

**REDESIGNING THE
ORGANIZATION
WITH
INFORMATION
SYSTEMS**



OBJECTIVES

- ❑ How could building a new system change the way an organization works?
- ❑ How can a company make sure that the new information systems it builds fit its business plan?
- ❑ What are the steps required to build a new information system?



OBJECTIVES

- What alternative methods for building information systems are available?
- Are there any techniques or system-building approaches to help us build e-commerce and e-business applications more rapidly?



MANAGEMENT CHALLENGES

- Major risks and uncertainties in systems development
- Determining when new systems and business processes can have the greatest strategic impact

Information systems plan

- **Road map indicating direction of systems development**

Enterprise Analysis (Business Systems Planning)

- **Analysis of organization-wide information requirements**
- **Identifies key entities and attributes**

Strategic Analysis or Critical Success Factors

- **Small number of easily identifiable operational goals**
- **Shaped by industry, firm, manager, and broader environment**
- **Used to determine information requirements of organization**

SYSTEMS AS PLANNED ORGANIZATIONAL CHANGE

Using CSFs to Develop Systems

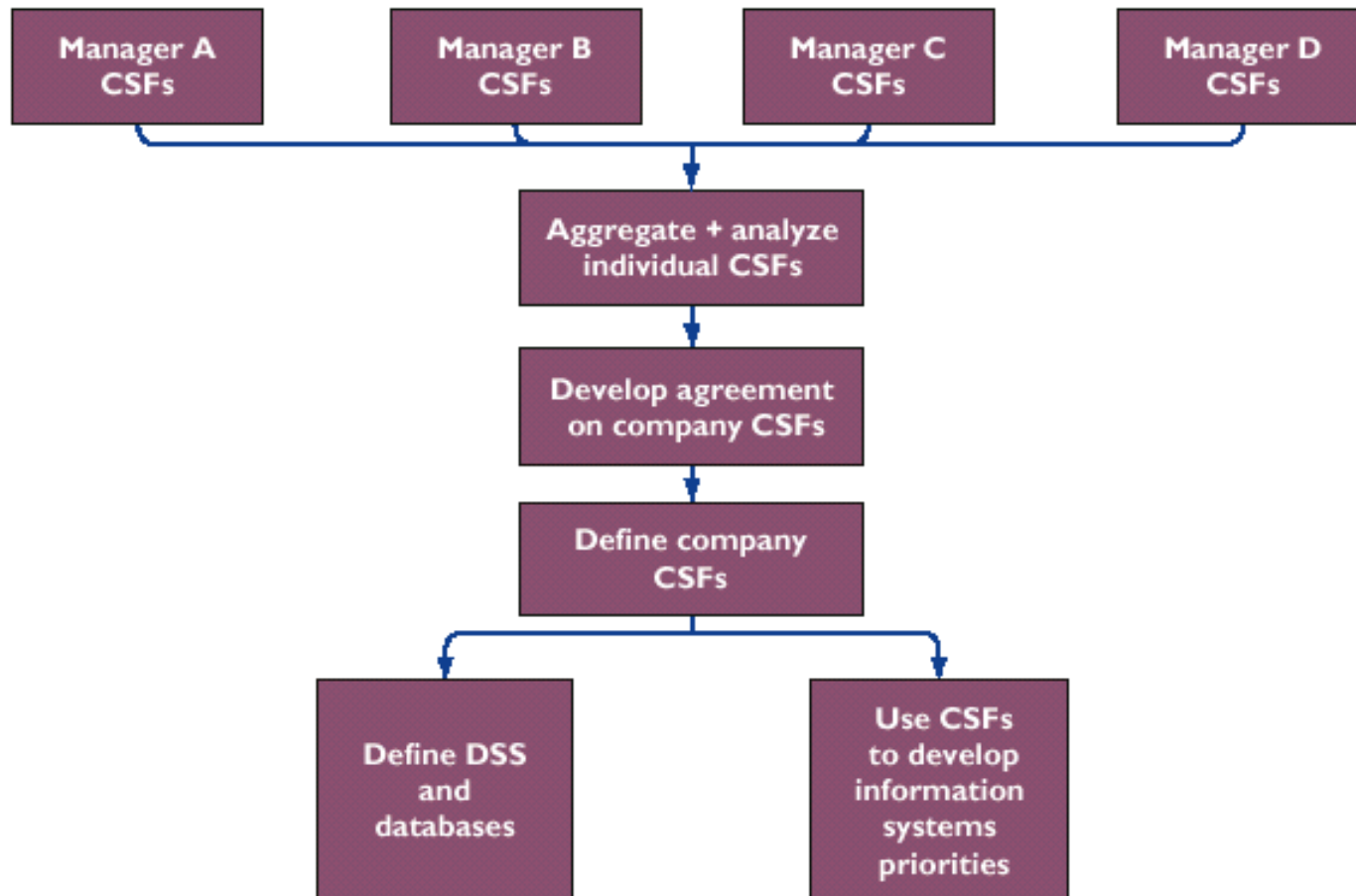


Figure 12-2



SYSTEMS AS PLANNED ORGANIZATIONAL CHANGE

Systems Development and Organizational Change

- **Automation: Speeding up performance**
- **Rationalization of procedures: Streamlining of operating procedures**
- **Business process reengineering: Radical design of business processes**
- **Paradigm shift: Radical reconceptualization**

SYSTEMS AS PLANNED ORGANIZATIONAL CHANGE

Organizational Change Carries Risks and Rewards

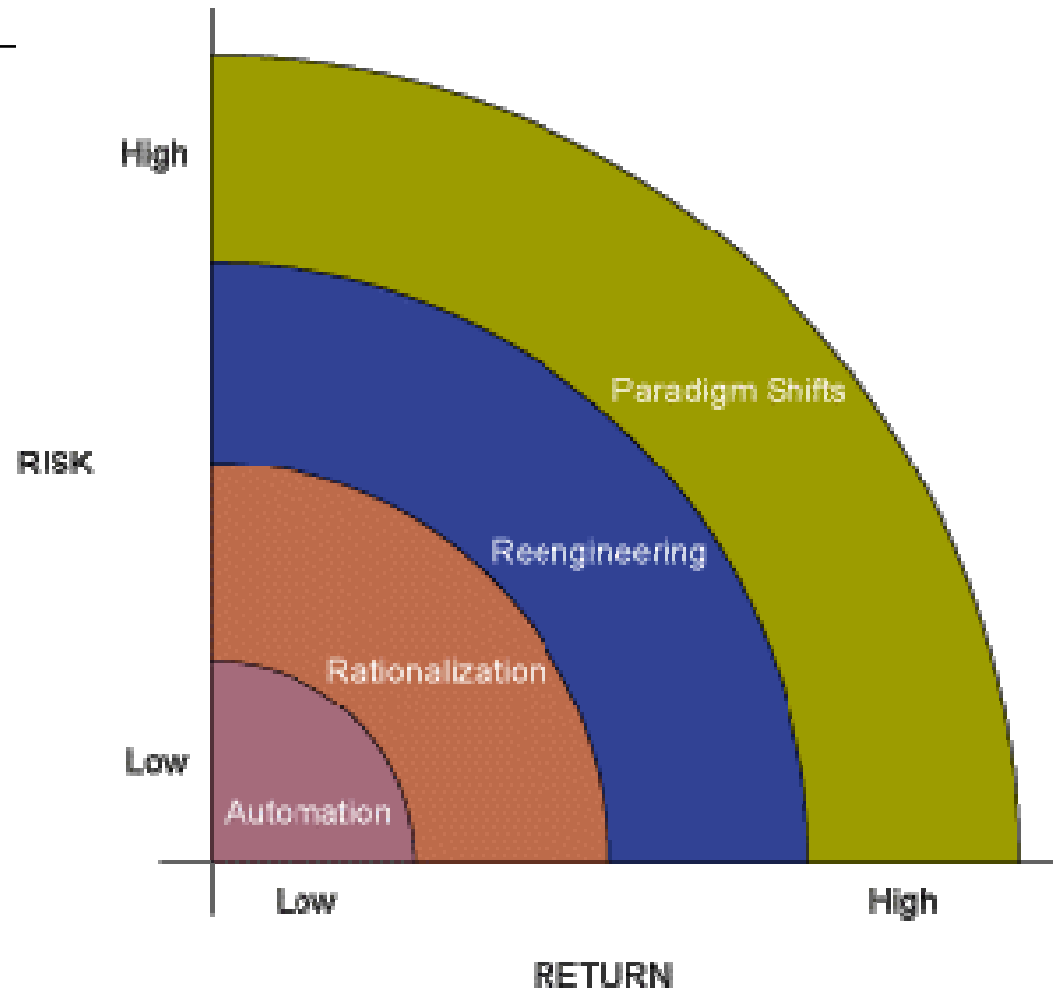


Figure 12-3



**BUSINESS PROCESS REENGINEERING
AND PROCESS IMPROVEMENT**

Business Process Reengineering

Business Process Reengineering

- **Reorganizes work flows, combining steps to eliminate redundant paper-intensive tasks**
- **Large payoff from IT investment if processes are redesigned before applying technology**

BUSINESS PROCESS REENGINEERING

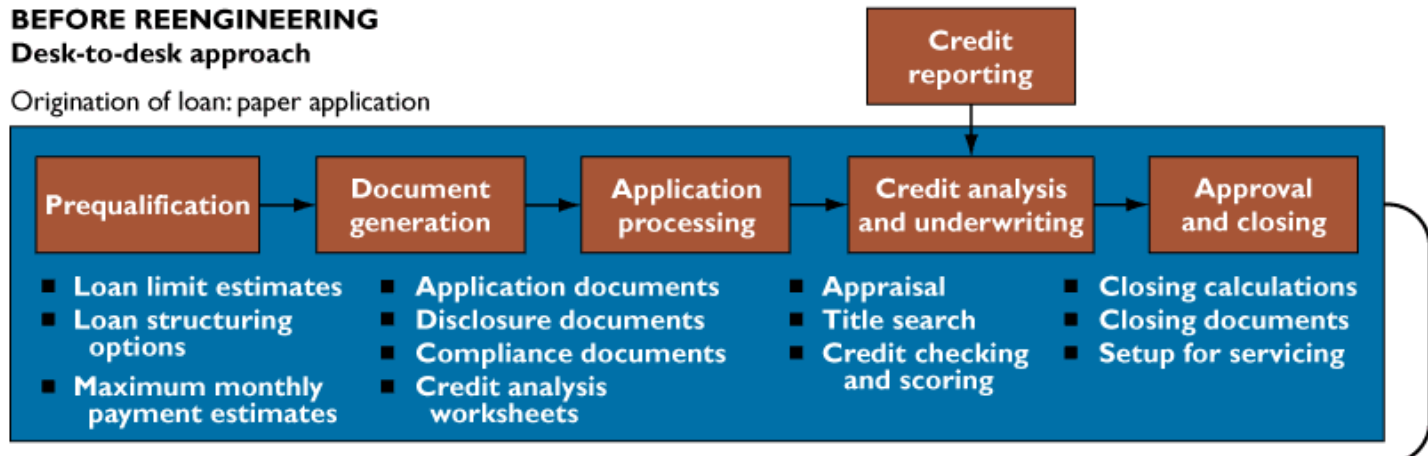
AND PROCESS IMPROVEMENT

Redesigning Mortgage Processing in the United States

BEFORE REENGINEERING

Desk-to-desk approach

Origination of loan: paper application



Servicing of loan in multiple locations by specialists in credit analysis and underwriters

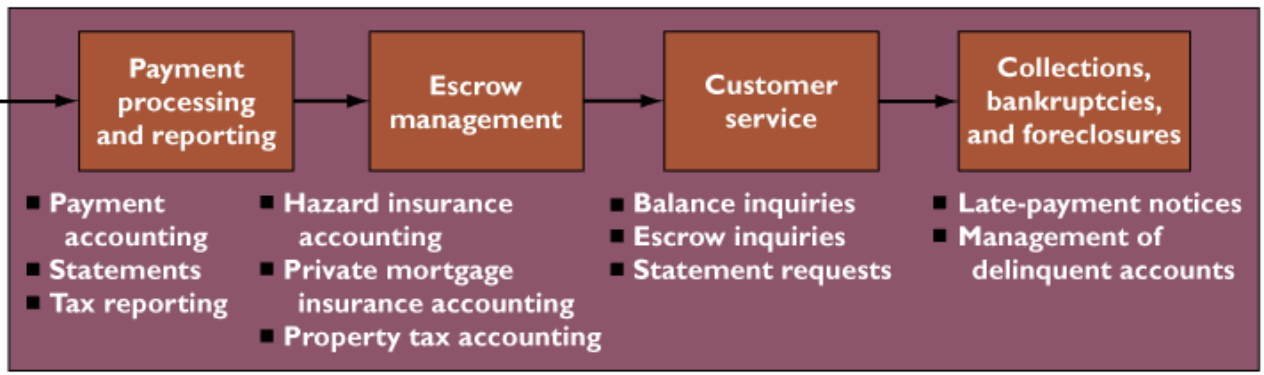
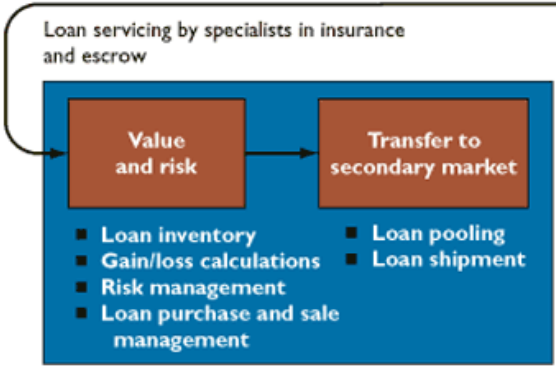


Figure 12-4a

BUSINESS PROCESS REENGINEERING AND PROCESS IMPROVEMENT

Redesigning Mortgage Processing in the United States



AFTER REENGINEERING
Team approach

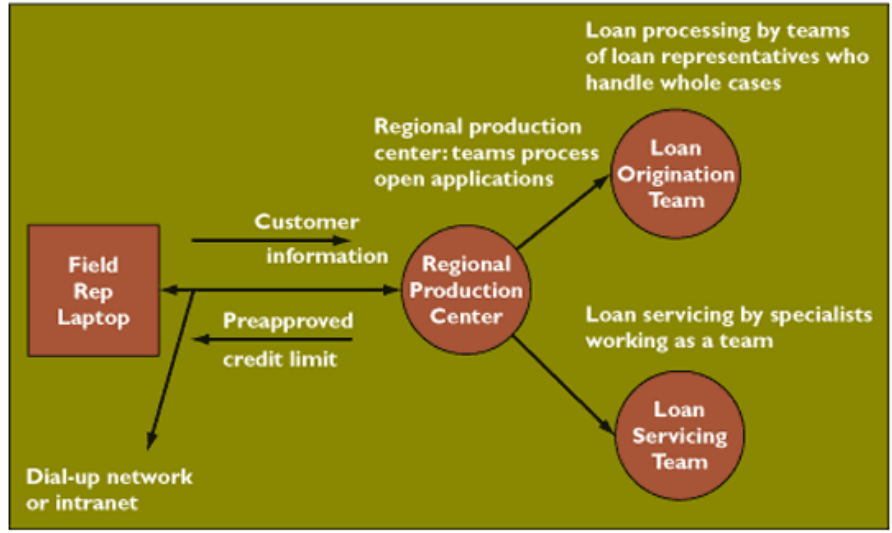


Figure 12-4b



BUSINESS PROCESS REENGINEERING

AND PROCESS IMPROVEMENT

Steps in Effective Reengineering

- **Senior management needs to develop broad strategic vision**
- **Management must understand and measure performance of existing processes as baseline**
- **Information technology should be allowed to influence process design from start**
- **IT infrastructure should be able to support business process changes**

How information systems contribute to Total Quality Management

- **Simplify product or production process**
- **Enable benchmarking**
- **Use customer demands as guide to improve products and services**
- **Reduce cycle time**

Systems development

- **Activities that go into producing information systems solution**

Systems analysis

- **Analysis of problems that organization aims to resolve using information systems**

OVERVIEW OF SYSTEMS DEVELOPMENT

The Systems Development Process

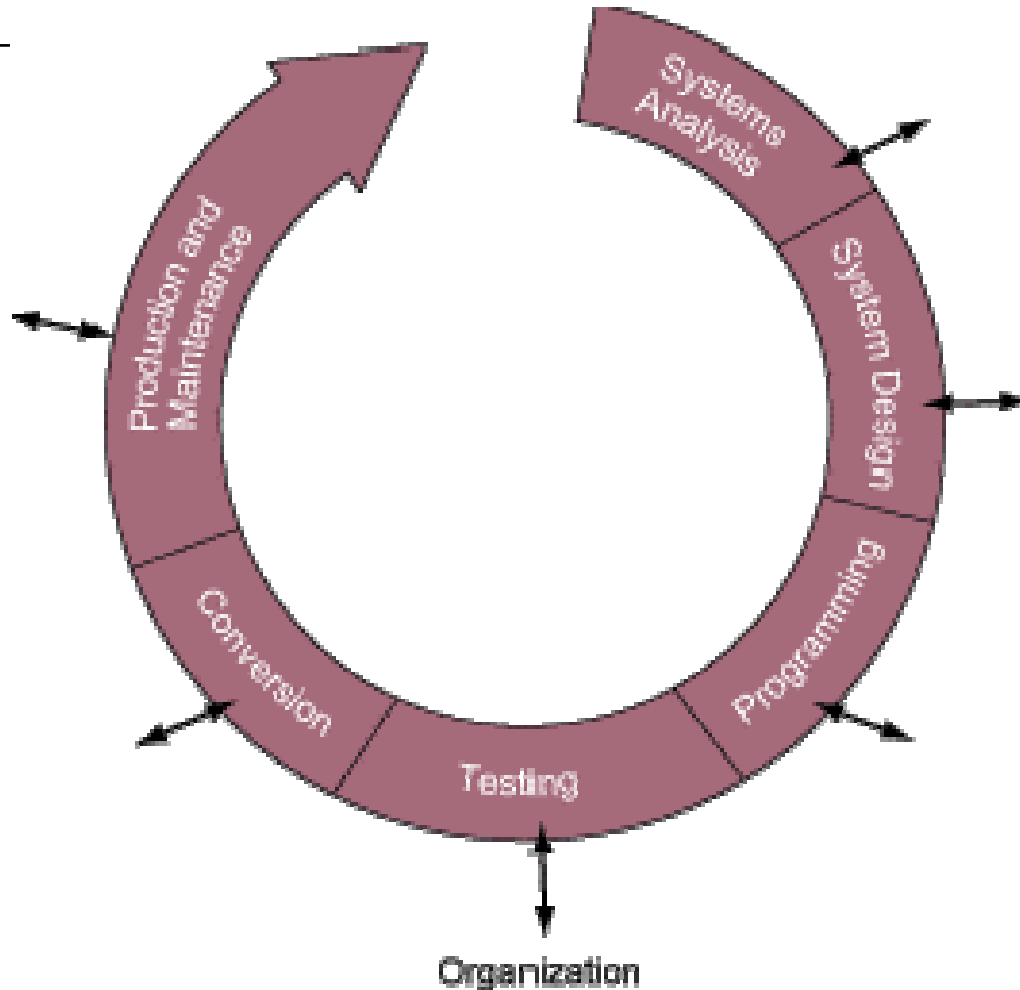


Figure 12-5

Feasibility study

- **Determining achievability of solution**

Establishing information requirements

- **Stating information needs that new system must satisfy**
- **Identifying who, when, where and how components of information**

Systems Design

-
- **Details how system will meet information requirements as determined by systems analysis**
 - **Specifications for the system solution**
 - **Should reflect user business priorities and information needs**

Programming

- **Process of translating system specifications into program code**

Testing

- **Checks whether the system produces desired results under known conditions**
- **Unit testing, system testing, acceptance testing, test plan**

Conversion

- **Process of changing from old system to new system**
- **Strategies:**
 - **Parallel**
 - **Direct cutover**
 - **Pilot study**
 - **Phased approach**
 - **Documentation**

Production and maintenance

- **Production is stage after new system is installed and the conversion is complete**
- **Maintenance is changes in hardware, software, documentation, or procedures of production system to correct errors**

Systems lifecycle

- **Traditional methodology for developing information system**
- **Partitions systems development process into formal stages that must be completed sequentially**

Prototyping

- **Process of building experimental system quickly and inexpensively for demonstration and evaluation**

Prototype

- **Preliminary working version of information system for demonstration and evaluation**



ALTERNATIVE SYSTEM-BUILDING APPROACHES

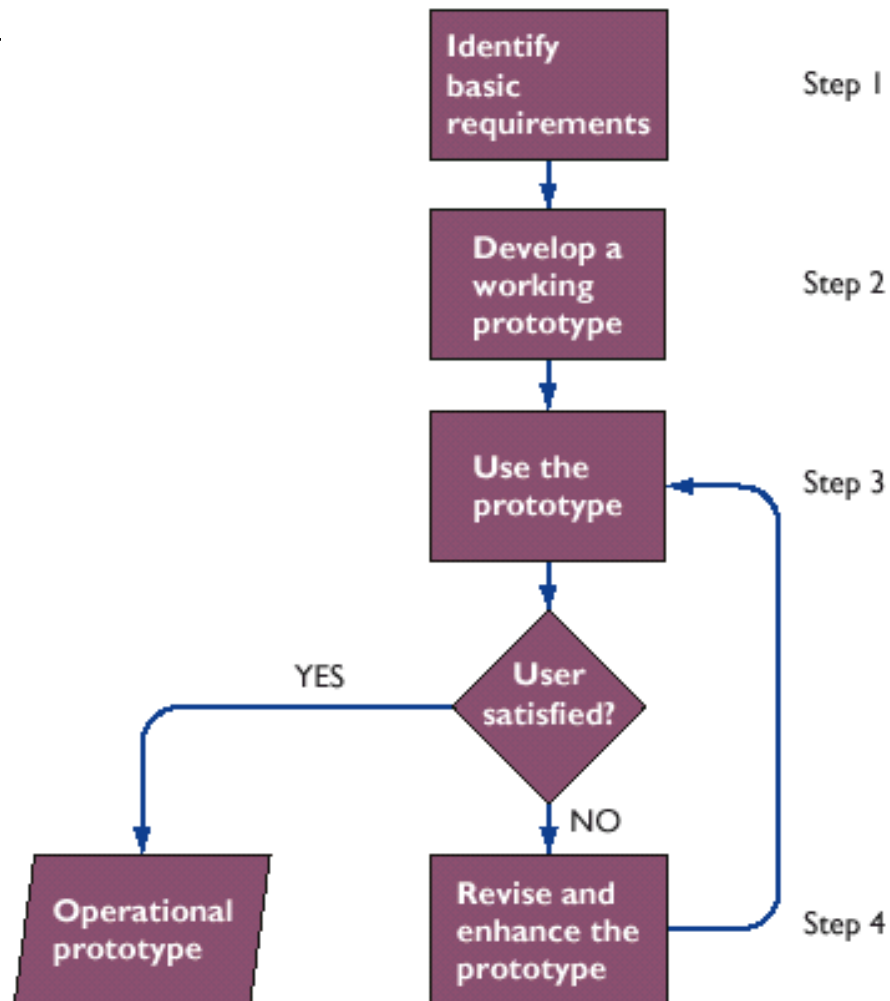
Prototyping

Iterative

- **A process of repeating over and over again the steps to build system**

ALTERNATIVE SYSTEM-BUILDING APPROACHES

The Prototyping Processes



ALTERNATIVE SYSTEM-BUILDING APPROACHES

Application Software Packages

Application software packages

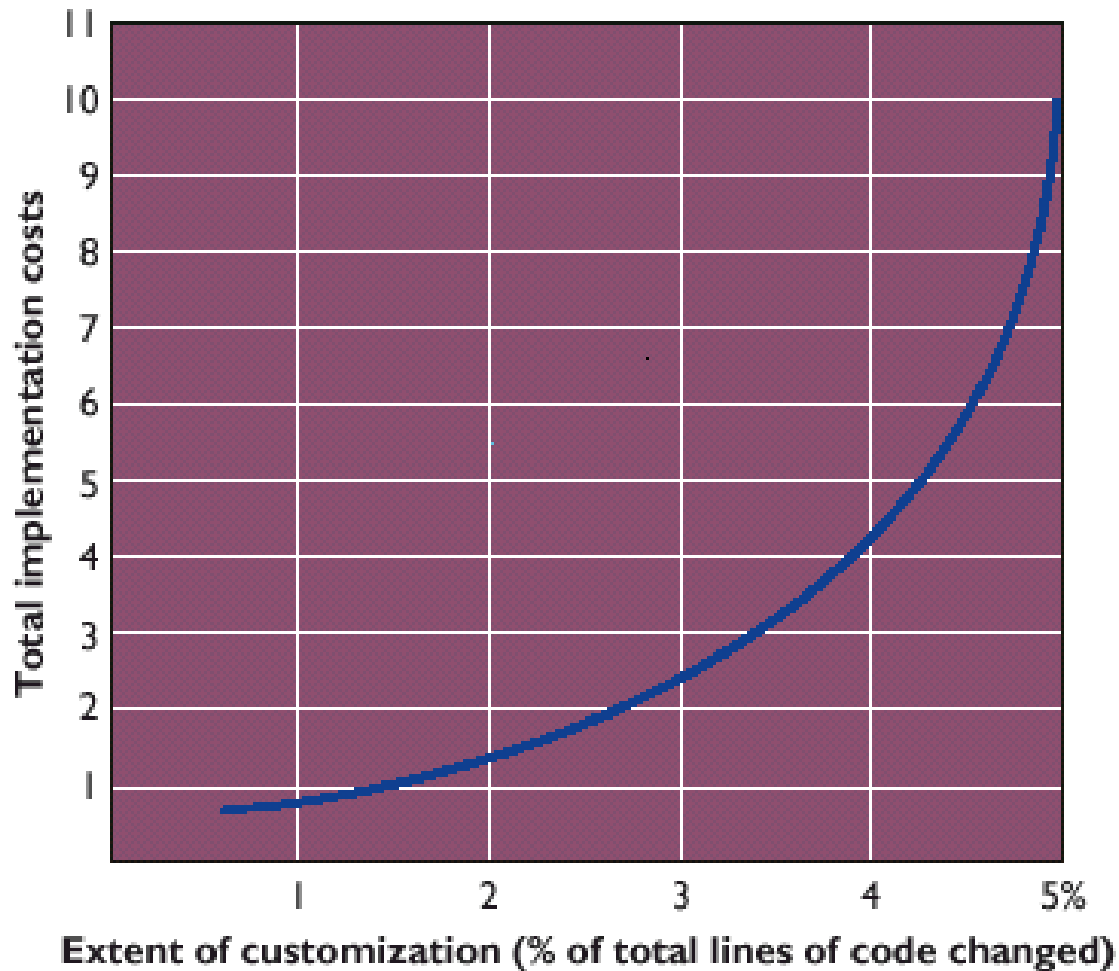
- **Set of prewritten, precoded application software programs commercially available for sale or lease**

Customization

- **Modification of software package to meet organization's unique requirements without destroying the software's integrity**

ALTERNATIVE SYSTEM-BUILDING APPROACHES

The Effects of Customizing a Software Package on Total Implementation Costs





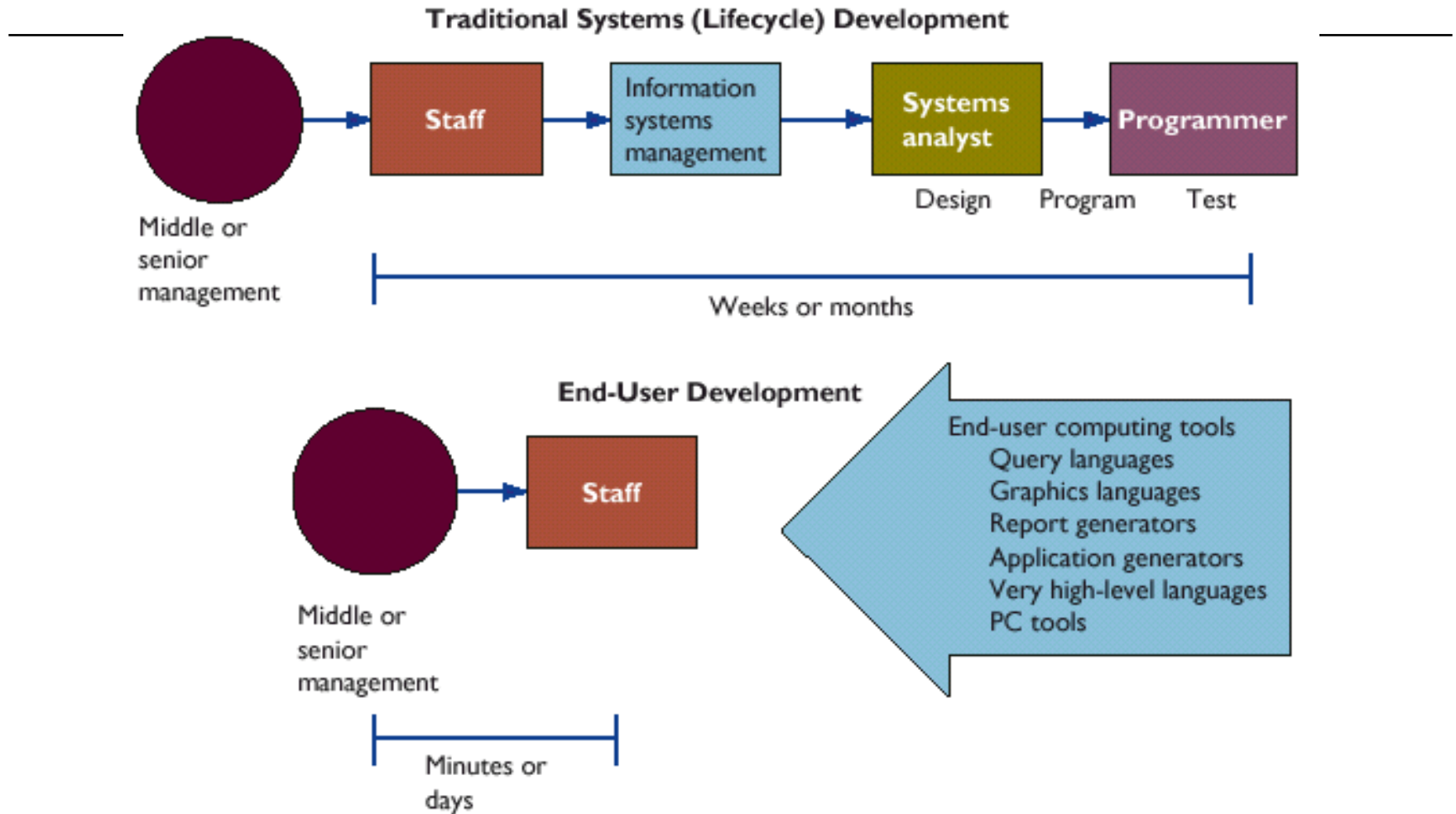
ALTERNATIVE SYSTEM-BUILDING APPROACHES

End-User Development

-
- **Development of information systems by end users with little or no formal assistance from technical specialists**
 - **Allows users to specify their own business needs**

ALTERNATIVE SYSTEM-BUILDING APPROACHES

End-User Versus System Lifecycle Development





ALTERNATIVE SYSTEM-BUILDING APPROACHES

End-User Development

-
- **Improves requirements gathering leading to higher level of user involvement and satisfaction**
 - **Cannot easily handle processing of large numbers of transactions or applications**



ALTERNATIVE SYSTEM-BUILDING APPROACHES

Outsourcing

-
- **Practice of contracting computer center operations, telecommunications networks, or applications development to external vendors**



APPLICATION DEVELOPMENT FOR THE DIGITAL FIRM

Object-Oriented Software Development

-
- **System modeled as a collection of objects and relationships between them**
 - **Iterative and incremental**
 - **Shifts focus from modeling business processes and data to combining data and procedures to create objects**

ALTERNATIVE SYSTEM-BUILDING APPROACHES

Implementation

System Design

Analysis

- Application
- What

- System architecture
- Subsystems

- Data structure
- Algorithms
- Controls

Object Design

- programming
- database access



APPLICATION DEVELOPMENT FOR THE DIGITAL FIRM

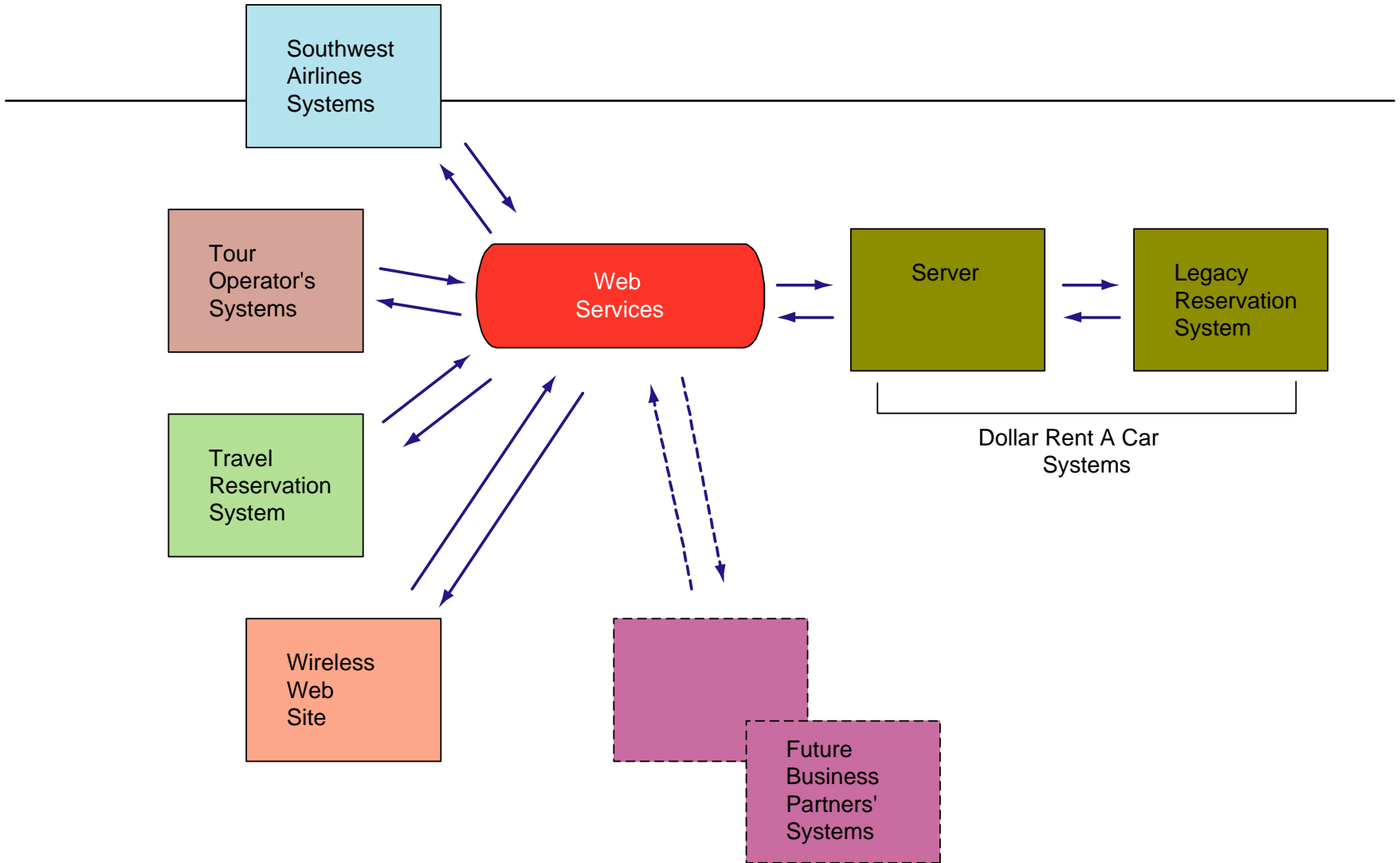
Rapid Application Development (RAD)

-
- **Process for developing systems in short time period**
 - **Uses prototyping, fourth-generation tools, and close teamwork**

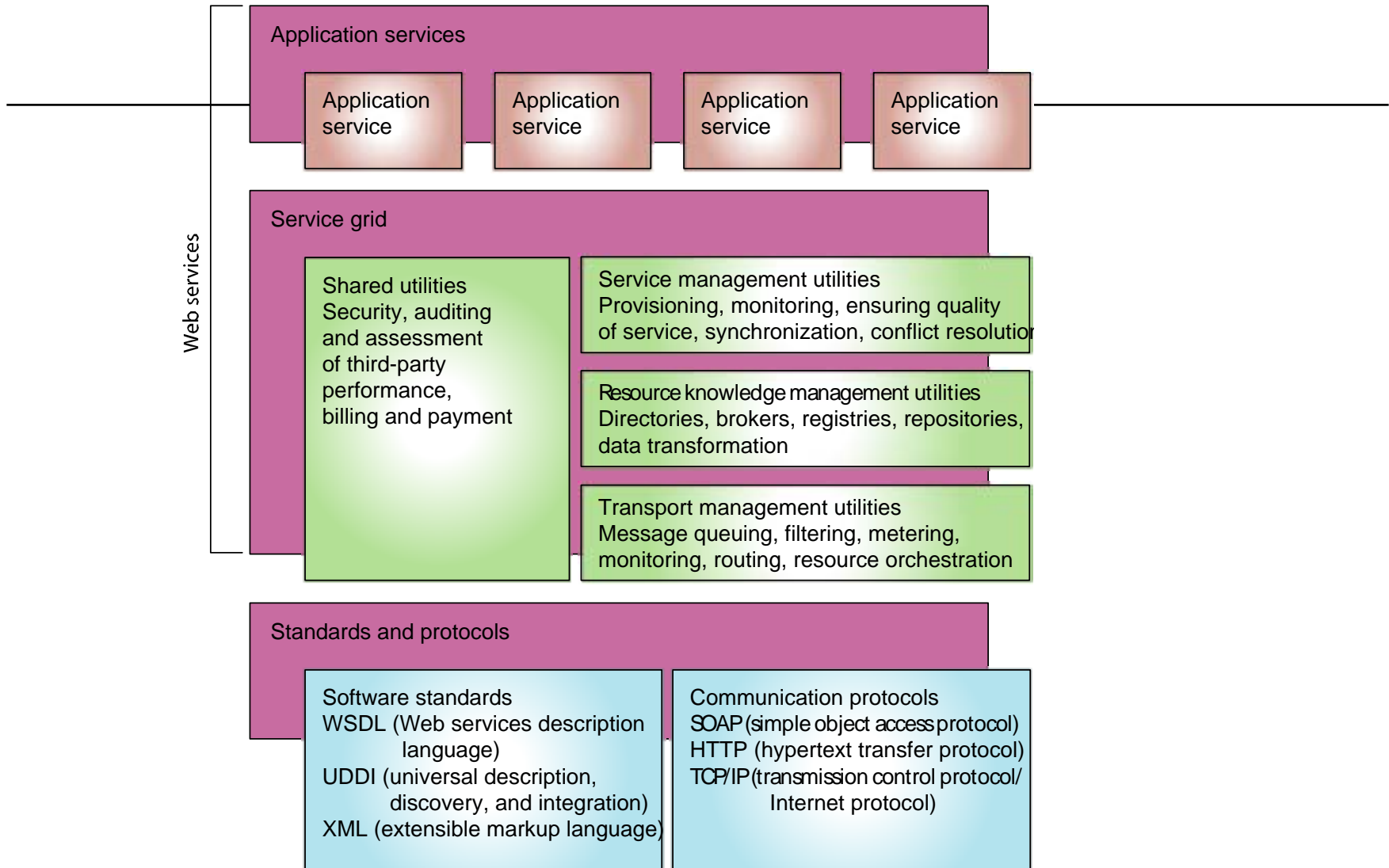
Web Services

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- **Software components deliverable over Internet**
 - **Enable one application to communicate with another with no translation required**
 - **Standards and protocols: XML, SOAP, WSDL, UDDI**

ALTERNATIVE SYSTEM-BUILDING APPROACHES



ALTERNATIVE SYSTEM-BUILDING APPROACHES



Looking Beyond the Organization

-
- **E-commerce and e-business require systems planning and systems analysis based on a broader view of organization**