

# Managing Information Technology

## 6<sup>th</sup> Edition

### CHAPTER 11

### METHODOLOGIES FOR

### PURCHASED SOFTWARE PACKAGES

# METHODOLOGIES FOR PURCHASED SOFTWARE PACKAGES

- In large companies, application software is both custom developed and procured from outside sources
- In small businesses, software is purchased
- Overall, there is a trend toward purchased software packages
- Managers should be aware of the methodologies for purchasing software

# THE MAKE-OR-BUY DECISION

- Decision should be made jointly by business managers and IS professionals
- Advantages of purchasing:
  - Cost savings
  - Faster speed of implementation
- Disadvantages of purchasing:
  - Seldom exactly fits a company's needs
  - Often forces trade-offs

# THE MAKE-OR-BUY DECISION



# PURCHASING METHODOLOGY

## The purchasing steps

- Steps for purchasing application packages fit into the three SDLC phases (referred to as the *modified SDLC approach*)

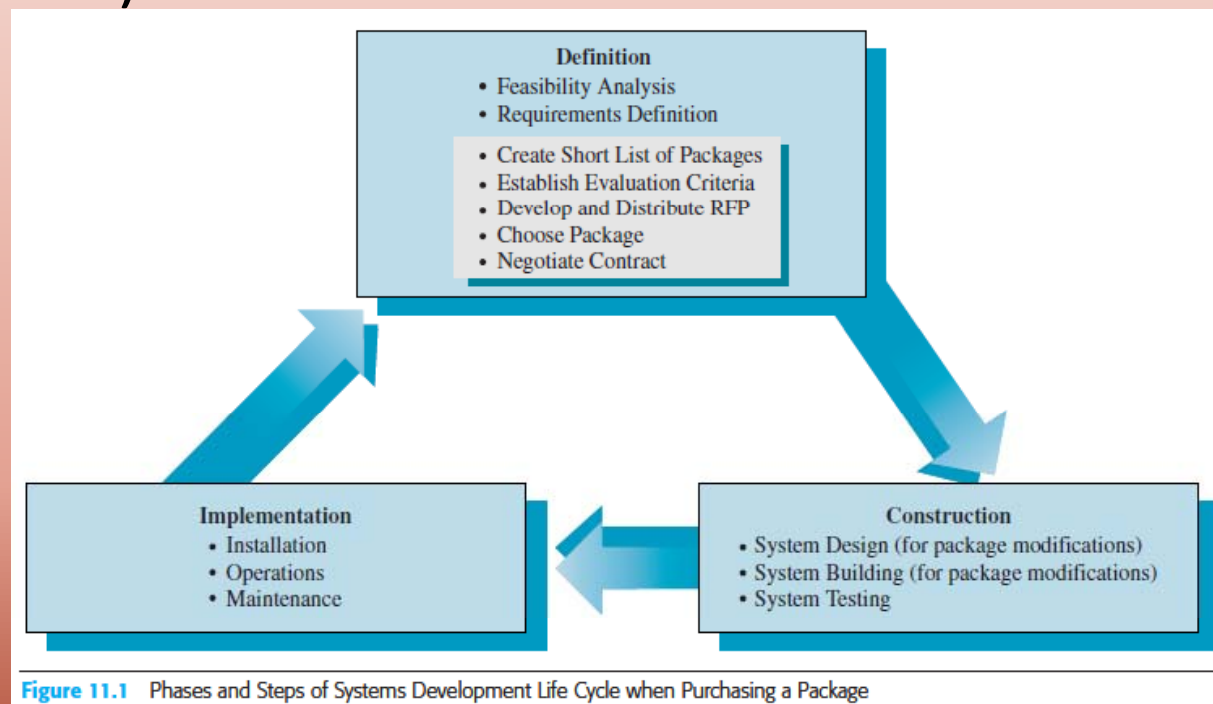




Figure 11.1 Phases and Steps of Systems Development Life Cycle when Purchasing a Package

# PURCHASING METHODOLOGY

## The purchasing steps

- When purchasing a software package, the construction phase is generally reduced
- One exception to this is when organizations test packages that are not fully developed
- The organization may serve as a(n):
  -  – **Alpha site:** can play a significant role in determining the final functionality and user interface design for the new package
  -  – **Beta site:** plays a significant role in user acceptance testing for the vendor

# PURCHASING METHODOLOGY

## Initiating the purchasing process

- Develop a high-level cost estimate with business manager and IS analyst input

Stages	Cost of Building System	Cost of Buying System
<b>Definition Phase</b>		
Feasibility Analysis	\$ 50,000	\$ 50,000
Requirements Definition	250,000	200,000
<b>Construction Phase</b>		
System Design	150,000	—
Coding and Testing	150,000	—
System Testing	130,000	100,000
Documentation and Procedures	120,000	25,000
<b>Implementation Phase</b>		
Installation Planning, Data Cleanup, and Conversion	150,000	175,000
Software Purchase Price	—	100,000
<b>Total</b>	<b>\$1,000,000</b>	<b>\$ 650,000</b>

**Figure 11.2** Comparison of Costs for Building Versus Purchasing a System

# PURCHASING METHODOLOGY

## **Initiating the purchasing process**

- Project team responsible for acquiring the software should be established and includes:
  - Representatives from the business units that will implement the system
  - IS analysts
  - IS specialists who will operate and support the system



# PURCHASING METHODOLOGY

## Definition phase

- The traditional SDLC includes a feasibility analysis and requirements definition as part of the definition phase
- Five additional steps are required for the purchasing life cycle

### Definition

- Feasibility Analysis
- Requirements Definition
- Create Short List of Packages
- Establish Evaluation Criteria
- Develop and Distribute RFP
- Choose Package
- Negotiate Contract

# PURCHASING METHODOLOGY

## **Definition phase – Feasibility analysis**

- Determine whether the proposed system is economically, technically, and operationally feasible
- In addition, the feasibility of purchasing rather than building the system is considered
  - Preliminary investigation of available packaged systems
  - Detailed cost-benefit analysis for budgeting and monitoring purposes

# PURCHASING METHODOLOGY

## **Definition phase – Requirements Definition**

- As when creating custom software, requirements definition is a critical step in the purchase methodology
- Rather than create detailed requirements for in-house employees, this step focuses on defining function requirements needed to develop a request for proposal

# PURCHASING METHODOLOGY

## **Definition phase – Short list of packages**

- Eliminate all but a few promising candidate packages
- Evaluate:
  - Available features of a package
  - Compatibility with current hardware and software
  - Vendor track record

# PURCHASING METHODOLOGY

## Definition phase – Establish selection criteria

- Business and IS team members work together to determine relevant criteria to select the best package
- Some criteria may be mandatory, while others may be desirable

### The Package

Functional capabilities of the packaged system  
Technical requirements the software must satisfy  
Amount and quality of documentation provided

### The Vendor

Business characteristics of the vendor firm  
Vendor support of the package—initial and ongoing

**Figure 11.3** Key Criteria for Software Package Selection

# PURCHASING METHODOLOGY

## **Definition phase – Develop and distribute RFP**

- **Request for proposal (RFP):** A formal document sent to potential vendors inviting them to submit a proposal describing their software package and how it meets the company's needs
- Gives vendors information about:
  - System's objectives and requirements
  - Environment in which the system will be used
  - General criteria used to evaluate proposals
  - Conditions for submitting proposals

# PURCHASING METHODOLOGY

## Definition phase – Develop and distribute RFP

	Page		Page
<u>I. Introduction</u>		<u>III. Requirements</u>	
A. Structure and Scope of the RFP	3	A. Vendor Information	12
B. Objective of RFP	3	B. Vendor Support/Training	13
C. Company Background and Philosophy	3	C. Documentation	15
D. Hardware/Software Environment	4	D. Package Hardware and System Software Environment	17
E. Current Business Environment	5	E. Application and Database Architecture	21
		F. Tuning and Measurement	26
		G. Functional Requirements	28
<u>II. Guidelines for Vendor Response</u>		<u>IV. Costs</u>	
A. Guidelines	6	A. Summary	33
B. Vendor Response	8	B. Nonrecurring	35
C. General Evaluation Process	10	C. Recurring	37
		D. Price Guarantee	39
		E. Maintenance Agreement	40
		F. New Releases	41
		<u>V. Signature Page</u>	42

**Figure 11.4** Sample RFP Table of Contents

# PURCHASING METHODOLOGY

## **Definition phase – Choose package**

- Collect data:
  - Evaluate vendors' responses from RFPs
  - Request demonstrations of leading packages
  - Obtain references from users of the software package in other companies



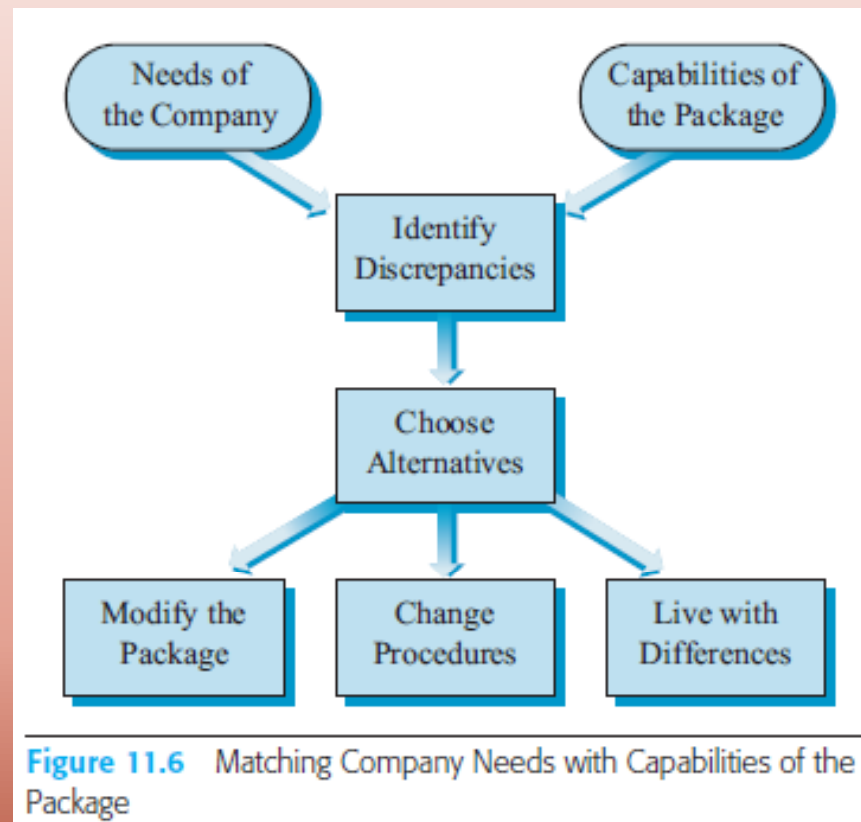
# PURCHASING METHODOLOGY

## **Definition phase – Choose package**

- Project team evaluates how well available packages meet company's needs
- Discrepancies need to be dealt with by:
  - Modifying the package
  - Changing procedures
  - Living with the differences

# PURCHASING METHODOLOGY

## Definition phase – Choose package



# PURCHASING METHODOLOGY

## **Definition phase – Negotiate contract**

- Includes detailed plan for the remainder of the life cycle steps
- Contract negotiations should be an integral part of the purchase process
- Use of an attorney reduces likelihood of future legal problems

# PURCHASING METHODOLOGY

## Definition phase – Negotiate contract

- Contract type has implications for the risk level of the purchasing company
  - For ***fixed-price contracts***, the purchasing company knows the total price in advance
  - For ***cost-reimbursement contracts***, the purchasing company pays the vendor's direct and indirect costs and thus assumes a much greater risk

# PURCHASING METHODOLOGY

## Construction phase

- System design and building steps are only necessary if modifications are to be made to the package

### Construction

- System Design (for package modifications)
- System Building (for package modifications)
- System Testing

# PURCHASING METHODOLOGY

## **Construction phase**

- If no software package modifications required:
  - Skip system design and building steps
  - Move directly to system testing
  - Develop any necessary process changes
- If software package is modified:
  - Consider contracting with vendor or a third party for changes versus modifying in-house
  - Determine if changes are required to other existing company systems

# PURCHASING METHODOLOGY

## Implementation phase

- Same three steps apply for purchased packages as for custom developed packages

### Implementation

- Installation
- Operations
- Maintenance

# PURCHASING METHODOLOGY

## **Implementation phase - Installation**

- Involves installation planning, training, data cleanup, and conversion
- Success dependent on:
  - Quality of vendor support
  - Package size and complexity



# PURCHASING METHODOLOGY

## Implementation phase - Installation

- Special attention needs to be given to training, especially if there are significant changes in the way employees do their work
- **Change management** is a set of activities designed to help overcome resistance by business users to the new system

# PURCHASING METHODOLOGY

## Implementation phase - Operations

- Operations is essentially the same regardless of whether the package was built or bought
- ***Short-term success*** dependent on good communication with the vendor
- ***Long-term success*** dependent on how well the system has been integrated into the company's ongoing operations

# PURCHASING METHODOLOGY

## **Implementation phase - Maintenance**

- Common for vendor to handle package maintenance, if specified in the contract
- Advantage:
  - Can lead to significant cost avoidance over the life of the system

# PURCHASING METHODOLOGY

## **Implementation phase - Maintenance**

- Disadvantages:
  - Purchasing company totally dependent on vendor for future system changes
  - May not get specific changes that the company wants
  - Modified packages may be difficult to update

# PURCHASING METHODOLOGY

## **Project team for purchasing packages**

- Business managers and users
- IS professionals
- **Project manager** – usually a business manager
- Software vendor personnel
- Sometimes includes a **third-party implementation partner**
- Purchasing specialists
- Attorneys

# PURCHASING METHODOLOGY

## **Managing a purchased system project**

- Ensure adequate attention is given to the Definition phase
- Success of Implementation phase dependent on how well Definition phase was performed
- Purchased system risks:
  - Success dependent on performance of third-party
  - Short-term and long-term success dependent on the contract negotiation process

# PURCHASING METHODOLOGY

## Purchasing advantages and disadvantages

### Purchasing Advantages

- Reduced time to implement
- Lower overall acquisition costs
- Reduced need for internal IS resources
- High application quality (debugged and best practices)
- Infusion of external expertise (IS, business)

### Purchasing Disadvantages

- Risks due to lack of package knowledge
- Risks due to extent of organizational changes required
- Initial and ongoing dependence on vendor

**Figure 11.7** Advantages and Disadvantages of Purchasing Packaged Software

## Special Case

### • Enterprise System Packages

- By the end of the 1990s, most of the U.S. Fortune 500 companies had invested in enterprise resource planning systems
- Enterprise Resource Planning (ERP) systems are designed to integrate all departments and business functions into a single software system



## Special Case

### • Enterprise System Packages

- ERP system packages are much more complex because they can span across the enterprise
  - Companies purchase to achieve business benefits and IT platform benefits
  - Enables access to integrated data for better decision making
  - Often require heavy reliance on third-party consultants
  - Implementation efforts usually complex, and sometimes not successful

# Special Case

## • Enterprise System Packages

### Five Factors for Successful ERP implementation:

- Top management is engaged in the project, not just involved
- Project leaders are veterans, and team members are decision makers
- Third parties fill gaps in expertise and transfer their knowledge
- Change management goes hand-in-hand with project planning
- A satisficing mind-set prevails

# OPEN SOURCE SOFTWARE

- Free to acquire
- The source code and right to modify the software can also be obtained
- Third parties often provide fee-based products such as:
  - Advanced features for the product
  - Maintenance and training
  - Documentation and books
- Upfront cost much lower, but total cost of ownership is about as much as proprietary packages

# OPEN SOURCE SOFTWARE

- Advantages:
  - Large pool of volunteer testers and developers
  - Ability to modify source code
  - Do not become dependent on one vendor

# OPEN SOURCE SOFTWARE

- Advantages (cont.):
  - Acquisition cost is the same for one copy or thousands
  - May use the software for any purpose
  - May be easier to interface open source packages with each other

# OPEN SOURCE SOFTWARE

- Disadvantages:
  - No complete documentation without paying for it
  - Only generic applications that are common to many organizations are viable
  - Without some cooperative group, different adopters may duplicate efforts in development
  - Must be careful in choosing a licensing agreement that fits the company's needs

# OPEN SOURCE SOFTWARE

- Open Source Licensing
  - There are many different licenses that open source software packages use
  - All allow the modification and redistribution of source code, but some have conditions or restrictions
  - Managers must be aware of the terms of these restrictions so that they are not found in violation

## New Purchasing Option

### • Application Service Providers (ASPs)

- Purchaser elects to use a “hosted” application rather than to purchase the software application and host it on its own equipment
- ASP is an ongoing service provider
- Company pays third party (ASP) for delivering the software functionality over the Internet to company employees and sometimes business partners



## New Purchasing Option

- Application Service Providers (ASPs)

- Advantages:
  - Cost savings and faster speed of implementation
  - Usually involves monthly fees rather than large infrastructure investment

## New Purchasing Option

- Application Service Providers (ASPs)

- Disadvantages:
  - Dependence on an external vendor for both software and ongoing operations
  - Good assessment of required service levels even more critical

## New Purchasing Option

- Application Service Providers (ASPs)

- **Service level agreement:** specifies performance expectations for the ASP, including:
  - System uptime
  - Recovery time
  - Wait time on calls to the help desk
  - Notifications about software upgrades
  - Other factors important to the customer
- This agreement should be a key part of the contract



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