Business Intelligence Trends
商業智慧趨勢

Course Orientation for Business Intelligence Trends
商業智慧趨勢課程介紹

1012BIT01
MIS MBA
Mon 6, 7 (13:10-15:00) Q407

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/

2013-02-18

淡江大學101學年度第2學期
課程教學計畫表
(2013.02 - 2013.06)

- 課程名稱：商業智慧趨勢
  (Business Intelligence Trends)
- 授課教師：戴敏育 (Min-Yuh Day)
- 開課系級：資管一碩士班Ａ(TLMXM1A)
- 開課資料：選修 單學期 2 學分 (2 Credits, Elective)
- 上課時間：週一 6,7 (Mon 13:10-15:00)
- 上課教室：Q407 (淡水校園傳播館Q407)

課程簡介

- 本課程介紹商業智慧趨勢的基礎概念及技術，主要從管理導向來認識商業智慧趨勢。
- 課程內容包括
  - 商業智慧導論、
  - 管理決策支援系統與商業智慧、
  - 企業績效管理、
  - 資料倉儲、
  - 商業智慧的資料探勘、
  - 個案分析、
  - 文字與網路探勘、
  - 意見探勘與情感分析、
  - 商業智慧導入與趨勢。

Course Introduction

- This course introduces the fundamental concepts and technology of business intelligence. It introduces a managerial approach to understanding business intelligence trends.
- Topics include
  - Introduction to Business Intelligence ,
  - Management Decision Support System and Business Intelligence,
  - Business Performance Management,
  - Data Warehousing,
  - Data Mining for Business Intelligence,
  - Case Study of Data Mining,
  - Text and Web Mining,
  - Opinion Mining and Sentiment Analysis,
  - Business Intelligence Implementation and Trends.

課程目標

- 能夠瞭解及應用
  商業智慧趨勢基本概念與技術。

- 能夠進行商業智慧趨勢相關之資訊管理研究。

Objective

- Students will be able to understand and apply the fundamental concepts and technology of business intelligence trends.
- Students will be able to conduct information systems research in the context of business intelligence trends.

課程大綱 (Syllabus)

週次	日期	內容（Subject/Topics）
1	102/02/18	商業智慧趨勢課程介紹 (Course Orientation for Business Intelligence Trends)
2	102/02/25	管理決策支援系統與商業智慧 (Management Decision Support System and Business Intelligence)
3	102/03/04	企業績效管理 (Business Performance Management)
4	102/03/11	資料倉儲 (Data Warehousing)
5	102/03/18	商業智慧的資料探勘 (Data Mining for Business Intelligence)
6	102/03/25	商業智慧的資料探勘 (Data Mining for Business Intelligence)
7	102/04/01	教學行政觀摩日 (Off-campus study)
8	102/04/08	個案分析一 (SAS EM 分群分析)： Banking Segmentation (Cluster Analysis – KMeans using SAS EM)
9	102/04/15	個案分析二 (SAS EM 關連分析)： Web Site Usage Associations (Association Analysis using SAS EM)

課程大綱 (Syllabus)

週次	日期	內容（Subject/Topics）
10	102/04/22	期中報告 (Midterm Presentation)
11	102/04/29	個案分析三 (SAS EM 決策樹、模型評估)： Enrollment Management Case Study (Decision Tree, Model Evaluation using SAS EM)
12	102/05/06	個案分析四 (SAS EM 迴歸分析、類神經網路)： Credit Risk Case Study (Regression Analysis, Artificial Neural Network using SAS EM)
13	102/05/13	文字探勘與網路探勘 (Text and Web Mining)
14	102/05/20	意見探勘與情感分析 (Opinion Mining and Sentiment Analysis)
15	102/05/27	商業智慧導入與趨勢 (Business Intelligence Implementation and Trends)
16	102/06/03	商業智慧導入與趨勢 (Business Intelligence Implementation and Trends)
17	102/06/10	期末報告1 (Term Project Presentation 1)
18	102/06/17	期末報告2 (Term Project Presentation 2)

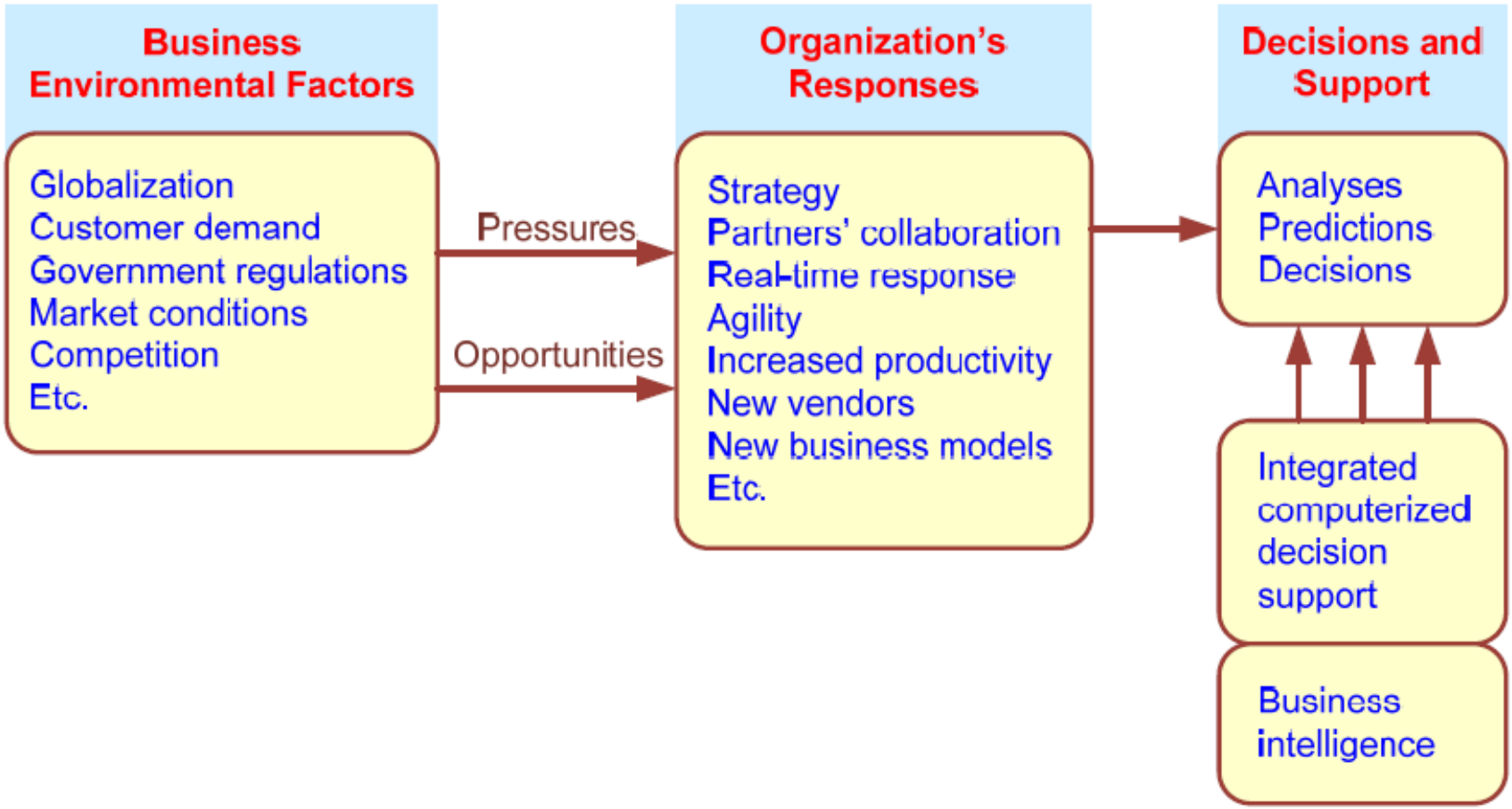
教材課本與參考書籍

- 教材課本 (Textbook)：講義 (Slides)
- 參考書籍 (References)：
  - Business Intelligence: A Managerial Approach, Second Edition, Efraim Turban, Ramesh Sharda, Dursun Delen, David King, 2011, Pearson
  - Decision Support and Business Intelligence Systems, Ninth Edition, Efraim Turban, Ramesh Sharda, Dursun Delen, 2011, Pearson
  - Applied Analytics Using SAS Enterprise Mining, Jim Georges, Jeff Thompson and Chip Wells, 2010, SAS
  - 決策支援與企業智慧系統，九版，Efraim Turban 等著，李昇暾審定，2011，華泰
  - 商業智慧，國立中央大學管理學院ERP 中心，2011，滄海

學期成績計算方式

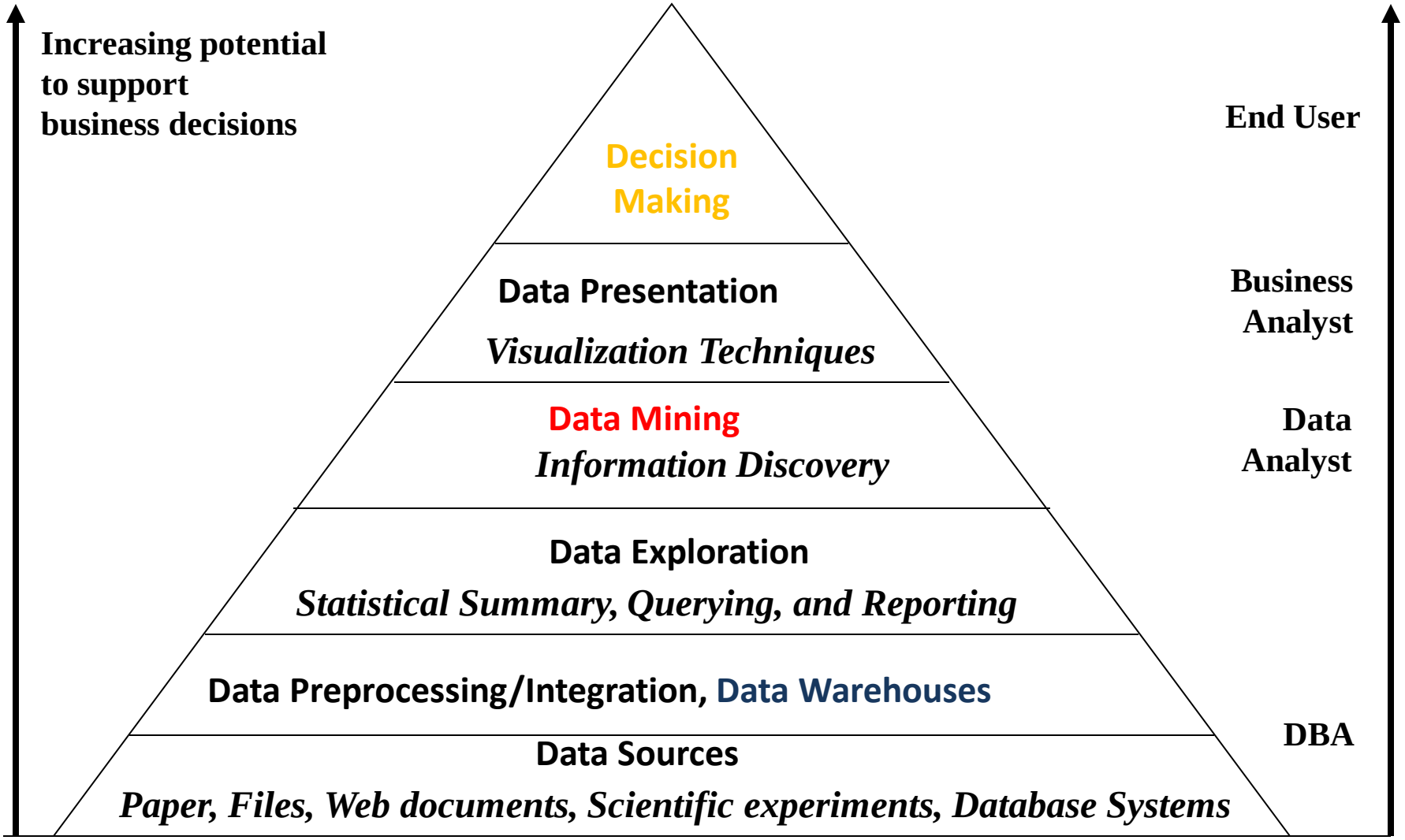
- 平時評量： 50.0 % (3 篇作業)
- 其他 (課堂參與及報告討論表現)：50.0 %

Business Pressures–Responses–Support Model



Source: Turban et al. (2011), Decision Support and Business Intelligence Systems

Business Intelligence and Data Mining



Source: Han & Kamber (2006)

Business Intelligence (BI)

- BI is an umbrella term that combines architectures, tools, databases, analytical tools, applications, and methodologies
- Like DSS, BI a content-free expression, so it means different things to different people
- BI's major objective is to enable easy access to data (and models) to provide business managers with the ability to conduct analysis
- BI helps *transform* data, to information (and knowledge), to decisions and finally to action

Source: Turban et al. (2011), Decision Support and Business Intelligence Systems

A Brief History of BI

- The term BI was coined by the Gartner Group in the mid-1990s
- However, the concept is much older
  - 1970s - MIS reporting - static/periodic reports
  - 1980s - Executive Information Systems (EIS)
  - 1990s - OLAP, dynamic, multidimensional, ad-hoc reporting -> coining of the term “BI”
  - 2005+ Inclusion of AI and Data/Text Mining capabilities; Web-based Portals/Dashboards
  - 2010s - yet to be seen

Source: Turban et al. (2011), Decision Support and Business Intelligence Systems

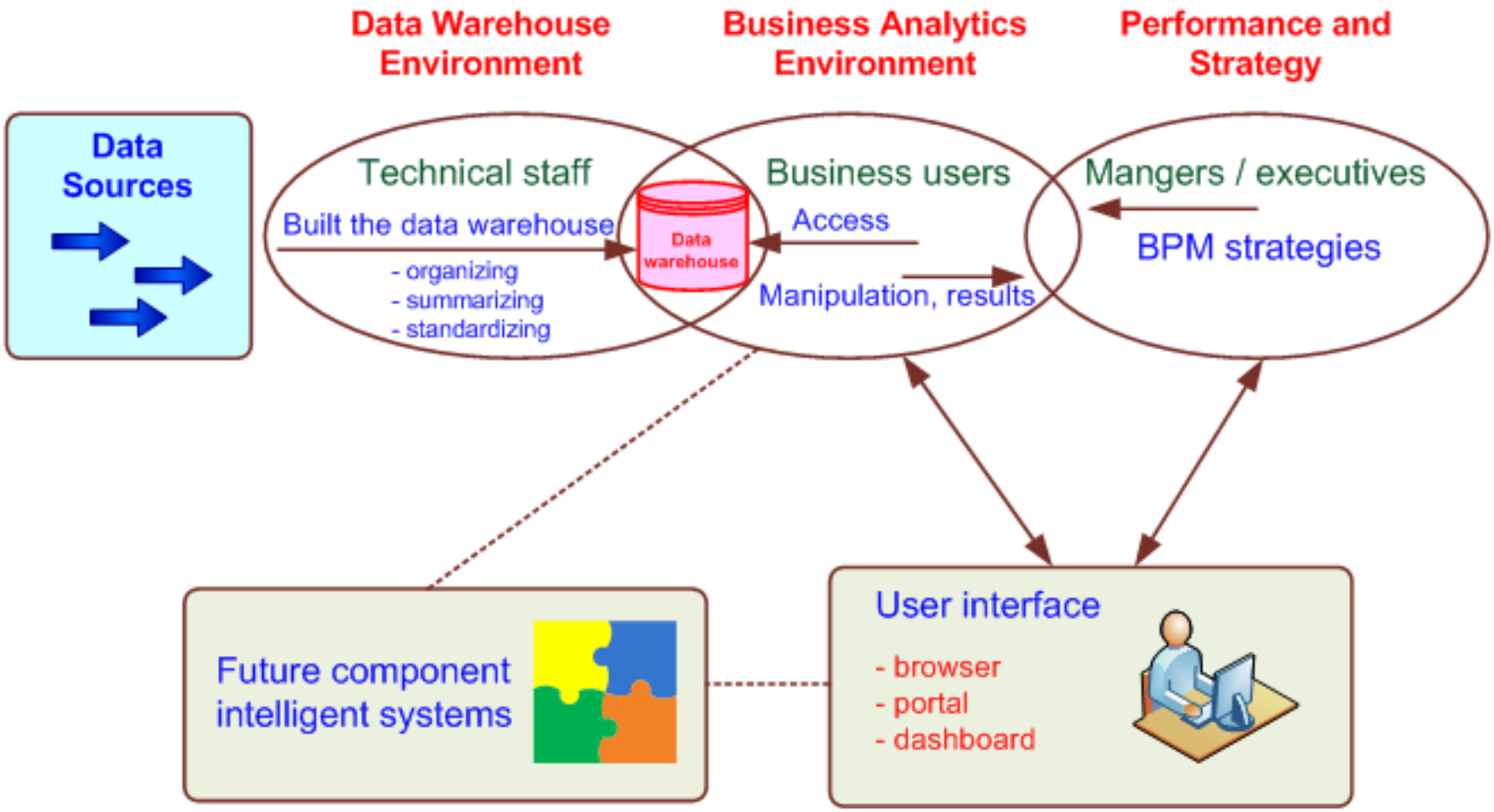
The Evolution of BI Capabilities

Source: Turban et al. (2011), Decision Support and Business Intelligence Systems

The Architecture of BI

- A BI system has four major components
  - a data warehouse, with its source data
  - business analytics, a collection of tools for manipulating, mining, and analyzing the data in the data warehouse;
  - business performance management (BPM) for monitoring and analyzing performance
  - a user interface (e.g., dashboard)

A High-Level Architecture of BI



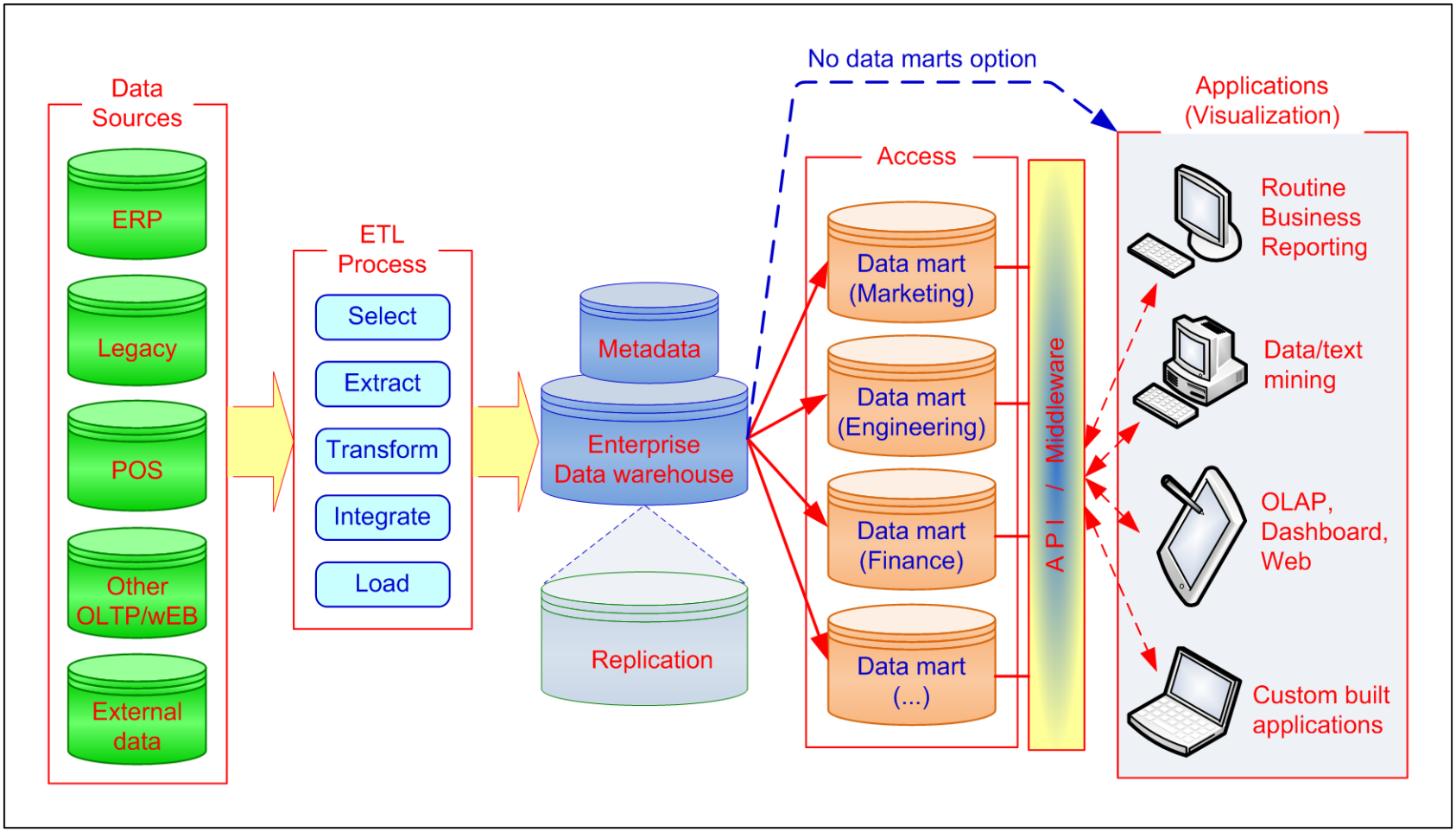
Source: Turban et al. (2011), Decision Support and Business Intelligence Systems

Components in a BI Architecture

- The data warehouse is a large repository of well-organized historical data
- Business analytics are the tools that allow transformation of data into information and knowledge
- Business performance management (BPM) allows monitoring, measuring, and comparing key performance indicators
- User interface (e.g., dashboards) allows access and easy manipulation of other BI components

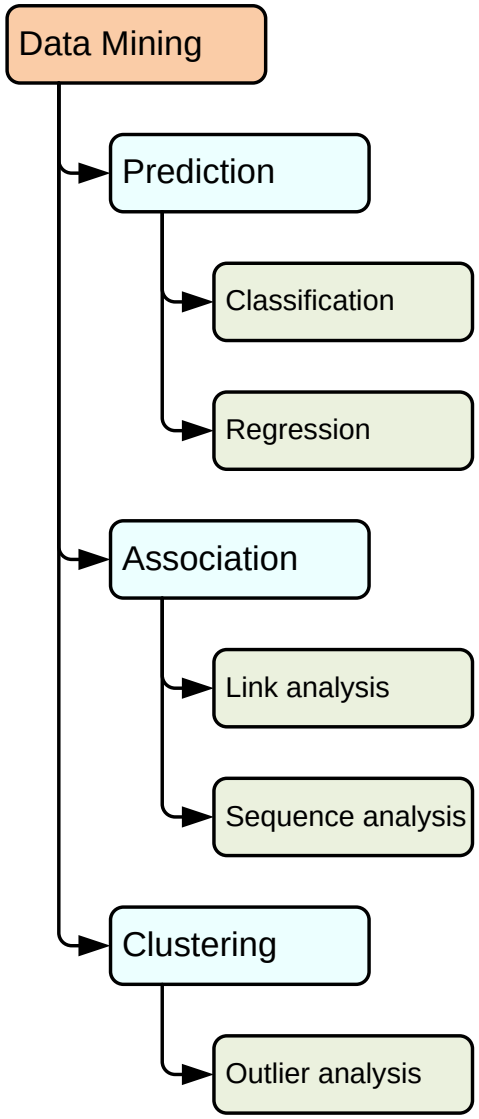
Source: Turban et al. (2011), Decision Support and Business Intelligence Systems

A Conceptual Framework for DW



Source: Turban et al. (2011), Decision Support and Business Intelligence Systems

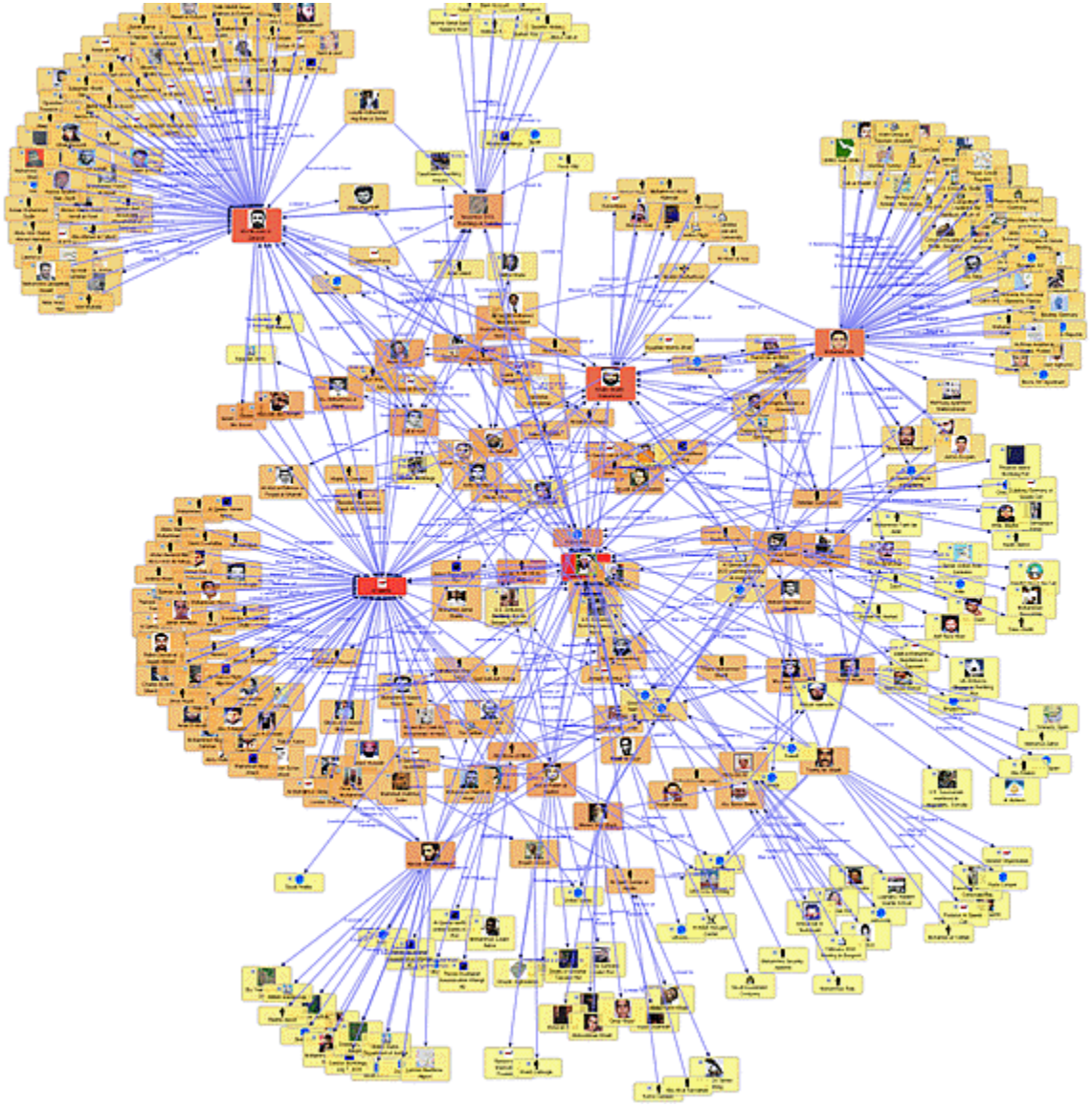
A Taxonomy for Data Mining Tasks



Learning Method	Popular Algorithms
Supervised	Classification and Regression Trees, ANN, SVM, Genetic Algorithms
Supervised	Decision trees, ANN/MLP, SVM, Rough sets, Genetic Algorithms
Supervised	Linear/Nonlinear Regression, Regression trees, ANN/MLP, SVM
Unsupervised	Apriory, OneR, ZeroR, Eclat
Unsupervised	Expectation Maximization, Apriory Algorithm, Graph-based Matching
Unsupervised	Apriory Algorithm, FP-Growth technique
Unsupervised	K-means, ANN/SOM
Unsupervised	K-means, Expectation Maximization (EM)

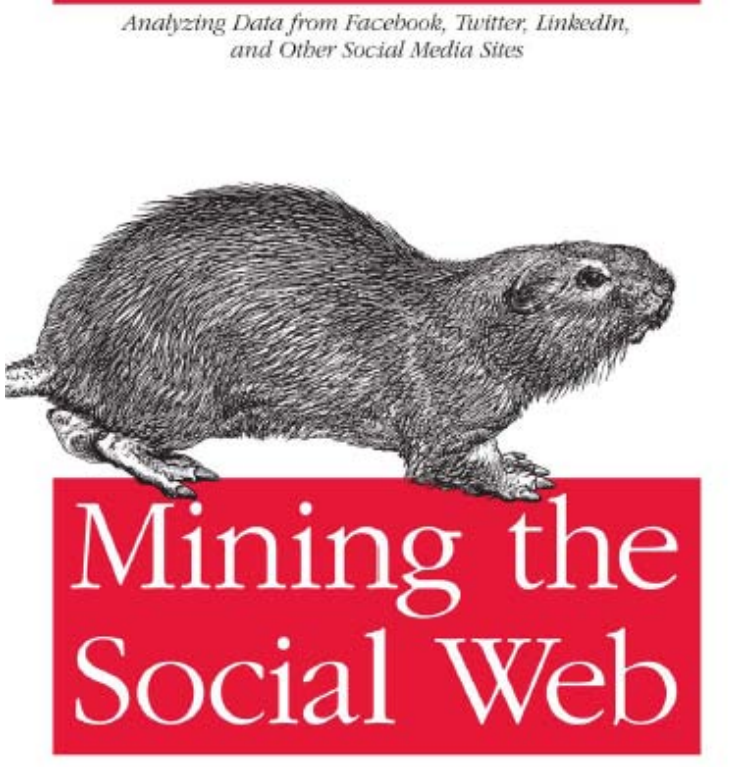
Source: Turban et al. (2011), Decision Support and Business Intelligence Systems

Social Network Analysis



Source: http://www.fmsasg.com/SocialNetworkAnalysis/

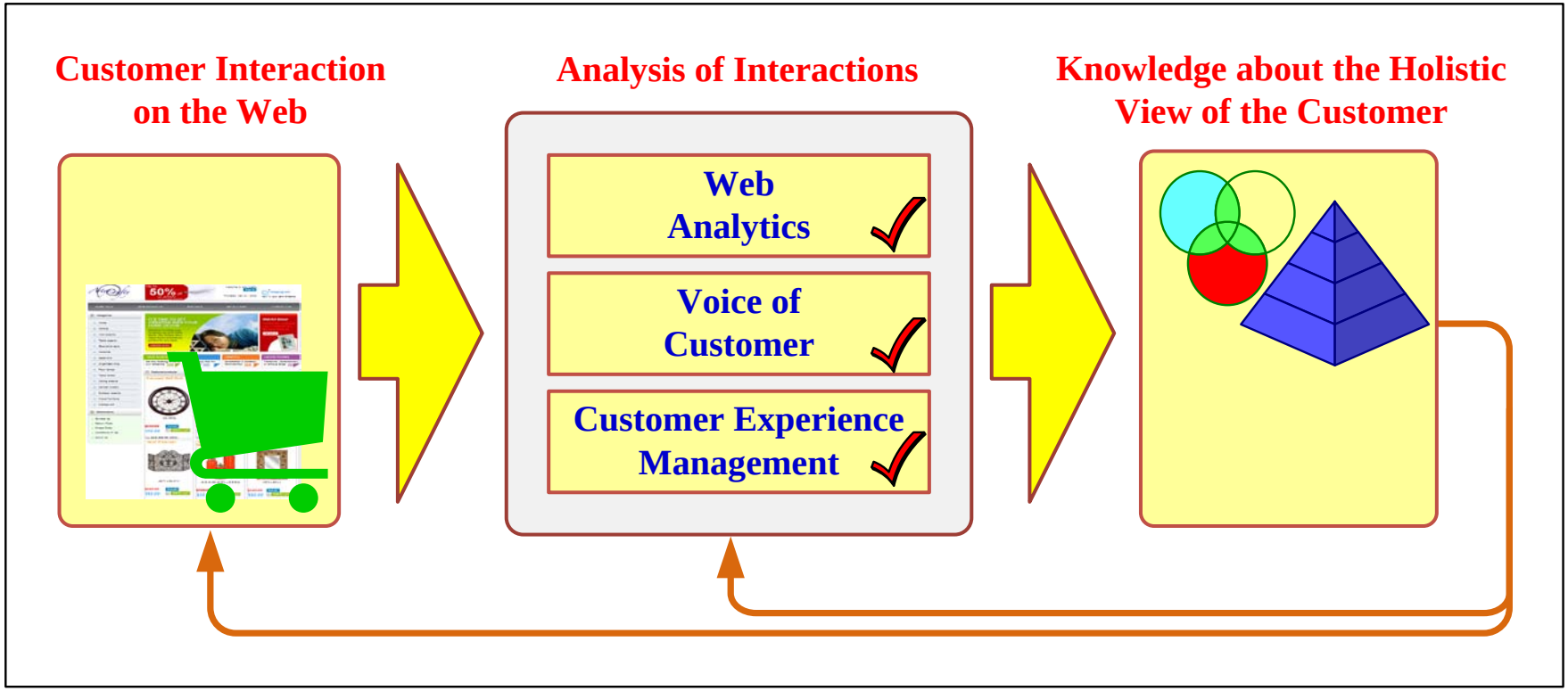
Mining the Social Web: Analyzing Data from Facebook, Twitter, LinkedIn, and Other Social Media Sites



Source: http://www.amazon.com/Mining-Social-Web-Analyzing-Facebook/dp/1449388345

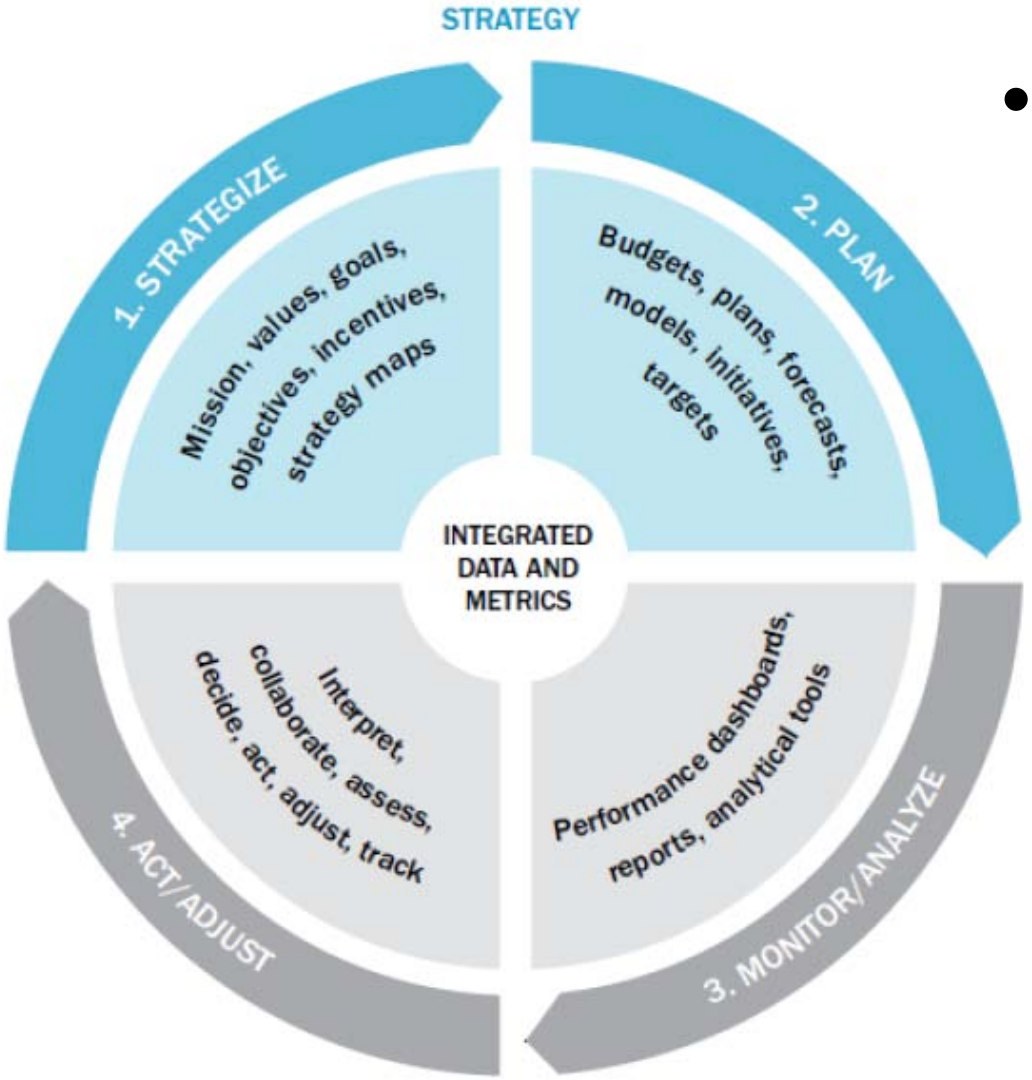
Web Mining Success Stories

- Amazon.com, Ask.com, Scholastic.com, …
- Website Optimization Ecosystem



Source: Turban et al. (2011), Decision Support and Business Intelligence Systems

A Closed-Loop Process to Optimize Business Performance



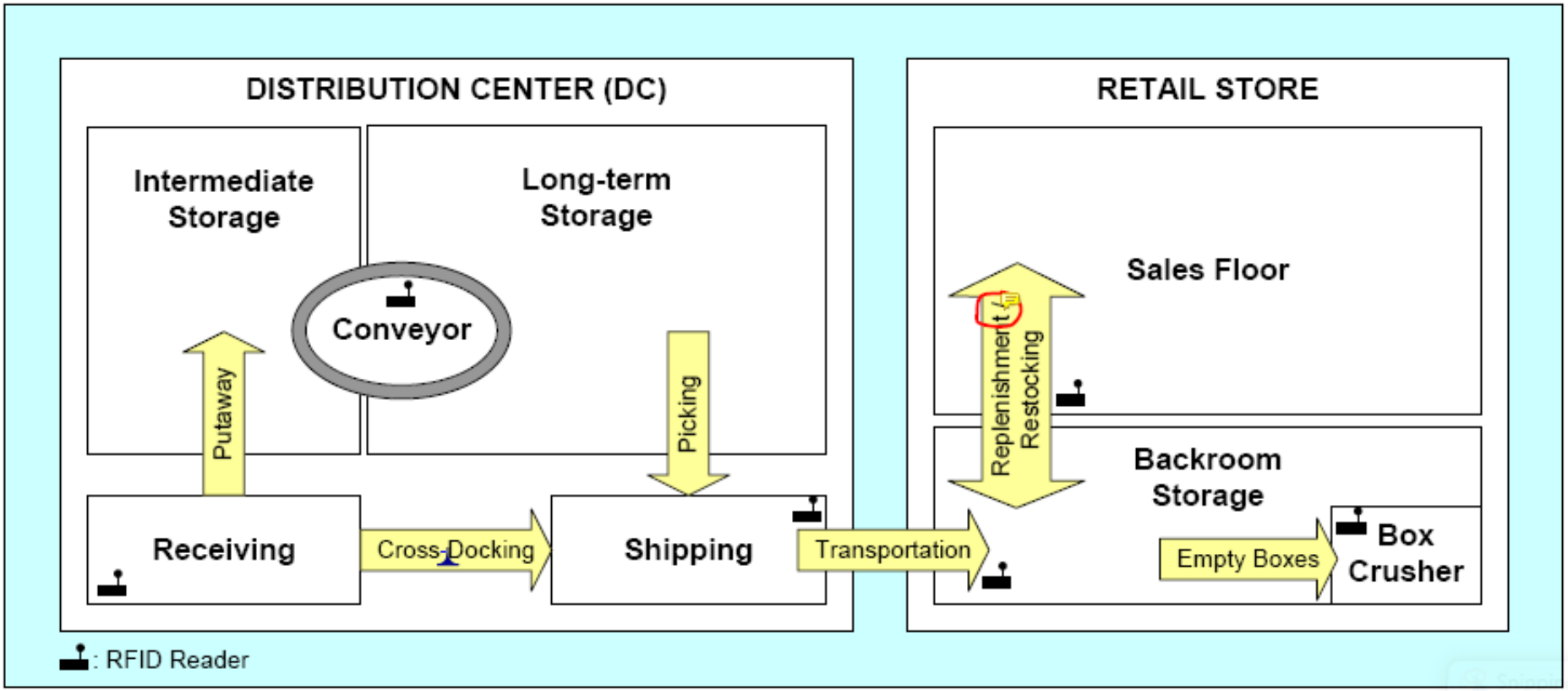
- Process Steps
  1. Strategize
  2. Plan
  3. Monitor/analyze
  4. Act/adjust

Each with its own process steps…

Source: Turban et al. (2011), Decision Support and Business Intelligence Systems

RFID for Supply Chain BI

- RFID in Retail Systems



Source: Turban et al. (2011), Decision Support and Business Intelligence Systems

Implications of Business and Enterprise Social Networks

- Business oriented social networks can go beyond “advertising and sales”
- Emerging enterprise social networking apps:
  - Finding and Recruiting Workers
  - Management Activities and Support
  - Training
  - Knowledge Management and Expert Location
    - e.g., innocentive.com; awareness.com; Caterpillar
  - Enhancing Collaboration
  - Using Blogs and Wikis Within the Enterprise

Implications of Business and Enterprise Social Networks

- Survey shows that best-in-class companies use blogs and wikis for the following applications:
  - Project collaboration and communication (63%)
  - Process and procedure document (63%)
  - FAQs (61%)
  - E-learning and training (46%)
  - Forums for new ideas (41%)
  - Corporate-specific dynamic glossary and terminology (38%)
  - Collaboration with customers (24%)

Source: Turban et al. (2011), Decision Support and Business Intelligence Systems

The Benefits of BI

- The ability to provide accurate information when needed, including a real-time view of the corporate performance and its parts
- A survey by Thompson (2004)
  - Faster, more accurate reporting (81%)
  - Improved decision making (78%)
  - Improved customer service (56%)
  - Increased revenue (49%)

Source: Turban et al. (2011), Decision Support and Business Intelligence Systems

Summary

- This course introduces the fundamental concepts and technology of business intelligence. It introduces a managerial approach to understanding business intelligence trends.
- Topics include
  - Introduction to Business Intelligence ,
  - Management Decision Support System and Business Intelligence,
  - Business Performance Management,
  - Data Warehousing,
  - Data Mining for Business Intelligence,
  - Case Study of Data Mining,
  - Text and Web Mining,
  - Opinion Mining and Sentiment Analysis,
  - Business Intelligence Implementation and Trends.

Contact Information

戴敏育 博士 (Min-Yuh Day, Ph.D.)

專任助理教授
淡江大學 資訊管理學系

電話：02-26215656 #2347
傳真：02-26209737
研究室：i716 (覺生綜合大樓)
地址： 25137 新北市淡水區英專路151號
Email： myday@mail.tku.edu.tw
網址：http://mail.tku.edu.tw/myday/