Case Study for Information Management
資訊管理個案

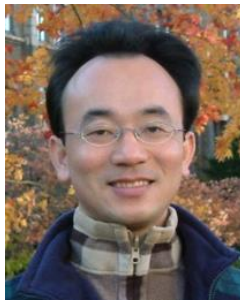## Enhancing Decision Making: Zynga (Chap. 12)

1041CSIM4C11
TLMXB4C (M1824)
Tue 2 (9:10-10:00) B502
Thu 7,8 (14:10-16:00) B601

Min-Yuh Day
戴敏育
Assistant Professor
專任助理教授
Dept. of Information Management, Tamkang University
淡江大學 資訊管理學系

http://mail. tku.edu.tw/myday/
2015-12-08, 10

1

課程大綱 (Syllabus)

週次 (Week)　日期 (Date)　內容 (Subject/Topics)

1　2015/09/15, 17　Introduction to Case Study for Information Management

2　2015/09/22, 24　Information Systems in Global Business: UPS (Chap. 1) (pp.53-54)

3　2015/09/29, 10/01　Global E-Business and Collaboration: P&G (Chap. 2) (pp.84-85)

4　2015/10/06, 08　Information Systems, Organization, and Strategy: Starbucks (Chap. 3) (pp.129-130)

5　2015/10/13, 15　Ethical and Social Issues in Information Systems: Facebook (Chap. 4) (pp.188-190)

課程大綱 (Syllabus)

週次 (Week)　日期 (Date)　內容 (Subject/Topics)

6　2015/10/20, 22　IT Infrastructure and Emerging Technologies:
　　　　　　　　　　Amazon and Cloud Computing
　　　　　　　　　　(Chap. 5) (pp. 234-236)

7　2015/10/27, 29　Foundations of Business Intelligence:
　　　　　　　　　　 IBM and Big Data (Chap. 6) (pp.261-262)

8　2015/11/03, 05　Telecommunications, the Internet, and Wireless
　　　　　　　　　　 Technology: Google, Apple, and Microsoft
　　　　　　　　　　(Chap. 7) (pp.318-320)

9　2015/11/10, 12　Midterm Report (期中報告)

10　2015/11/17, 19　期中考試週

課程大綱 (Syllabus)

週次　　日期　　　內容（Subject/Topics）

11　2015/11/24, 26　Enterprise Applications: Summit and SAP (Chap. 9) (pp.396-398)

12　2015/12/01, 03　E-commerce: Zagat　(Chap. 10) (pp.443-445)

13　2015/12/08, 10　Enhancing Decision Making: Zynga (Chap. 12) (pp.512-514)

14　2015/12/15, 17　Building Information Systems: USAA (Chap. 13) (pp.547-548)

15　2015/12/22, 24　Managing Projects: NYCAPS and CityTime (Chap. 14) (pp.586-588)

16　2015/12/29, 31　Final Report I (期末報告 I)

17　2016/01/05, 07　Final Report II (期末報告 II)

18　2016/01/12, 14　期末考試週

Chap. 12
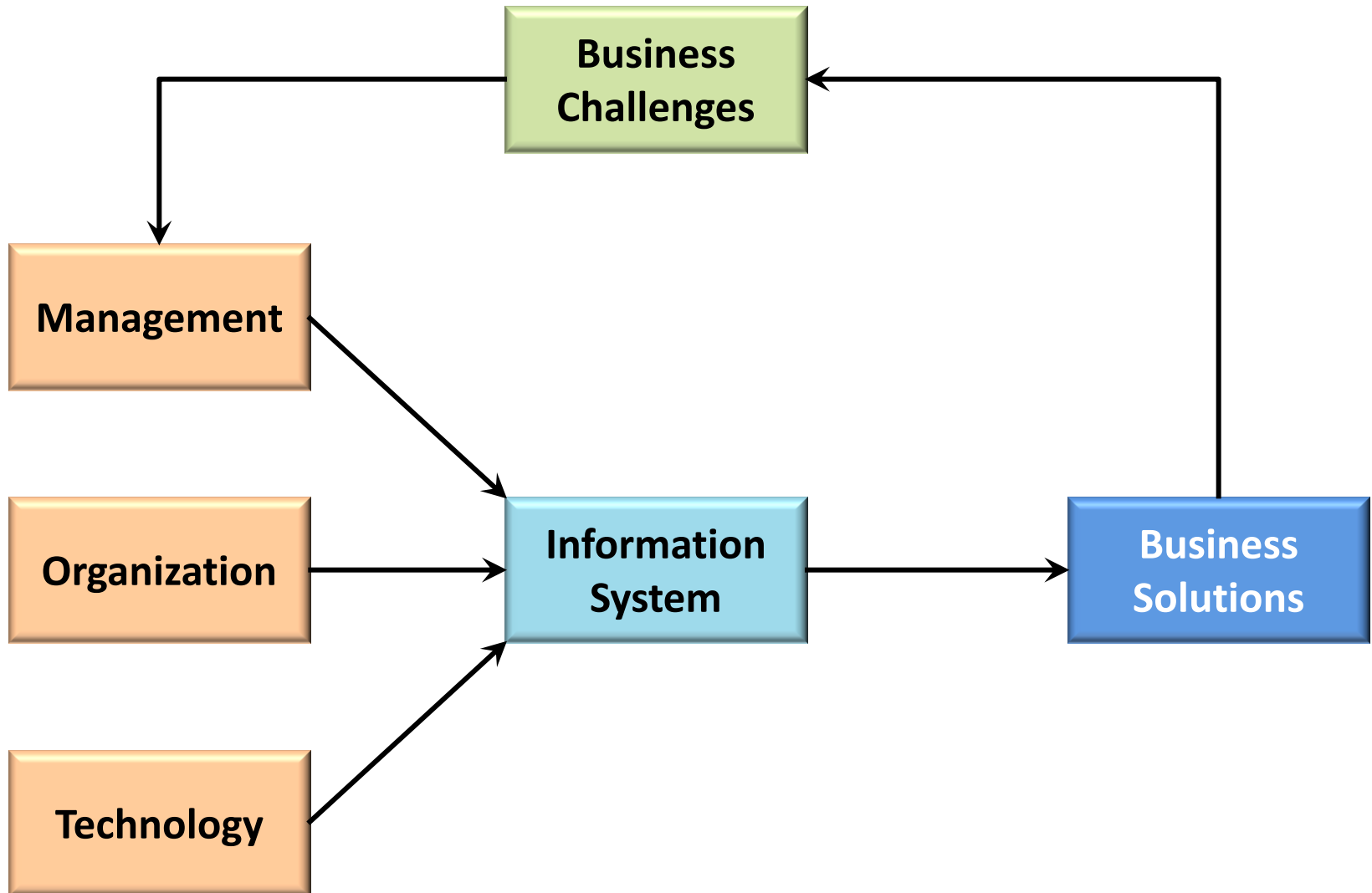# Enhancing Decision Making: Zynga

Case Study:

Enhancing Decision Making: Zynga (Chap. 12) (pp. 512-514)
Zynga Wins with Business Intelligence

1. It has been said that Zynga is "an analytics company masquerading as a games company." Discuss the implications of this statement.

2. What role does business intelligence play in Zynga's business model?

3. Give examples of three kinds of decisions supported by business intelligence at Zynga.

4. How much of a competitive advantage does business intelligence provide for Zynga? Explain.

5. What problems can business intelligence solve for Zynga? What problems can't it solve?

Overview of Fundamental MIS Concepts

Source: Kenneth C. Laudon & Jane P. Laudon (2014), Management Information Systems: Managing the Digital Firm, Thirteenth Edition, Pearson.

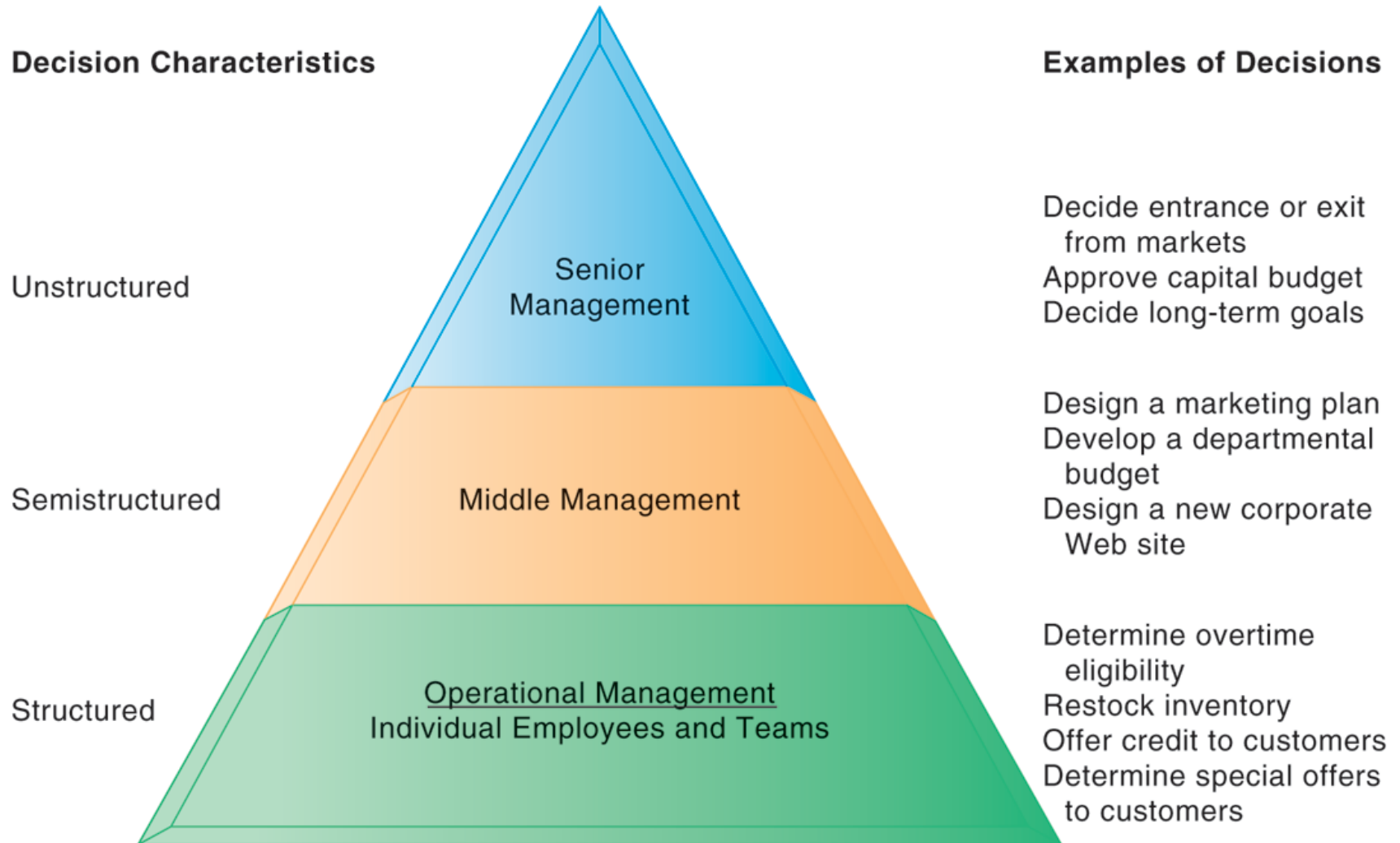# Decision Making and Information Systems

- Business value of improved decision making
  - Improving hundreds of thousands of "small" decisions adds up to large annual value for the business

Types of Decisions

- Unstructured:
  - Decision maker must provide judgment, evaluation, and insight to solve problem

- Structured:
  - Repetitive and routine; involve definite procedure for handling so they do not have to be treated each time as new

- Semistructured:
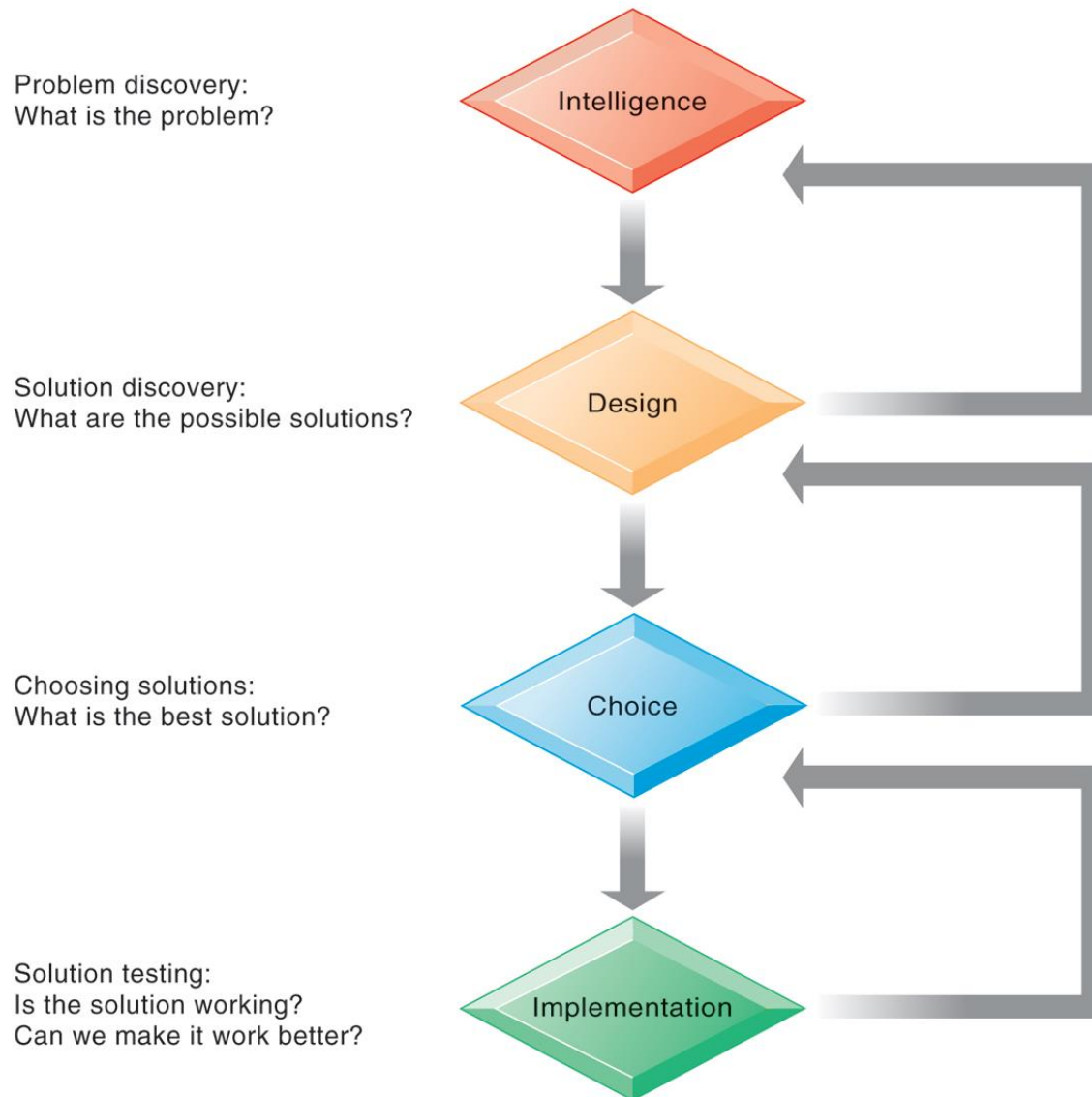 - Only part of problem has clear-cut answer provided by accepted procedure

Source: Kenneth C. Laudon & Jane P. Laudon (2014), Management Information Systems: Managing the Digital Firm, Thirteenth Edition, Pearson.

9

Information Requirements of Key Decision-making Groups in a Firm

Decision Characteristics

Unstructured

Semistructured

Structured

Senior Management

Middle Management

Operational Management
Individual Employees and Teams

Examples of Decisions

Decide entrance or exit from markets
Approve capital budget
Decide long-term goals

Design a marketing plan
Develop a departmental budget
Design a new corporate Web site

Determine overtime eligibility
Restock inventory
Offer credit to customers
Determine special offers to customers

The Four Stages of the Decision-making Process

1. Intelligence
   - Discovering, identifying, and understanding the problems occurring in the organization

2. Design
   - Identifying and exploring solutions to the problem

3. Choice
   - Choosing among solution alternatives

4. Implementation
   - Making chosen alternative work and continuing to monitor how well solution is working

4 Stages in Decision Making

Problem discovery:
What is the problem?

Intelligence

Solution discovery:
What are the possible solutions?

Design

Choosing solutions:
What is the best solution?

Choice

Solution testing:
Is the solution working?
Can we make it work better?

Implementation

Decision Making and Information Systems

- Information systems can only assist in some of the roles played by managers

Source: Kenneth C. Laudon & Jane P. Laudon (2014), Management Information Systems: Managing the Digital Firm, Thirteenth Edition, Pearson.

13

Classical Model of Management: 5 Functions

1. Planning
2. Organizing
3. Coordinating
4. Deciding
5. Controlling

More Contemporary Behavioral Models

- Actual behavior of managers appears to be
less systematic,
more informal,
less reflective,
more reactive,
and less well organized than in classical model

Mintzberg's 10 Managerial Roles

- Interpersonal roles
    1. Figurehead
    2. Leader
    3. Liaison
- Informational roles
    4. Nerve center
    5. Disseminator
    6. Spokesperson
- Decisional roles
    7. Entrepreneur
    8. Disturbance handler
    9. Resource allocator
    10. Negotiator

Three main reasons why investments in information technology do not always produce positive results

1. Information quality
   – High-quality decisions require high-quality information

2. Management filters
   – Managers have selective attention and have variety of biases that reject information that does not conform to prior conceptions

3. Organizational inertia and politics
   – Strong forces within organizations resist making decisions calling for major change
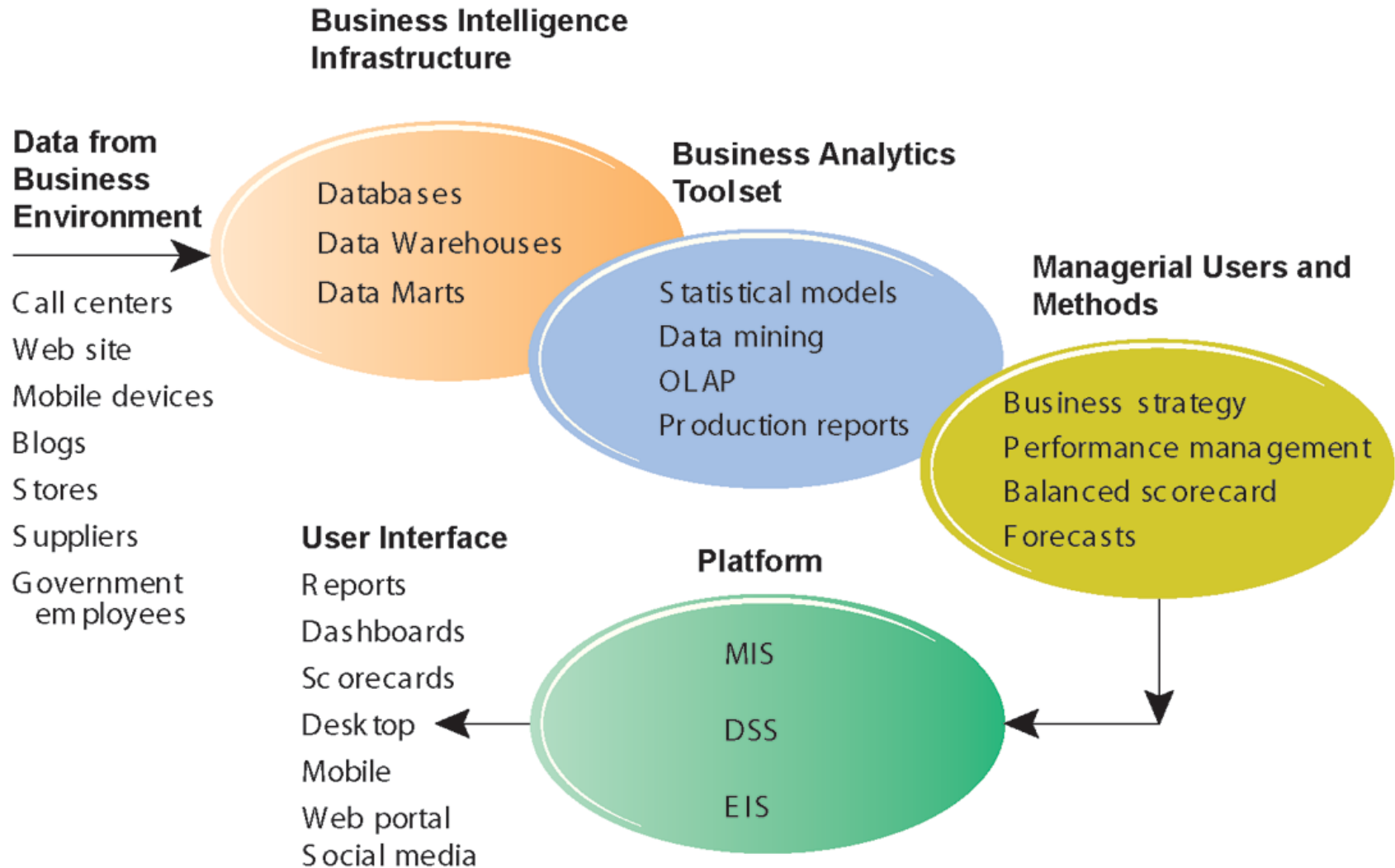
High-velocity automated decision making

- Made possible through computer algorithms precisely defining steps for a highly structured decision

- Humans taken out of decision

- For example: High-speed computer trading programs
  - Trades executed in 30 milliseconds
  - Responsible for "Flash Crash" of 2010

- Require safeguards to ensure proper operation and regulation

Business Intelligence (BI) in Enterprise

- **Business Intelligence**

  - Infrastructure for collecting, storing, analyzing data produced by business
  - Databases, data warehouses, data marts

- **Business Analytics**

  - Tools and techniques for analyzing data
  - OLAP, statistics, models, data mining

- Business Intelligence Vendors

  - Create business intelligence and analytics purchased by firms

Business Intelligence and Analytics for Decision Support

Business Intelligence Infrastructure

Data from Business Environment

Call centers
Web site
Mobile devices
Blogs
Stores
Suppliers
Government employees

Databases
Data Warehouses
Data Marts

Business Analytics Toolset

Statistical models
Data mining
OLAP
Production reports

Managerial Users and Methods

Business strategy
Performance management
Balanced scorecard
Forecasts

User Interface
Reports
Dashboards
Scorecards
Desktop
Mobile
Web portal
Social media

Platform

MIS
DSS
EIS

Six Elements in the Business Intelligence Environment

1. Data from the business environment
2. Business intelligence infrastructure
3. Business analytics toolset
4. Managerial users and methods
5. Delivery platform—MIS, DSS, ESS
6. User interface

Business Intelligence and Analytics Capabilities

- Goal is to deliver accurate real-time information to decision-makers

- Main functionalities of BI systems

  1. Production reports

  2. Parameterized reports

  3. Dashboards/scorecards

  4. Ad hoc query/search/report creation

  5. Drill down

  6. Forecasts, scenarios, models

Business Intelligence Users

- 80% are casual users relying on production reports

- Senior executives
  - Use monitoring functionalities

- Middle managers and analysts
  - Ad-hoc analysis

- Operational employees
  - Prepackaged reports
  - E.g. sales forecasts, customer satisfaction, loyalty and attrition, supply chain backlog, employee productivity

Business Intelligence Users

Power Users:
Producers
(20% of employees)

IT developers

Super users

Business analysts

Analytical modelers

Capabilities

Production Reports

Parameterized Reports

Dashboards/Scorecards

Ad hoc queries; Drill down
Search/OLAP

Forecasts; What if
Analysis; statistical models

Casual Users:
Consumers
(80% of employees)

Customers/Suppliers

Operational employees

Senior managers

Managers/Staff

Business analysts

Examples of BI applications

- Predictive analytics
  - Use patterns in data to predict future behavior
  - E.g. Credit card companies use predictive analytics to determine customers at risk for leaving
- Data visualization
  - Help users see patterns and relationships that would be difficult to see in text lists
- Geographic information systems (GIS)
  - Ties location-related data to maps

Predictive Analytics

- Use variety of data, techniques to predict future trends and behavior patterns
  - Statistical analysis
  - Data mining
  - Historical data
  - Assumptions
- Incorporated into numerous BI applications for sales, marketing, finance, fraud detection, health care
  - Credit scoring
  - Predicting responses to direct marketing campaigns

Source: Kenneth C. Laudon & Jane P. Laudon (2014), Management Information Systems: Managing the Digital Firm, Thirteenth Edition, Pearson.

26

Big Data Analytics

- Big data: Massive datasets collected from social media, online and in-store customer data, and so on

- Help create real-time, personalized shopping experiences for major online retailers

- Hunch.com, used by eBay
  – Customized recommendations
  – Database includes purchase data, social networks
  – Taste graphs map users with product affinities

Data Visualization and Visual Analytics Tools

- Help users see patterns and relationships that would be difficult to see in text lists
  - Rich graphs, charts
  - Dashboards
  - Maps

Two Main Management Strategies for Developing BI and BA Capabilities

1. One-stop integrated solution
   - Hardware firms sell software that run optimally on their hardware
   - Makes firm dependent on single vendor—switching costs

2. Multiple best-of-breed solution
   - Greater flexibility and independence
   - Potential difficulties in integration
   - Must deal with multiple vendors

Business Intelligence Constituencies

- Operational and middle managers
  - Use MIS (running data from TPS) for:
    - Routine production reports
    - Exception reports

- "Super user" and Business Analysts
  - Use DSS for:
    - More sophisticated analysis and custom reports
    - Semistructured decisions

Decision Support Systems

- Use mathematical or analytical models
- Allow varied types of analysis
  - "What-if" analysis
  - Sensitivity analysis
  - Backward sensitivity analysis
  - Multidimensional analysis / OLAP
    - For example: pivot tables

Sensitivity Analysis

			Variable Cost per Unit			
Total fixed costs	19000					
Variable cost per unit	3					
Average sales price	17					
Contribution margin	14					
Break-even point	1357					
			Variable Cost per Unit			
Sales	1357	2	3	4	5	6
Price	14	1583	1727	1900	2111	2375
	15	1462	1583	1727	1900	2111
	16	1357	1462	1583	1727	1900
	17	1267	1357	1462	1583	1727
	18	1188	1267	1357	1462	1583

A Pivot Table that Examines Customer Regional Distribution and Advertising Source

Source: Kenneth C. Laudon & Jane P. Laudon (2014), Management Information Systems: Managing the Digital Firm, Thirteenth Edition, Pearson.

33

ESS: Decision-support for senior management

- Help executives focus on important performance information

- Balanced scorecard method:
  - Measures outcomes on four dimensions:
    1. Financial
    2. Business process
    3. Customer
    4. Learning & growth
  - Key performance indicators (KPIs) measure each dimension

The Balanced Scorecard Framework

Financial
- Cash flow
- Return on investment
- Financial result
- Return on capital employed
- Return on equity

Customers
- Delivery performance
- Quality performance
- Customer satisfaction
- Customer loyalty
- Customer retention

Firm Strategy and Objectives

Business Processes
- Number of activities
- Process execution time
- Accident ratios
- Resource efficiency
- Equipment downtime

Learning and Growth
- Investment rate
- Illness rate
- Internal promotions %
- Employee turnover
- Gender ratios

Decision-support for Senior Management

- Business performance management (BPM)

  – Translates firm's strategies (e.g. differentiation, low-cost producer, scope of operation) into operational targets

  – KPIs developed to measure progress towards targets

- Data for ESS

  – Internal data from enterprise applications

  – External data such as financial market databases

  – Drill-down capabilities

Group Decision Support Systems (GDSS)

- Interactive system to facilitate solution of unstructured problems by group

- Specialized hardware and software; typically used in conference rooms

  – Overhead projectors, display screens

  – Software to collect, rank, edit participant ideas and responses

  – May require facilitator and staff

- Enables increasing meeting size and increasing productivity

- Promotes collaborative atmosphere, anonymity

- Uses structured methods to organize and evaluate ideas

Case Study:
Building Information Systems: USAA (Chap. 13) (pp. 547-548)
What does it take to go mobile?

1. What management, organization, and technology issues need to be addressed when building mobile applications?

2. How does user requirement definition for mobile applications differ from that in traditional systems analysis?

3. Describe the business processes changed by USAA's mobile applications before and after the applications were deployed.

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 (2014), Management Information Systems: Managing the Digital Firm, Thirteenth Edition, Pearson.

- Kenneth C. Laudon & Jane P. Laudon原著，游張松 主編，陳文生 翻譯 (2014)，資訊管理系統，第13版，滄海