Case Study for Information Management
資訊管理個案

Building Information Systems: Electronic Medical Records (Chap. 13)

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課程大綱 (Syllabus)

週次　日期　內容（Subject/Topics）

1 102/09/17 Introduction to Case Study for Information Management

2 102/09/24 Information Systems in Global Business: UPS (Chap. 1)

3 102/10/01 Global E-Business and Collaboration: NTUC Income (Chap. 2)

4 102/10/08 Information Systems, Organization, and Strategy: iPad and Apple (Chap. 3)

5 102/10/15 IT Infrastructure and Emerging Technologies: Salesforce.com (Chap. 5)

6 102/10/22 Foundations of Business Intelligence: Lego (Chap. 6)

課程大綱 (Syllabus)

週次	日期	內容（Subject/Topics）
7	102/10/29	Telecommunications, the Internet, and Wireless Technology: Google, Apple, and Microsoft (Chap. 7)
8	102/11/05	Securing Information System: Facebook (Chap. 8)
9	102/11/12	Midterm Report (期中報告)
10	102/11/19	期中考試週
11	102/11/26	Enterprise Application: Border States Industries Inc. (BSE) (Chap. 9)
12	102/12/03	E-commerce: Amazon vs. Walmart (Chap. 10)

課程大綱 (Syllabus)

週次	日期	內容(Subject/Topics)
13	102/12/10	Knowledge Management: Tata Consulting Services (Chap. 11) [Invited Talk]
14	102/12/17	Enhancing Decision Making: CompStat (Chap. 12)
15	102/12/24	Building Information Systems: Electronic Medical Records (Chap. 13)
16	102/12/31	Final Report I (期末報告 I)
17	103/01/07	Final Report II (期末報告 II)
18	103/01/14	期末考試週

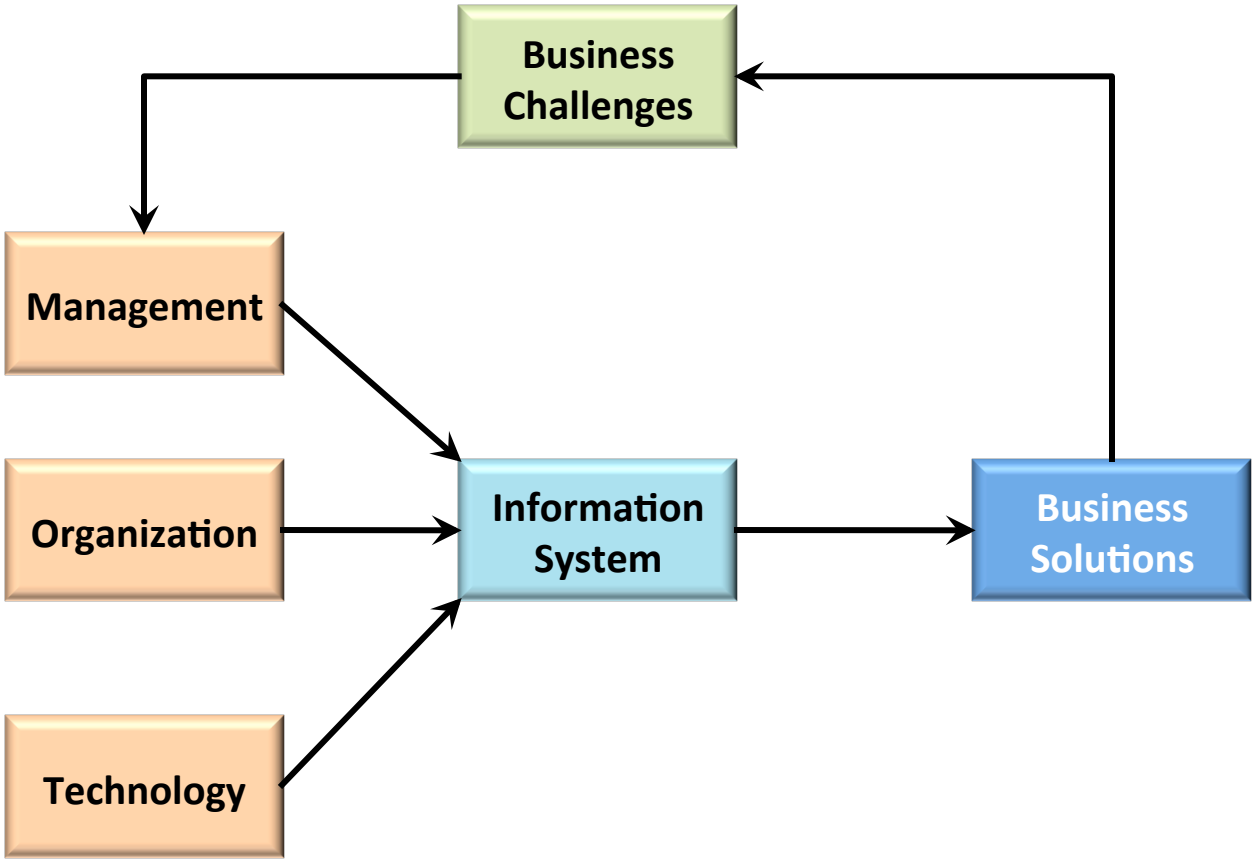
Chap. 13
Building Information Systems: Electronic Medical Records

Case Study: Electronic Medical Records

Are Electronic Medical Records a Cure for Health Care? (Chap. 13)

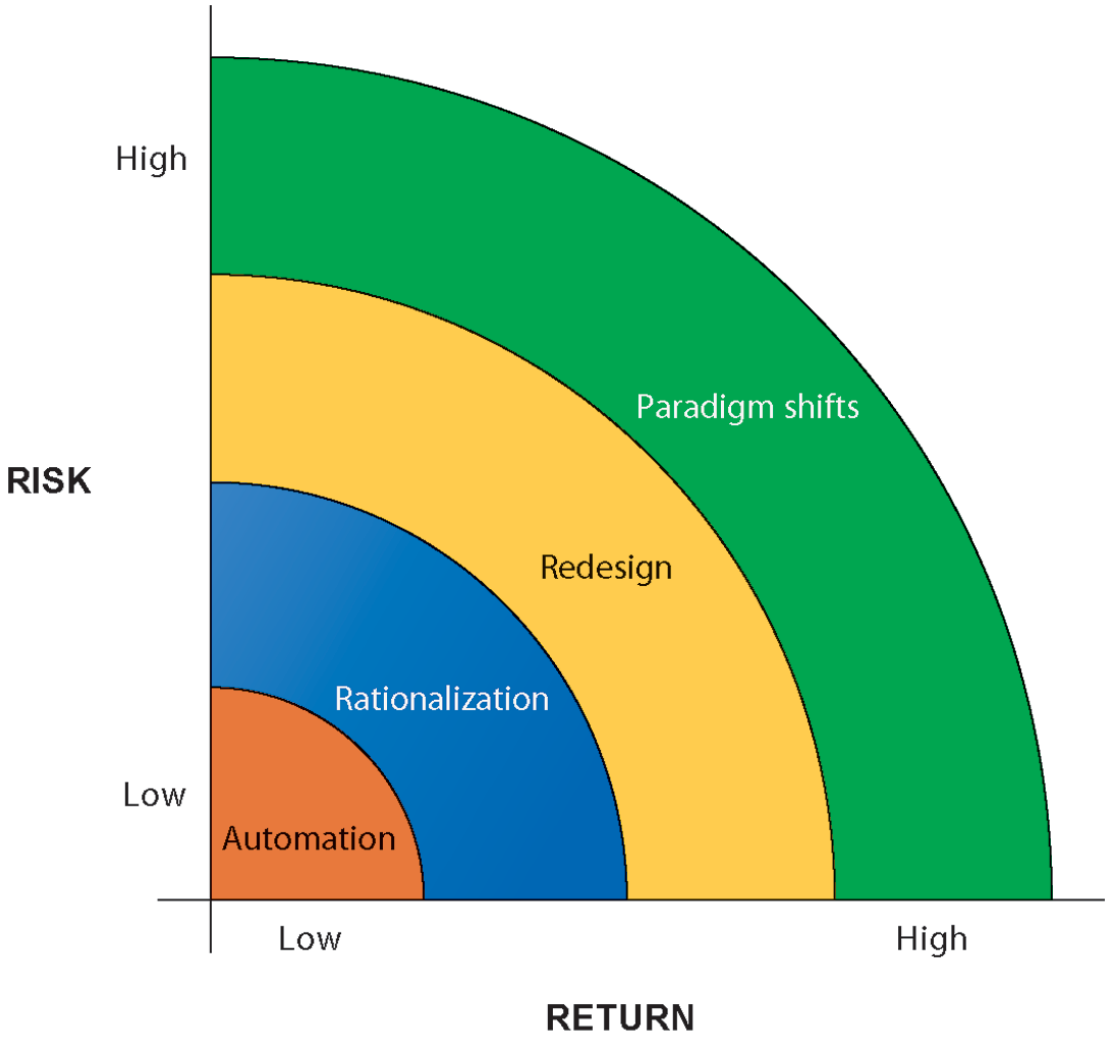
1. What management, organization, and technology factors are responsible for the difficulties in building electronic medical record systems? Explain your answer.
2. What stages of system-building will be the most difficult for building electronic medical record systems? Explain your answer.
3. What is the business and social impact of not digitizing medical records (to individual physicians, hospitals, insurers, patients)?
4. What are business and social benefits of digitizing medical recordkeeping?
5. Name two important information requirements for physicians, two for patients, and two for hospitals that should be addressed by electronic medical records systems.
6. Diagram the "as-is" and "to-be" process for prescribing a medication for a patient if an EMR system is implemented.

Overview of Fundamental MIS Concepts



Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

ORGANIZATIONAL CHANGE CARRIES RISKS AND REWARDS



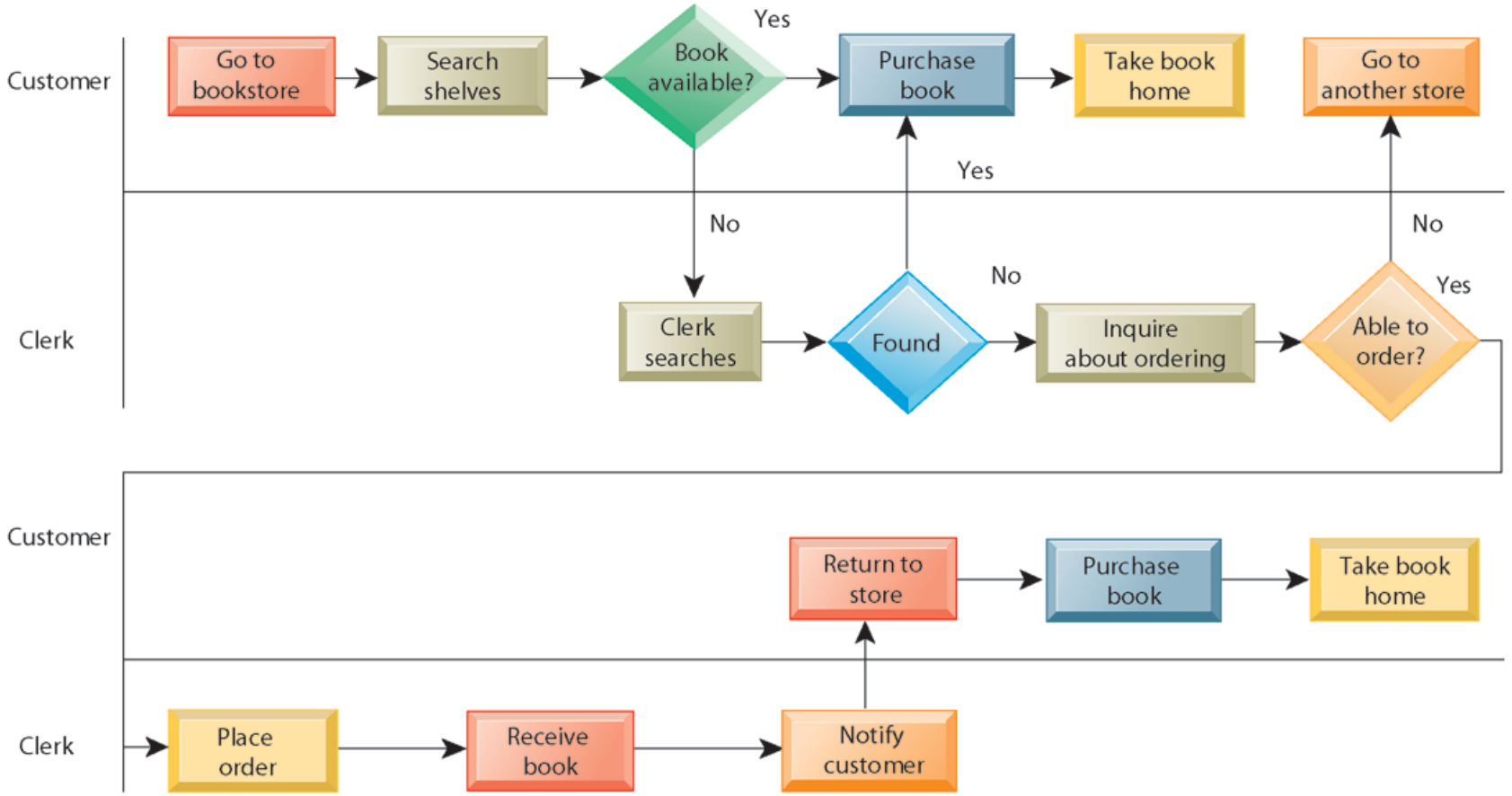
Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Business Process Management (BPM)

- Business Process Management (BPM)
  - Variety of tools, methodologies to analyze, design, optimize processes
  - Used by firms to manage business process redesign
- Steps in BPM
  1. Identify processes for change
  2. Analyze existing processes
  3. Design the new process
  4. Implement the new process
  5. Continuous measurement

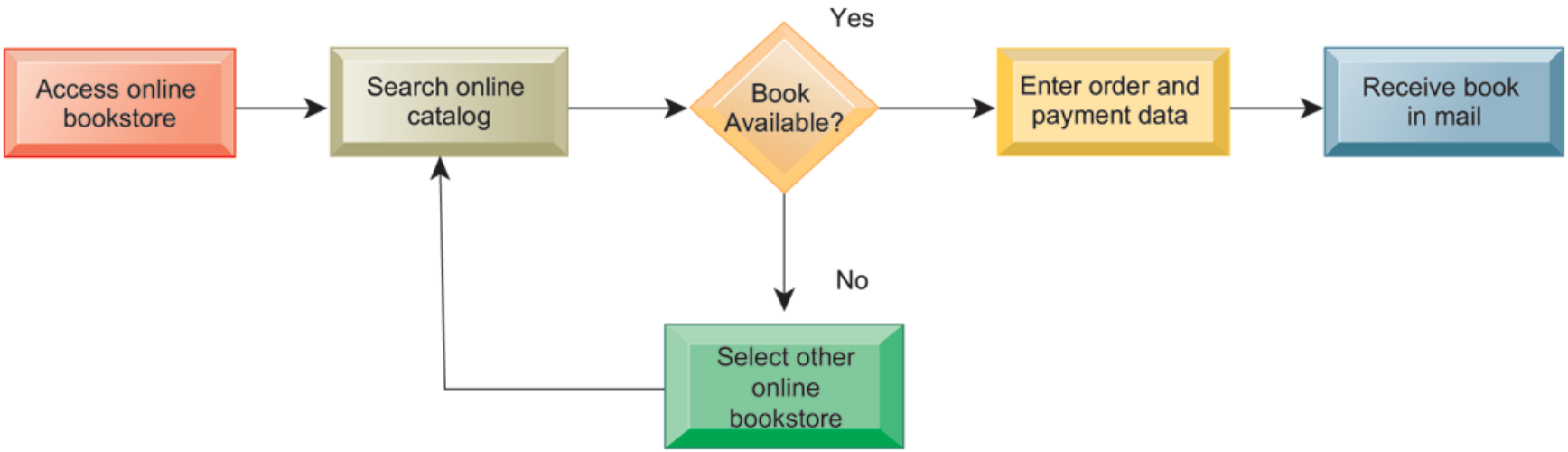
Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

AS-IS BUSINESS PROCESS FOR PURCHASING A BOOK FROM A PHYSICAL BOOKSTORE



Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

REDESIGNED PROCESS FOR PURCHASING A BOOK ONLINE



Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

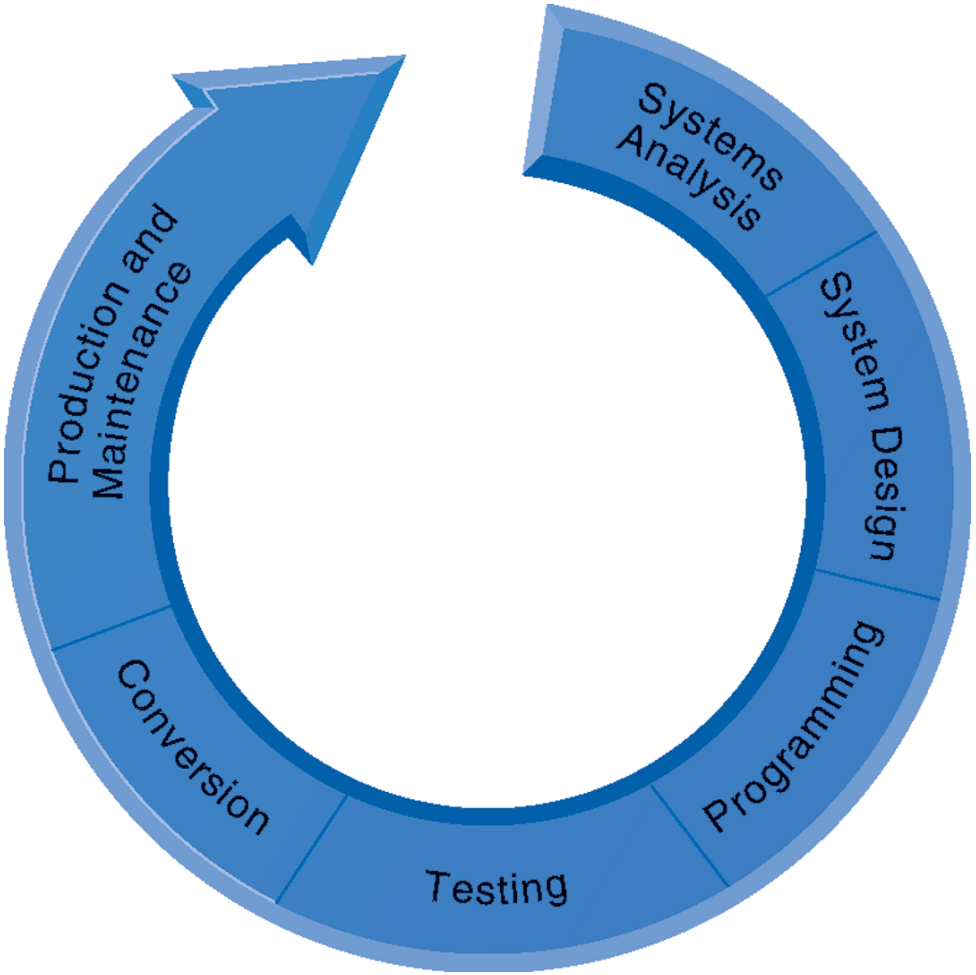
Business Process Redesign

- Variety of tools for BPM, to
  - Identify and document existing processes
    - Identify inefficiencies
  - Create models of improved processes
  - Capture and enforce business rules for performing processes
  - Integrate existing systems to support process improvements
  - Verify that new processes have improved
  - Measure impact of process changes on key business performance indicators

Systems Development (SD)

- Activities that go into producing an information system solution to an organizational problem or opportunity
  1. Systems analysis
  2. Systems design
  3. Programming
  4. Testing
  5. Conversion
  6. Production and maintenance

THE SYSTEMS DEVELOPMENT PROCESS



Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Systems Analysis (SA)

- Analysis of problem to be solved by new system
  - Defining the problem and identifying causes
  - Specifying solutions
    - Systems proposal report identifies and examines alternative solutions
  - Identifying information requirements
- Includes feasibility study
  - Is solution feasible and good investment?
  - Is required technology, skill available?

System Analysis (SA) (cont.)

- Establishing information requirements
  - Who needs what information, where, when, and how
  - Define objectives of new/modified system
  - Detail the functions new system must perform
- Faulty requirements analysis is leading cause of systems failure and high systems development cost

Systems Design (SD)

- Describes system specifications that will deliver functions identified during systems analysis
- Should address all managerial, organizational, and technological components of system solution
- Role of end users
  - User information requirements drive system building
  - Users must have sufficient control over design process to ensure system reflects their business priorities and information needs
  - Insufficient user involvement in design effort is major cause of system failure

Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Systems Design: Design Specifications

OUTPUT
Medium
Content
Timing

INPUT
Origins
Flow
Data entry

USER INTERFACE
Simplicity
Efficiency
Logic
Feedback
Errors

DATABASE DESIGN
Logical data model
Volume and speed requirements
File organization and design
Record specifications

PROCESSING
Computations
Program modules
Required reports
Timing of outputs

MANUAL PROCEDURES
What activities
Who performs them
When
How
Where

CONTROLS
Input controls (characters, limit, reasonableness)
Processing controls (consistency, record counts)
Output controls (totals, samples of output)
Procedural controls (passwords, special forms)

SECURITY
Access controls
Catastrophe plans
Audit trails

DOCUMENTATION
Operations documentation
Systems documents
User documentation

CONVERSION
Transfer files
Initiate new procedures
Select testing method
Cut over to new system

TRAINING
Select training techniques
Develop training modules
Identify training facilities

ORGANIZATIONAL CHANGES
Task redesign
Job redesign
Process design
Organization structure design
Reporting relationships

Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Completing the Systems Development Process

- Programming:
  - System specifications from design stage are translated into software program code
- Testing
  - Ensures system produces right results
  - Unit testing: Tests each program in system separately
  - System testing: Test functioning of system as a whole
  - Acceptance testing: Makes sure system is ready to be used in production setting
  - Test plan: All preparations for series of tests

A SAMPLE TEST PLAN TO TEST A RECORD CHANGE

Procedure	Address and Maintenance "Record Change Series"		Test Series 2		
	Prepared By:		Date:	Version:	
Test Ref.	Condition Tested	Special Requirements	Expected Results	Output On	Next Screen
2.0	Change records				
2.1	Change existing record	Key field	Not allowed		
2.2	Change nonexistent record	Other fields	"Invalid key" message		
2.3	Change deleted record	Deleted record must be available	"Deleted" message		
2.4	Make second record	Change 2.1 above	OK if valid	Transaction file	V45
2.5	Insert record		OK if valid	Transaction file	V45
2.6	Abort during change	Abort 2.5	No change	Transaction file	V45

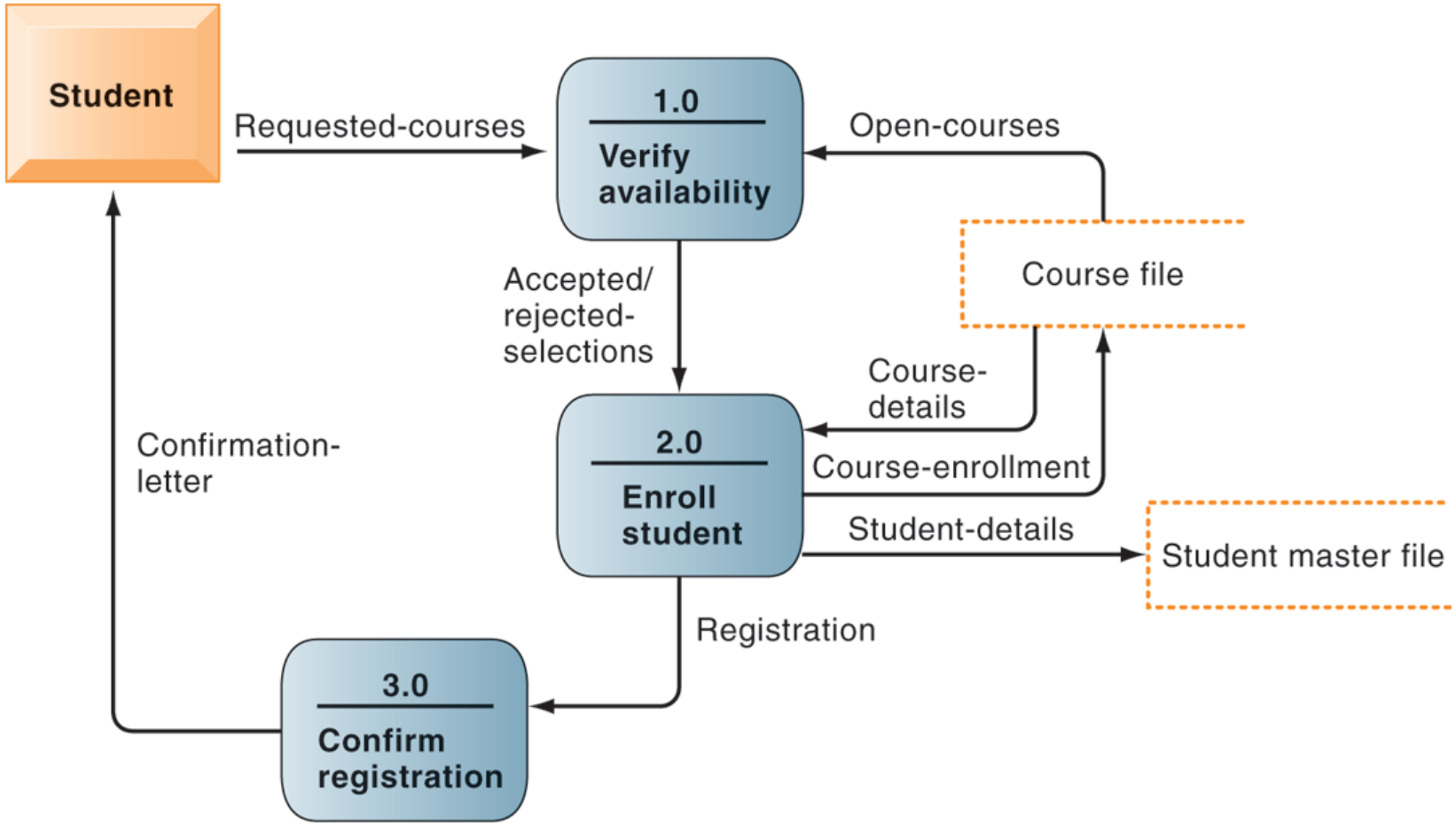
Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Systems Development

SUMMARY OF SYSTEMS DEVELOPMENT ACTIVITIES	
CORE ACTIVITY	**DESCRIPTION**
Systems analysis	Identify problem(s) Specify solutions Establish information requirements
Systems design	Create design specifications
Programming	Translate design specifications into code
Testing	Unit test Systems test Acceptance test
Conversion	Plan conversion Prepare documentation Train users and technical staff
Production and maintenance	Operate the system Evaluate the system Modify the system

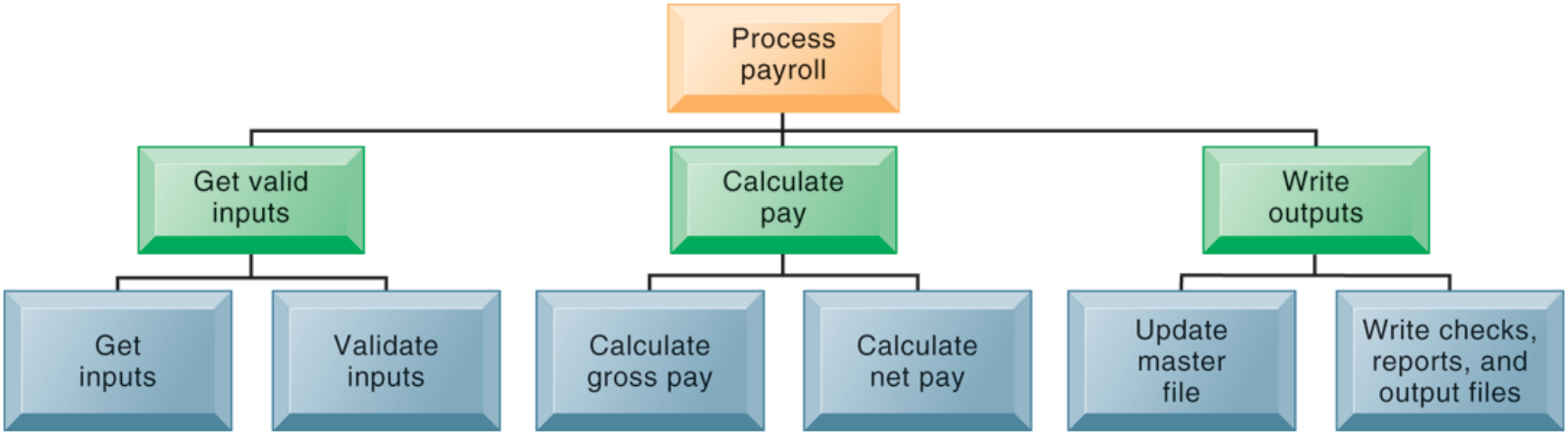
Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

DATA FLOW DIAGRAM FOR MAIL-IN UNIVERSITY REGISTRATION SYSTEM



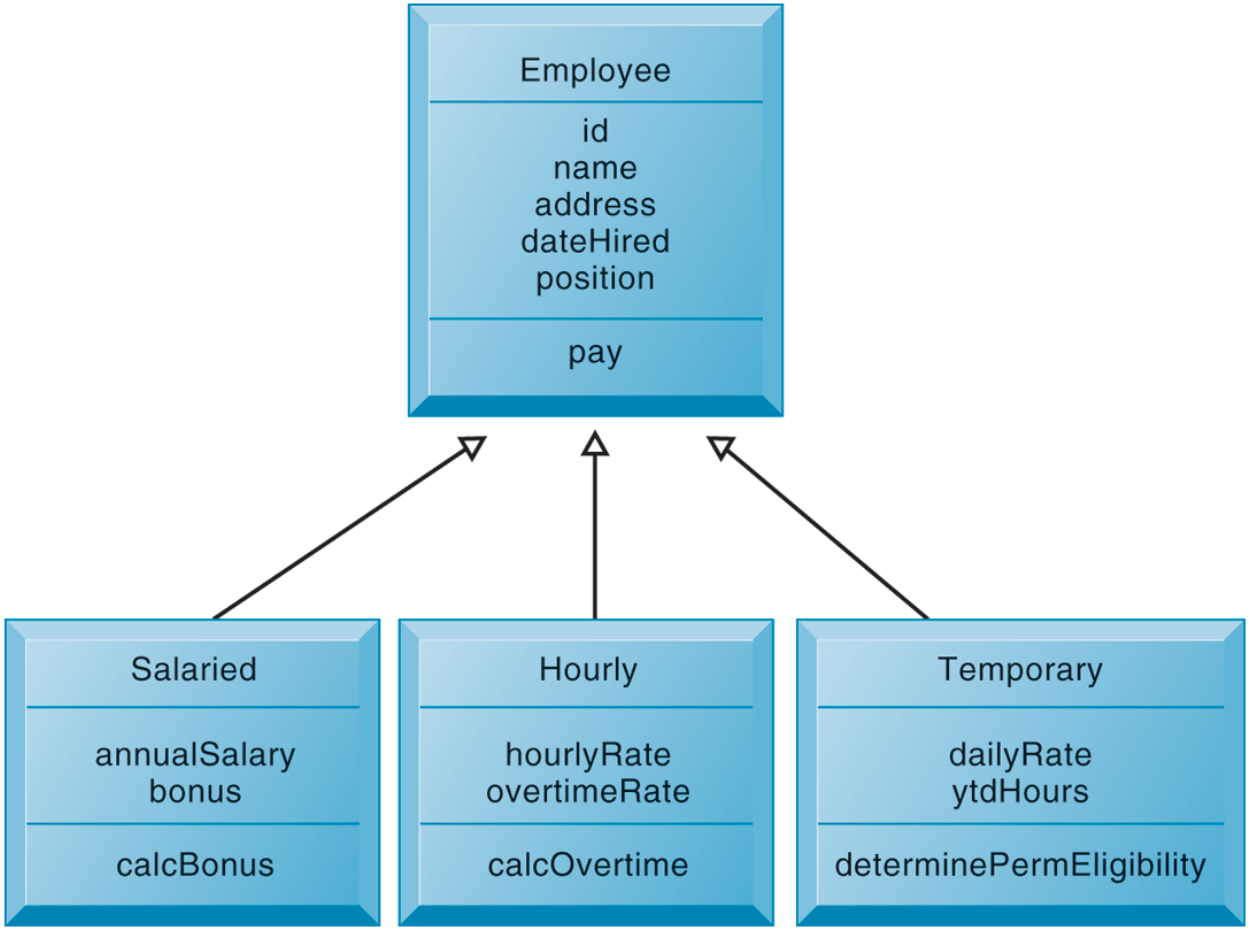
Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

HIGH-LEVEL STRUCTURE CHART FOR A PAYROLL SYSTEM



Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

CLASS AND INHERITANCE

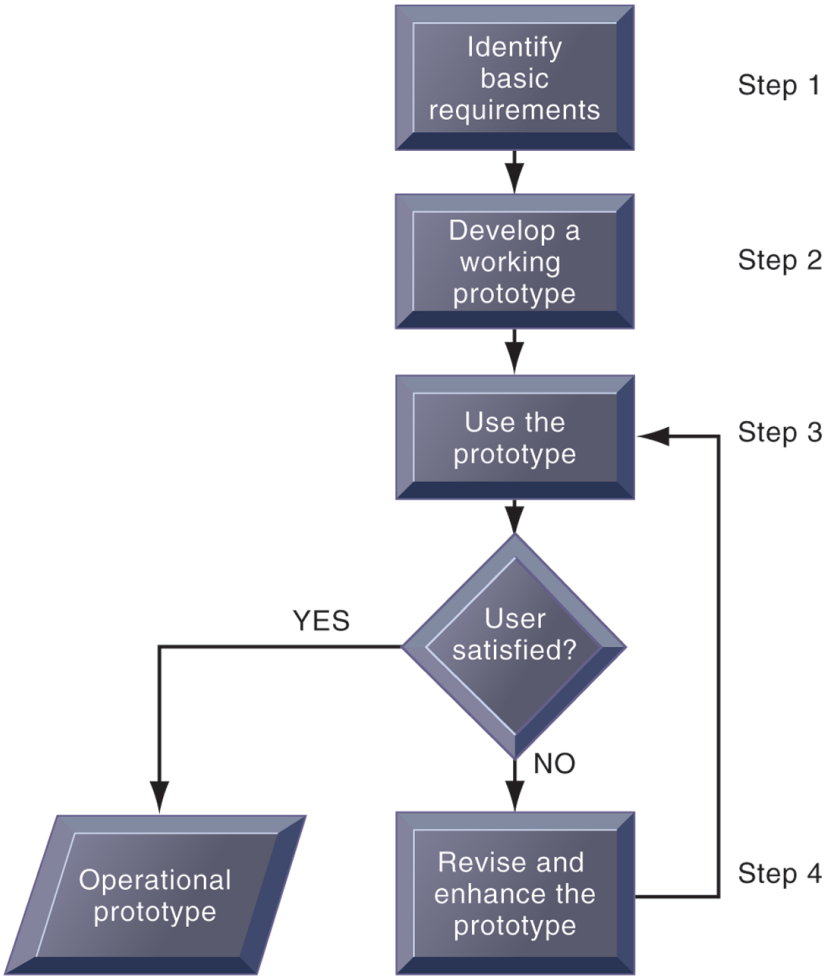


Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Alternative Systems-Building Methods

1. Traditional systems life-cycle
2. Prototyping
3. End-user development
4. Application software packages
5. Outsourcing

THE PROTOTYPING PROCESS



Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

TOTAL COST OF OFFSHORE OUTSOURCING

TOTAL COST OF OFFSHORE OUTSOURCING				
Cost of outsourcing contract			$10, 000, 000	
Hidden Costs	Best Case	Additional Cost ($)	Worst Case	Additional Cost ($)
1. Vendor selection	0%	20,000	2%	200,000
2. Transition costs	2%	200,000	3%	300,000
3. Layoffs & retention	3%	300,000	5%	500,000
4. Lost productivity/cultural issues	3%	300,000	27%	2,700,000
5. Improving development processes	1%	100,000	10%	1,000,000
6. Managing the contract	6%	600,000	10%	1,000,000
Total additional costs		1,520,000		5,700,000
	Outstanding Contract ($)	Additional Cost ($)	Total Cost ($)	Additional Cost
Total cost of outsourcing (TCO) best case	10,000,000	1,520,000	11,520,000	15.2%
Total cost of outsourcing (TCO) worst case	10,000,000	5,700,000	15,700,000	57.0%

Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Application Development for the Digital Firm

- Rapid Application Development (RAD)
  - Joint Application Design (JAD)
  - Agile Development
- Component-based Development and Web Services
  - Component-based Development
  - Web Services and Service-Oriented Computing

Rapid Application Development (RAD)

- Process of creating workable systems in a very short period of time
- Utilizes techniques such as:
  - Visual programming and other tools for building graphical user interfaces
  - Iterative prototyping of key system elements
  - Automation of program code generation
  - Close teamwork among end users and information systems specialists

Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Joint Application Design (JAD)

- Used to accelerate generation of information requirements and to develop initial systems design
- Brings end users and information systems specialists together in interactive session to discuss system's design
- Can significantly speed up design phase and involve users at intense level

Agile Development

- Focuses on rapid delivery of working software by breaking large project into several small sub-projects
- Subprojects
  - Treated as separate, complete projects
  - Completed in short periods of time using iteration and continuous feedback
- Emphasizes face-to-face communication over written documents, allowing collaboration and faster decision making

Component-based Development

- Groups of objects that provide software for common functions (e.g., online ordering) and can be combined to create large-scale business applications
- Web services
  - Reusable software components that use XML and open Internet standards (platform independent)
  - Enable applications to communicate with no custom programming required to share data and services
  - Can engage other Web services for more complex transactions
  - Using platform and device-independent standards can result in significant cost-savings and opportunities for collaboration with other companies

2014/12/31
Final Report (期末報告)

- 請各組組長整理期末報告資料檔案,
  於2013/12/31 (週二) 早上 9:00 前,
  完成Email 寄出以下兩個壓縮檔的下載連結,
  給所有組員和老師 (正本to: 老師, 副本cc: 所有組員) 。
  - 1. 整組各次簡報的 ppt (含整組期末報告目錄 ppt) 壓縮檔
    - (例如：MI4B_資訊管理個案_第1組_學期各次簡報.zip)。
  - 2. 整組各組員的
    [(1) 個人期末報告.ppt
    (2) 個人整學期的書面報告.pdf
    (3) 個人學期總心得.doc]
    之壓縮檔
    - (例如：MI4B_資訊管理個案_第1組_組員個人期末報告.zip)。

資訊管理個案
(Case Study for Information Management)

1. 請同學於資訊管理個案討論前
   應詳細研讀個案，並思考個案研究問題。
2. 請同學於上課前複習相關資訊管理相關
   理論，以作為個案分析及擬定管理對策的
   依據。
3. 請同學於上課前
   先繳交個案研究問題書面報告。

References

- Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.
- 周宣光　譯 (2011)，
  資訊管理系統—管理數位化公司，
  第12版，東華書局