

# BUILDING INFORMATION SYSTEMS AND MANAGING PROJECTS

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# Our Materials

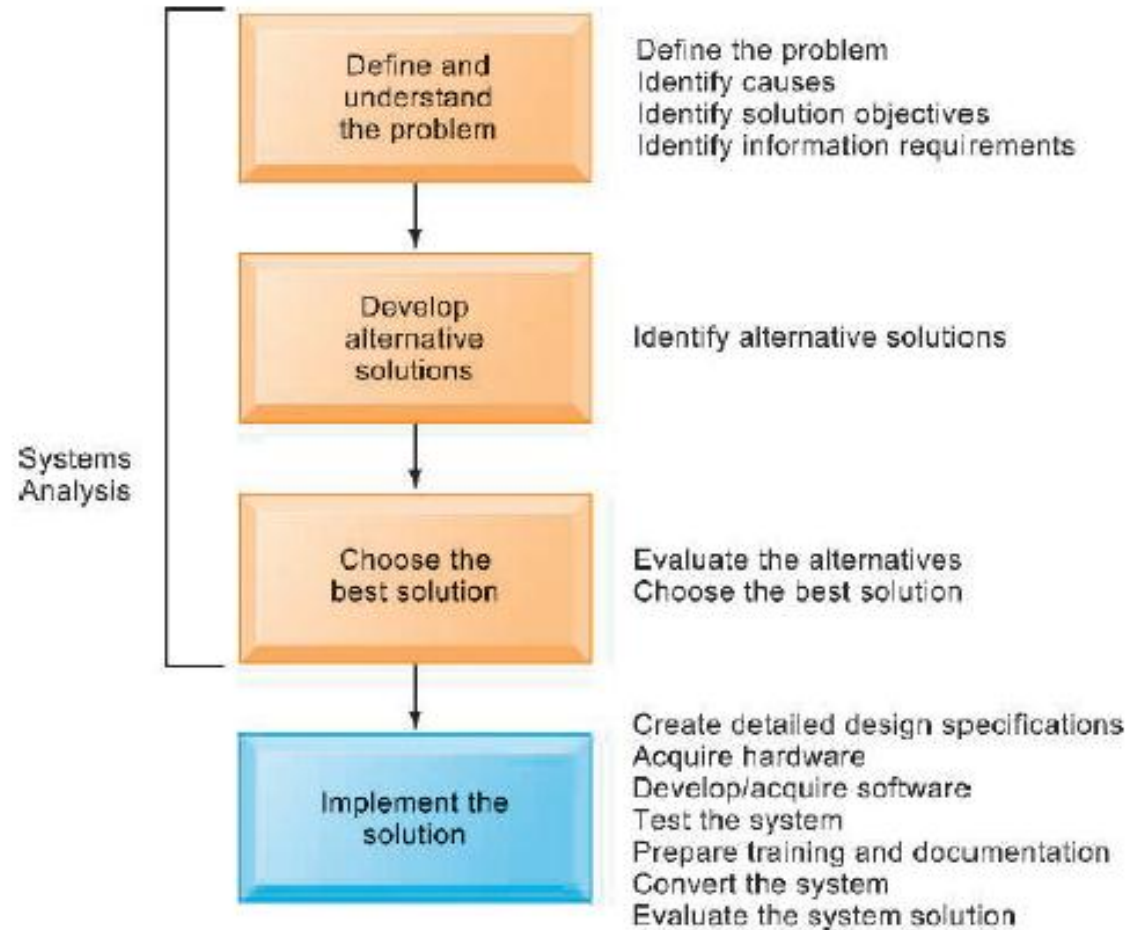
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- Building Information Systems and Managing Projects
- What are the alternative methods for building information systems?
- What are the principal methodologies for modeling and designing systems?
- How should information systems projects be selected and managed?

# What are the core problem-solving steps for developing new information systems?

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# Defining and understanding the problem

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- Defining the problem may take some work because various members of the company may have different ideas about the nature of the problem and its severity. What caused the problem? Why is it still around? Why wasn't it solved long ago? Systems analysts typically gather facts a documents, work papers, procedures, and system operations and by interviewing key users of the system bout existing systems and problems by examining

## Developing alternative solutions

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- The systems analysis lays out the most likely paths to follow given the nature of the problem. Some possible solutions do not require an information system solution but instead call for an adjustment in management, additional training, or refinement of existing organizational procedures. Some, however, do require modifications of the firm's existing information systems or an entirely new information system.

# Evaluating and choosing solutions

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- The systems analysis includes a **feasibility study** to determine whether each proposed solution is feasible, or achievable, from financial, technical, and organizational standpoints. The feasibility study establishes whether each alternative solution is a good investment, whether the technology needed for the system is available and can be handled by the firm's information systems staff, and whether the organization is capable of accommodating the changes the system introduces.

## Implementing the solution

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- The first step in implementing a system solution is to create detailed design specifications. **Systems design** shows how the chosen solution should be realized. The system design is the model or blueprint for an information system solution and consists of all the specifications that will deliver the functions identified during systems analysis. These specifications should address all the technical, organizational, and people components of the system solution.

## 12-2 What are the alternative methods for building information systems?

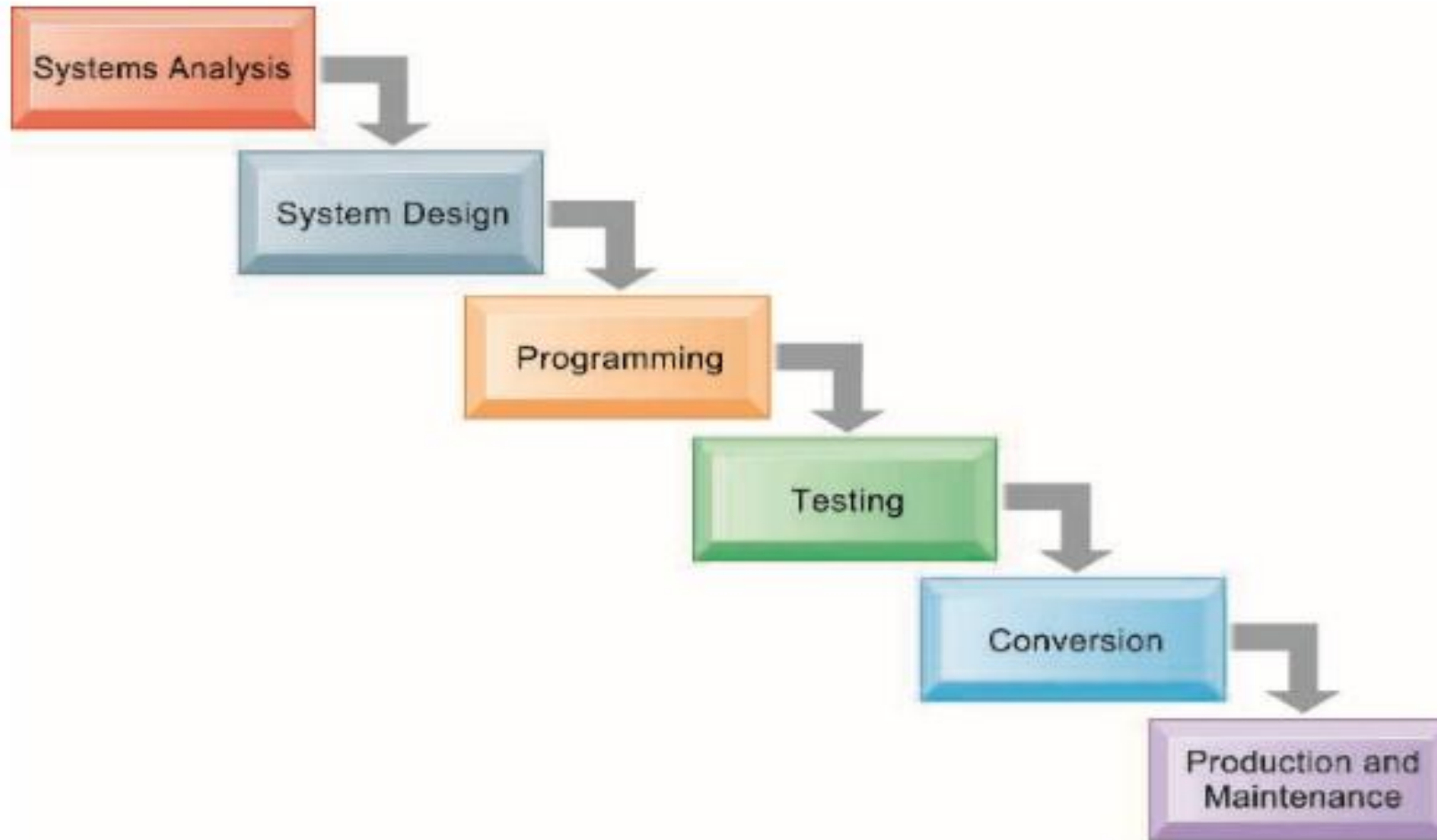
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There are alternative methods for building systems, by using the basic problem-solving model we have just described. These alternative methods include the traditional systems life cycle, prototyping, end-user development, application software packages, and outsourcing.



# *Traditional Systems Development Life Cycle*

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**Figure 12.3**  
The Traditional Systems Development Life Cycle  
*The systems development life cycle partitions systems development into formal stages, with each stage requiring completion before the next stage can begin.*

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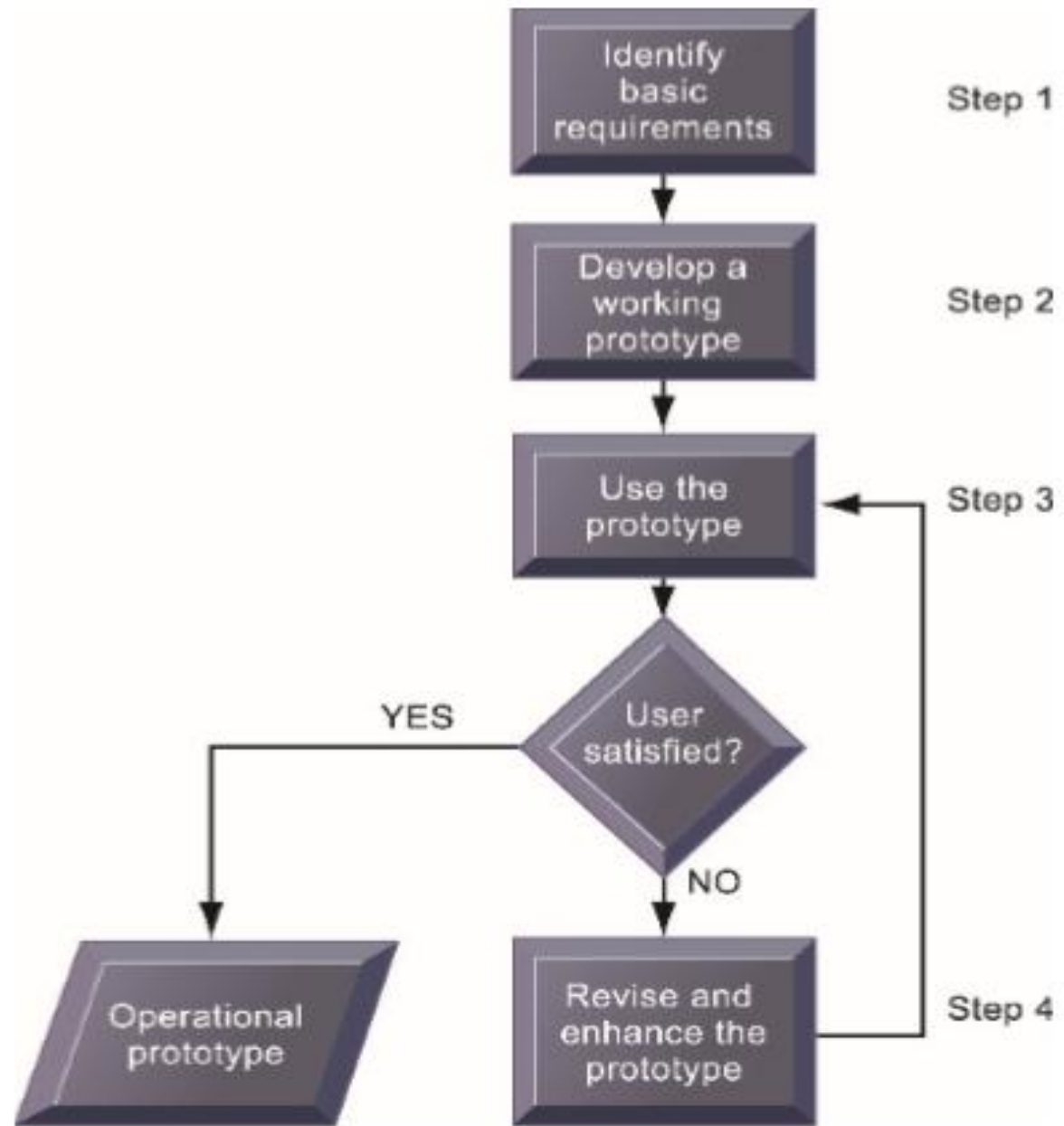
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## *Prototyping*

The prototype is a working version of an information system or part of the system, but it is intended as only a preliminary model. Users interact with the prototype to get a better idea of their information requirements, refining the prototype multiple times.

## Figure 12.4 The Prototyping Process

The process of developing a prototype consists of four steps. Because a prototype can be developed quickly and inexpensively, systems builders can go through several iterations, repeating steps 3 and 4, to refine and enhance the prototype before arriving at the final operational one.



## *End - User Development*

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End-user development allows end users, with little or no formal assistance from technical specialists, to create simple information systems, reducing the time and steps required to produce a finished application. Using user-friendly query, reporting, website development, graphics, and PC software tools, end users can access data, create reports, and develop simple applications on their own with little or no help from professional systems analysts or programmers.

# *Purchasing Solutions: Application Software Packages and Outsourcing*

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## ▪ Application Software Packages

Most new information systems today are built using an application software package or preprogrammed software components. Many applications are common to all business organizations—for example, payroll, accounts receivable, general ledger, or inventory control. For such universal functions with standard processes that do not change a great deal over time, a generalized system will fulfill the requirements of many organizations.

## ▪ Outsourcing

Domestic outsourcing is driven primarily by the fact that outsourcing firms possess skills, resources, and assets that their clients do not have. Installing a new supply chain management system in a very large company might require hiring an additional 30 to 50 people with specific expertise in supply chain management software. Rather than hire permanent new employees and then release them after the new system is built, it makes more sense, and is often less expensive, to outsource this work for a 12-month period.

# *Mobile Application Development : Designing for A Multi-Screen World*

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Employees and customers expect, and even demand, to be able to use a mobile device of their choice to obtain information or perform a transaction anywhere and at any time. To meet these needs, companies will need to develop mobile websites, mobile apps, and native apps as well as traditional information systems.

The Interactive Session on Technology describes how some companies have addressed the challenges of mobile development we have just identified.



# PRINCIPAL METODOLOGIES FOR MODELING AND DESIGNING SYSTEM

# Structured Methodologies

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- top-down,
- progressing from the highest,
- most abstract level to the lowest level of detail—from the general to the specific.
- The primary tool for representing a system's component processes and the flow of data between them is the data flow diagram (DFD)



# Object-oriented Development

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- uses the object, as the basic unit of systems analysis and design. An object combines data and the specific processes that operate on those data
- Object-oriented modeling is based on the concepts of class and inheritance

# Computer-aided Software Engineering (CASE)

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- provides software tools to automate the methodologies we have just described to reduce the amount of repetitive work in systems development