data flow diagram showing project scope for Purchasing Fulfillment System (Pine Valley Furniture)

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Building the Baseline Project Plan (CONT..)

◆ *System description* section outlines possible alternative solutions.

◆ *Feasibility assessment* section outlines issues related to project costs and benefits, technical difficulties, and other such concerns.

◆ *Management issues* section outlines a number of managerial concerns related to the project
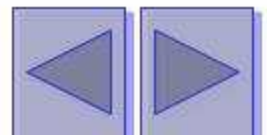
Reviewing the Baseline Project Plan

◆ **Structured Walkthroughs**: a peer-group review of any product created during the system development process

◆ Roles: coordinator, presenter, user, secretary, standard-bearer, maintenance oracle

◆ Can be applied to BPP, system specifications, logical and physical designs, program code, test procedures, manuals and documentation

◆ **Objectives**
  - **Assure conformity to organizational standards**
  - **All parties agree to continue with project**

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