System Development

System (Development) Life Cycle

- Planning
  - Started when a need or opportunity identified
  - Investigation
  - A project plan is developed
- Development
  - Requirement Analysis
  - Design
  - Development
  - Integration and test
  - Implementation
- Operation
  - Production mode
- Maintenance
- Disposition
  - End of sustem activities

Systems Development Life Cycle (SDLC)
Life-Cycle Phases

Initiation

Begins when a sponsor identifies a need or an opportunity. Concept Proposal is created

System Concept Development

Defines the scope or boundary of the concepts. Includes Systems Boundary Document. Cost Benefit Analysis. Risk Management Plan and Feasibility Study.

Planning

Develops a Project Management Plan and other planning documents. Provides the basis for acquiring the resources needed to achieve a soulution.

Requirements Analysis

Analyses user needs and develops user requirements. Create a detailed Functional Requirements Document.

Design

Transforms detailed requirements into complete, detailed Systems Design Document Focuses on how to deliver the required functionality

Development

Converts a design into a complete information system Includes acquiring and installing systems environment; creating and testing databases preparing test case procedures; preparing test files, coding, compiling, refining programs; performing test readiness review and procurement activities.

Integration and Test

Demonstrates that developed system conforms to requirements as specified in the Functional Requirements Document. Conducted by Quality Assurance staff and users. Produces Test Analysis Reports.

Implementation

Includes implementation preparation, implementation of the system into a production environment, and resolution of problems identified in the Integration and Test Phases

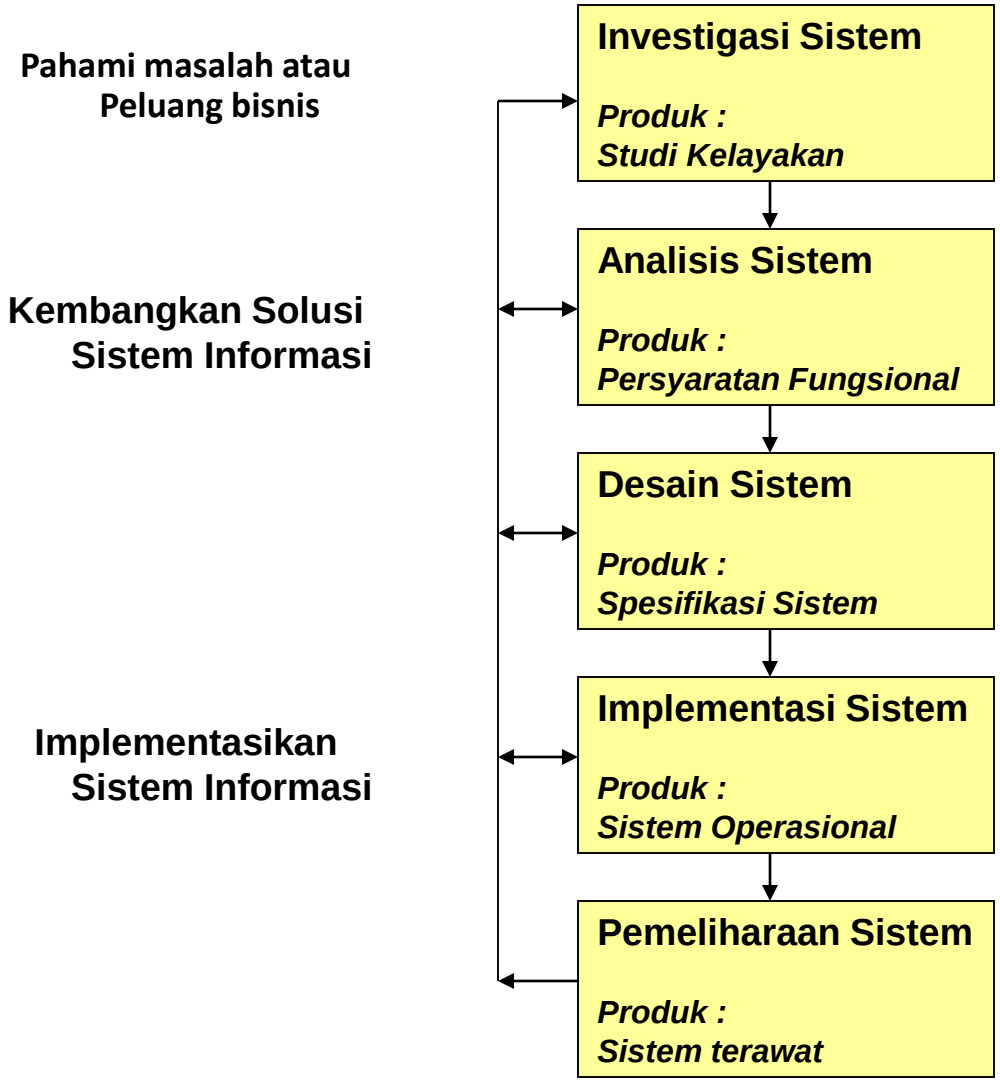
Operations & Maintenance

Describes tasks to operate and maintain information systems in a production environment. includes Post-Implementation and In-Process Reviews.

Disposition

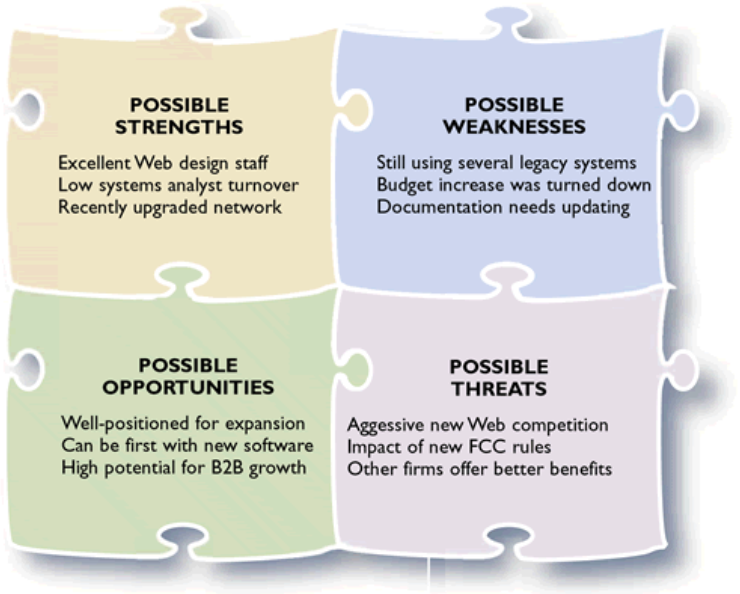
Describes end-of-system activities, emphasis is given to proper preparation of data.

Tahapan Pengembangan SI



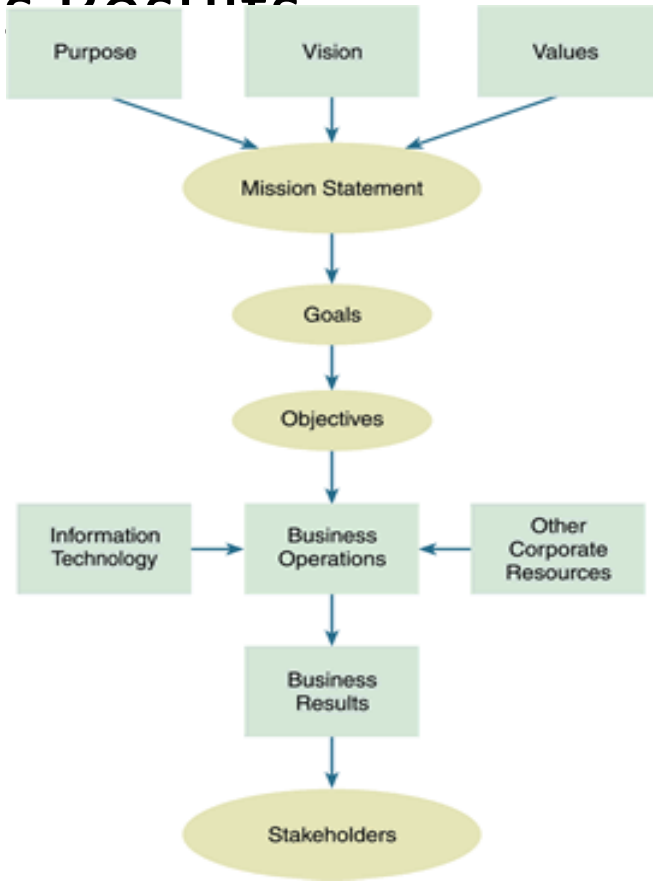
Strategic Planning – A Framework for IT Systems Development

- Strategic planning is the process of identifying long-term organizational goals, strategies, and resources
- Strategic Planning Overview
  - SWOT analysis



Strategic Planning – A Framework for IT Systems Development

- From Strategic Plans to Business Results
  - Mission statement
  - Stakeholders
  - Goals
  - Objectives



Strategic Planning – A Framework for IT Systems Development

- A Business Example
  - Critical success factors
  - Critical business issues
  - Case for action

Strategic Planning – A Framework for IT Systems Development

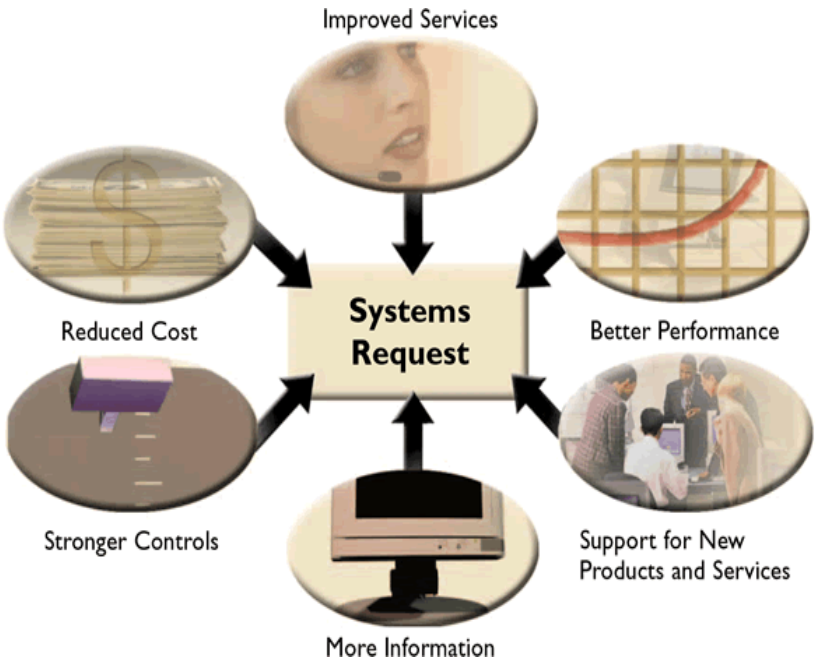
- The Role of the IT Department in Project Evaluation
  - Management leadership and information technology are linked closely, and remarkable changes have occurred in both areas
  - Today, systems development is much more team-oriented
  - Although team-oriented development is the norm, some companies see the role of the IT department as a gatekeeper

Strategic Planning – A Framework for IT Systems Development

- The Future
  - If you could look into the future, here is what you might see: New industries, products, and services emerging from amazing advances in information technology, customers who expect world-class IT support, a surge in Internet-based commerce, and a global business environment that is dynamic and incredibly challenging

Information Systems Projects

- Main Reasons for Systems Projects
  - Systems request
  - Improved service
  - Support for new products and services
  - Better performance
  - More information



Information Systems Projects

- Main Reasons for Systems Projects
  - Stronger controls
    - Encryption and biometric devices
  - Reduced cost
- Factors that Affect Systems Projects
  - Internal and external factors affect every business decision that a company makes, and IT systems projects are no exception

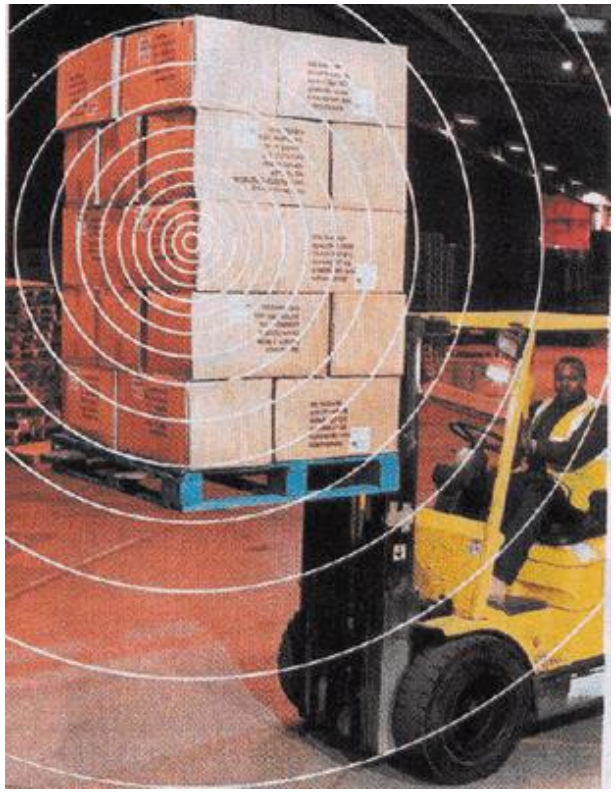
Information Systems Projects

- Internal Factors
  - Strategic plan
  - Top managers
  - User requests
  - Information technology department
  - Existing systems

Information Systems Projects

- External Factors
  - Technology
  - Suppliers
    - Just-in-time (JIT)
  - Customers
    - Customer Relationship Management (CRM)
  - Competitors

Information Systems Projects



- External Factors
  - Economy
  - Government

Information Systems Projects

- Project Management Tools
  - All IT projects, large and small, must be managed and controlled
  - Project management begins with a systems request, and continues until the project is completed or terminated
- Risk Management
  - Every IT project involves risks that systems analysts and IT project managers must address
  - Risk management

Evaluation of Systems Requests

- Systems review committee or a computer resources committee evaluate systems projects
- Systems Requests Forms
  - A properly designed form streamlines the request process and ensures consistency

Evaluation of Systems Requests

- Systems Review Committee
  - Most large companies use a systems review committee to evaluate systems requests
  - Many smaller companies rely on one person to evaluate system requests instead of a committee
  - The goal is to evaluate the requests and set priorities

Overview of Feasibility

- A systems request must pass several tests, called a feasibility study, to see whether it is worthwhile to proceed further
- Operational Feasibility
  - Operational feasibility means that a proposed system will be used effectively after it has been developed

Overview of Feasibility

Overview of Feasibility

- Technical Feasibility
- Economic Feasibility
  - Total cost of ownership (TCO)
  - Tangible benefits
  - Intangible benefits
- Schedule Feasibility

Evaluating Feasibility

- The first step in evaluating feasibility is to identify and weed out systems requests that are not feasible
- Even if the request is feasible, it might not be necessary
- Feasibility analysis is an ongoing task that must be performed throughout the systems development process

Setting Priorities

- Factors that Affect Priority
  - Will the proposed system reduce costs? Where? When? How? How much?
  - Will the system increase revenue for the company? Where? When? How? How much?

Setting Priorities

- Factors that Affect Priority
  - Will the systems project result in more information or produce better results? How? Are the results measurable?
  - Will the system serve customers better?
  - Will the system serve the organization better?

Setting Priorities

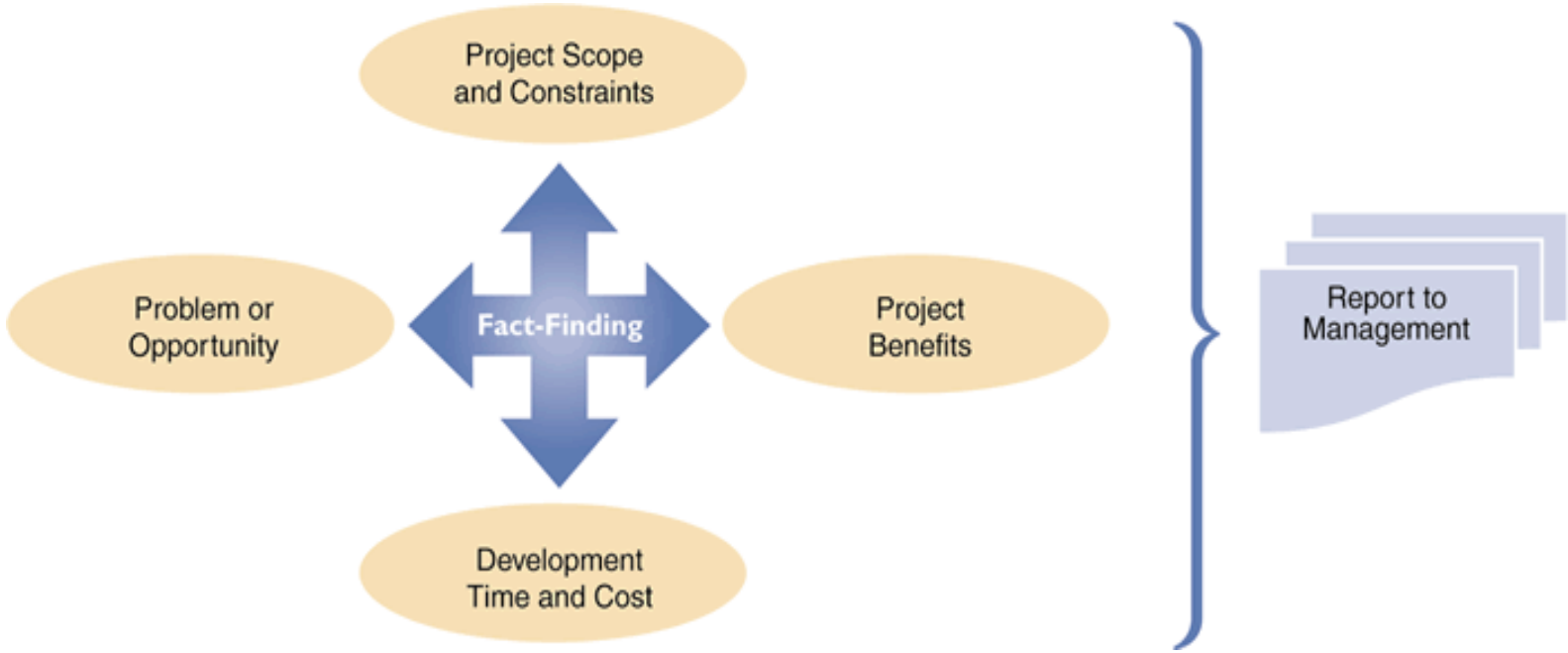
- Factors that Affect Priority
  - Can the project be implemented in a reasonable time period? How long will the results last?
  - Are the necessary financial, human, and technical resources available?
  - Whenever possible, the analyst should evaluate a proposed project based on tangible costs and benefits that represent actual (or approximate) dollar values

Setting Priorities

- Discretionary and Nondiscretionary Projects
  - Projects where management has a choice in implementing them are called discretionary projects
  - Projects where no choice exists are called nondiscretionary projects

Preliminary Investigation Overview

- Preliminary investigation
- Interaction with Managers and Users

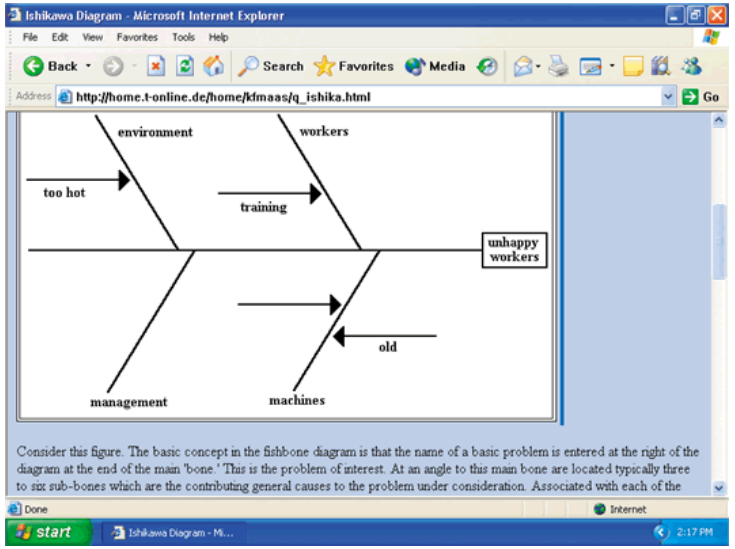


Preliminary Investigation Overview

- Planning the Preliminary Investigation
  - During a preliminary investigation, a systems analyst typically follows a series of steps
  - The exact procedure depends on the nature of the request, the size of the project, and the degree of urgency

Preliminary Investigation Overview

- Step 1: Understand the Problem or Opportunity
  - Determine which departments, users, and business processes are involved
  - A popular technique for investigating causes and effects is called a fishbone diagram, or Ishikawa diagram



Preliminary Investigation Overview

- Step 2: Define the Project Scope and Constraints
  - Project scope
  - Project creep
  - Constraint

Preliminary Investigation Overview

- Step 2: Define the Project Scope and Constraints
  - Present versus future
  - Internal versus external
  - Mandatory versus Desirable
  - Regardless of the type, all constraints should be identified as early as possible to avoid future problems and surprises

Preliminary Investigation Overview

- Step 3: Perform Fact-Finding
  - Fact-finding involves various techniques
  - Depending on what information is needed to investigate the systems request, fact-finding might consume several hours, days, or weeks
  - Analyze Organization Charts
    - Obtain organization charts to understand how the department functions

Preliminary Investigation Overview

- Step 3: Perform Fact-Finding
  - Conduct interviews
    - Determine the people to interview
    - Establish objectives for the interview
    - Develop interview questions
    - Prepare for the interview
    - Conduct the interview
    - Document the interview
    - Evaluate the interview

Preliminary Investigation Overview

- Step 3: Perform Fact-Finding
  - Review documentation
  - Observe operations
  - Conduct a user survey

Preliminary Investigation Overview

- Step 4: Evaluate Feasibility
  - Evaluate the project’s operational, technical, economic, and schedule feasibility

Preliminary Investigation Overview

- Step 5: Estimate Project Development Time and Cost
  - What information must you obtain, and how will you gather and analyze the information?
  - What sources of information will you use, and what difficulties will you encounter in obtaining information?

Preliminary Investigation Overview

- Step 5: Estimate Project Development Time and Cost
  - Will you conduct interviews? How many people will you interview, and how much time will you need to meet with the people and summarize their responses?
  - Will you conduct a survey? Who will be involved? How much time will it take people to complete it? How much time will it take to prepare it and tabulate the results?

Preliminary Investigation Overview

- Step 5: Estimate Project Development Time and Cost
  - How much will it cost to analyze the information gathered and to prepare a report with findings and recommendations?
  - You should provide an estimate for the overall project, so managers can understand the full cost impact and timetable

Preliminary Investigation Overview

- Step 6: Present Results and Recommendations to Management
  - The final task in the preliminary investigation is to prepare a report to management
  - The format of the preliminary investigation report varies from one company to another

Preliminary Investigation Overview

- Step 6: Present Results and Recommendations to Management
    - Introduction
    - Systems request summary
    - Findings
    - Recommendations
    - Project roles
    - Time and cost estimates
    - Expected benefits
    - Appendix