清华大学经济管理学院
本科课程（Spring 2017）

Summary Session I

Keywords:
- *Tsinghua MIS*
- *Digital life & society*
  - *5 key features*
- *Future business (digital biz + algorithmic biz)*

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II. Information Age and IT in Business

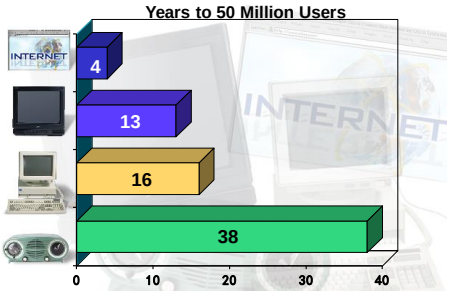
Information Age

- *Where technologies advance in a dramatic pace*
- *When knowledge is power*
- *Where companies/industries face opportunities and challenges due to data/technologies*

→ business: (data + analytics) enabled innovation

→ "sense and respond"

Internet Being Adopted Faster Than Any Previous Technology

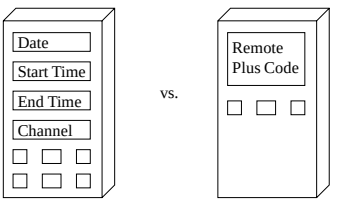


2.1. IT Fusion & Big Data

- *Bring business and technology together*
- *A characteristic of information age*
- *Two important aspects*
  - *Technology pervasiveness*
    - *necessity, survival*
      strategic "dependency"
  - *Technology transparency*
    - *Smart/Intelligent, diffusion*
      "cohesion", mesh

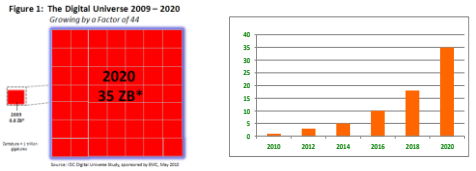
Technology Transparency

- *Integral of business and technology*



Big Data
in Volume

- IDC Report
  - Global data volume projected to reach 35ZB in 2020.



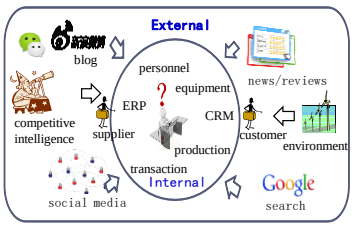
Big Data in 4v

Volume	Huge amount, pervasive…
Variety	Rich media, multiple sources, ill-structured…
Value	Low value density…
Velocity	Continuous flow, real-time use…

BA- business analytics

A Bigdata Perspective

*--- (Internal + **External**)*



Observable Measurable

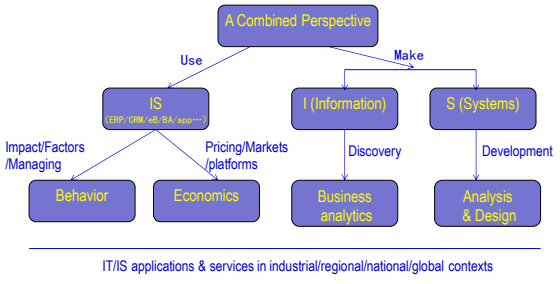
- Own/Link
- Multisource
- Fusion
- Analytics
- Global view
- BA-enabling
- …

2. 2 *Information System (IS)*

MIS deals with the planning for, development, management, and use of information technology tools to help people perform all tasks related to information processing and management (and the whole business at large).

(note: MIS hereafter is interchangeably referred to as IS)

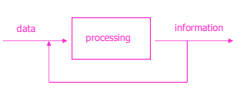
MIS = Information Systems (IS) for Management



Data, Information, Knowledge

- *Data*
  - *raw facts* e.g., (…, 31, 300000,…)
- *Information*
  - *data of a particular meaning in a specific context*
  - *data processed/presented in a meaningful fashion*

R	…, Age, Income,…
	…, 31, 300000,…



- *Knowledge*
  - *information about your business that gives you the ability to make effective and important business decisions*

e.g., if Income > 200000 then Class Silver

Course: MIS (by GQ Chen et al.)

Data Unit

- binary：e.g., bits: 0101011….
  - B：Byte(字节)，8 bits
    - 1 English character：1 Byte，1 Chinese character：2 bytes
  - K(千): 1KB = 1024B = 2^{10}B
  - M(兆): 1MB = 1024KB = 2^{20}B
  - G(吉): 1GB = 1024MB = 2^{30}B
  - T(太): 1TB = 1024GB = 2^{40}B
  - P(拍): 1PB = 1024TB = 2^{50}B
  - E(艾): 1EB = 1024PB = 2^{60}B
  - Z(泽): 1ZB = 1024EB = 2^{70}B
  - Y(尧): 1YB = 1024ZB = 2^{80}B
  - ……
- E.g.,
  a jpg picture：4MB /a mp3 music：6MB/ a 120-min RMVB movie: 1.5GB

Information Technology (IT)

Any computer-based tool that people use to work with information and to support the information and information-processing needs of an organization.

IS Knowledge

- *It evolves*
- *It is specialized, as a major and profession*
- *It is becoming an inherent part of business, as IT fusion pertains*
  - *Part of core competence (for both individual and organization)*
  - *Adaptive to other professions*

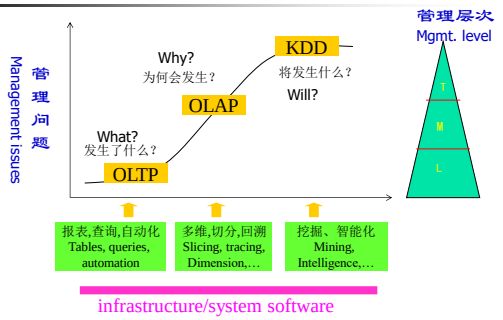
Perspectives of IS

- Information Processing
  - *how data/information/knowledge is represented, generated, and processed*
- Systems Development
  - *how a MIS is modeled (analyzed, designed, implemented)*
  - *How systems are integrated*
- *Use of IT/IS*
  - *How IT/IS is adopted in a company*
  - *What IT management issues are*
  - *What the impact of IT/IS is on the organizational behavior and processes*

"make"

"use"

2.3 IS vs. Management Issues



Information Age and IT in Business

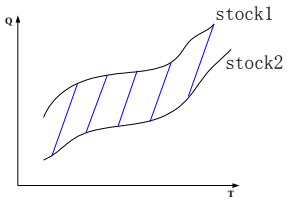
Examples

Example 1: Roles of IT/IS

- *What are your thoughts and opinions on:*
  - *"IT Doesn't Matter"?*
  - *"Big data only focuses on association and doesn't ask why (in Chinese: 大数据只讲关联，不讲因果)"?*
  - *" What are the implications to Chinese firms if cloud computing is a utility similar to electricity"?*
  - *"What ERP means to Lenovo"?*
  - *……*

Example 2: Stock Movements

"if stock 1 increases, how about stock 2 ?"



Example 3: Buying Patterns

A firm has sales records for cell phones as follows. It wishes to find:
— what types of customers turns to buy which brand cell phones?
— whether buying one product is associated with buying another?

Customer No.	Related Items					
	Female	Male	Young	Old	Nokia 6600	Panasonic G70
1	O		O		O	O
2	O			O	O	O
3		O		O	O	
4	O		O			O
5		O		O	O	
6	O			O	O	
7		O	O		O	O
8	O		O			O
9		O	O			
10	O		O			O

Example 4: Classification

- A company wants to classify it customers into different groups, such as Classic, Silver, Gold, Diamond, and Other, in order to provide them with proper services for good customer satisfaction.

Classic(C1):
……
Silver(C2):
……
Gold(C3):
……
Diamond(C4):
……
Other(C0):
……

Income	Age	Marital status	Nr. Children	Education
$ 25000	35	M	3	H
$ 15000	24	M	1	H
$ 30000	21	N	0	H
$ 23000	25	N	0	H
$ 21000	25	N	3	U
$ 72000	60	Y	0	U
$ 81000	32	Y	0	G
$ 253000	43	Y	3	G
$ 198000	51	N	2	U

Example 5: Business Modeling

"How to read/describe a business phenomenon in a company's IT project ?"

- A real-world phenomenon: a client in his lifetime can have multiple bank accounts, and can act, at any time, on any bank account with open, close, deposit, and/or withdraw operations.

Example 6: An Outsourcing Decision

- *If a company decides to implement an information system (e.g., ERP or BA) to connect with its suppliers and to take competitive advantage over its competitors, how does it determine whether the system is to be in-house built or outsourced?*
- *If it is to be outsourced, what are the managerial issues involved in the project?*