

ISOM 2010: Digital Economy (I)

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1

1

Concept Map

Intro to Information Systems

Fundamentals

Software/Hardware,
Database & Analytics

Digital Economy

E-Commerce

IT Trends

Online Platforms

FinTech

Social Media

Big Data

2

2

>> Roadmap

Today:

- **Fundamentals of IT**

Next:

- IT and Strategy
- Impacts of IT

3

3

Essential IT

Information Technology
Information and Technology

4

4

Moore's Law

Number of transistors on an integrated circuit doubles every 18 months; as a result, the power of computing also doubles with ZERO additional cost



5

5

How IT Changes Business



Automated processes record terabytes of data about products, transactions and PEOPLE!!

Metrics = Measurements
People pay attention to what you measure, so picking the right metric is key!

Incentives change behavior, both in individuals and organizations.

6

6

IT = Strategic Business Value

- It's not about the technology—it's about the INFORMATION
- Information impacts every business area
- IT adds efficiency & competitive advantage – life blood of success



7

7

Fundamentals of IT

- What are the unique characteristics of *information*?
- What are the functions of *technology*?
- What are the roles of *information systems* in business?

8

8

>> Information

- Anything that can be digitized



– Text, images, videos, music, etc.

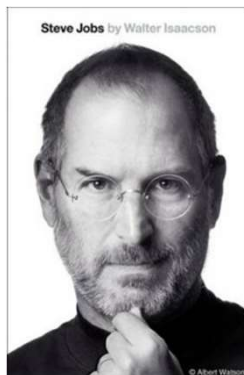
- “Content” or “digital goods”

9

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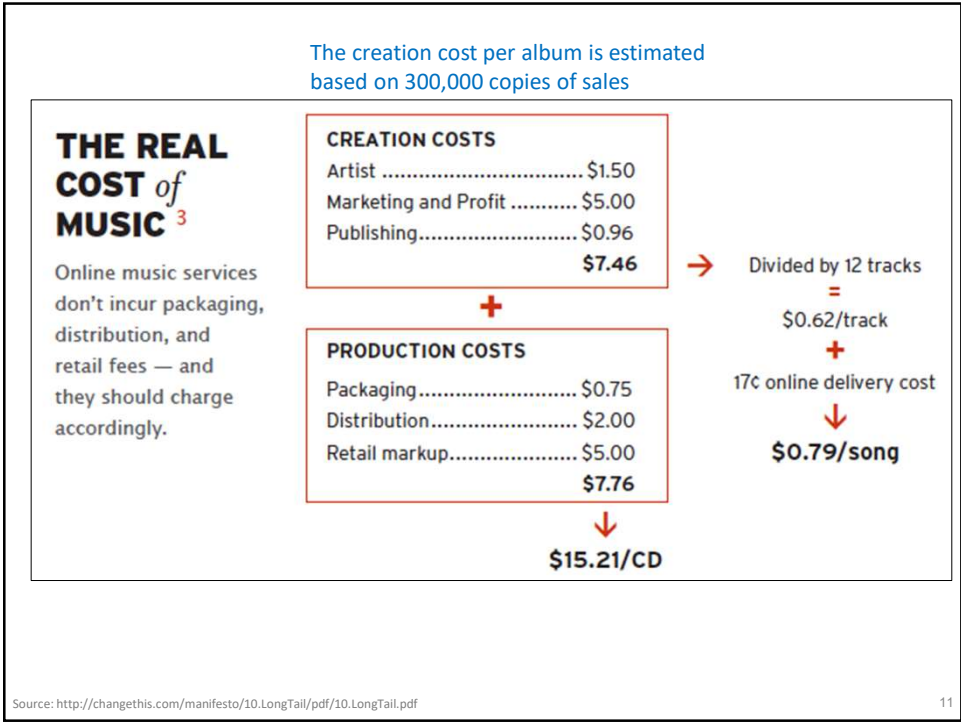
Cost Structure of Information

Information is expensive to **produce**, but cheap to **reproduce**

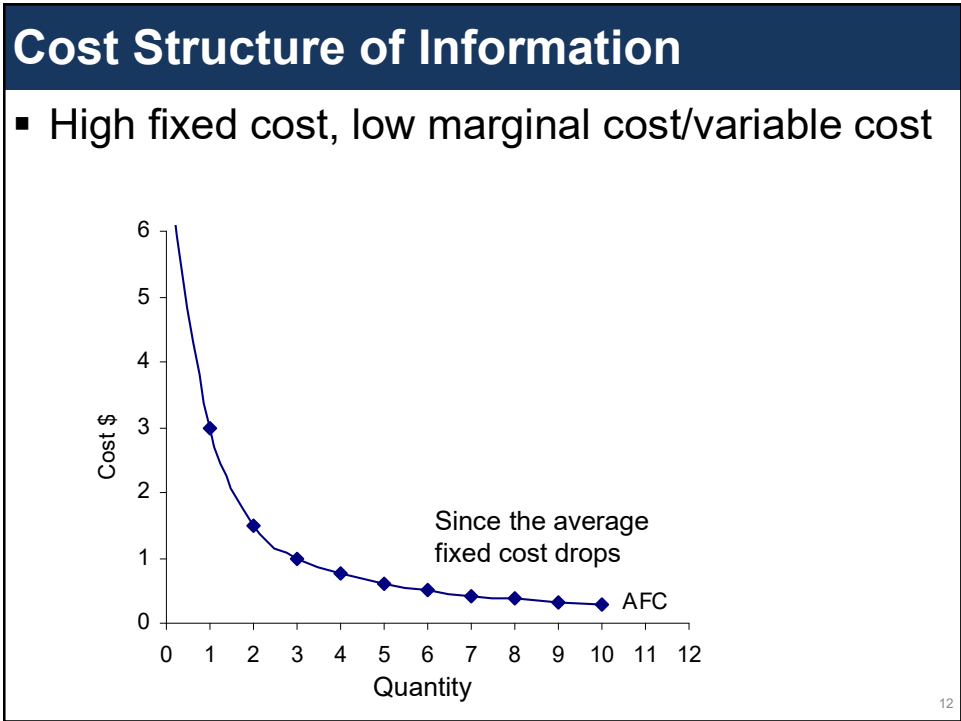


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10



11



12

An Example: William Hung's Big Hit

- https://www.youtube.com/watch?v=HF_9d-LJDyA
- Cost Structure of Digital Products
- Capacity Constrain of Digital Products

13

13

Cost Structure of Information

- High fixed cost, low marginal cost
 - Not only fixed, but **sunk**

Studio albums

List of studio albums with chart positions and sales

Title	Album details	Peak chart positions				Sales ^[6]
		US [14]	US Indie [15]	AUS [16]	AUS Heat [16]	
<i>Inspiration</i>	<ul style="list-style-type: none"> Released: April 6, 2004 Label: Koch Format: CD, digital download 	34	1	89	4	US: 200,000

14

14

Cost Structure of Information

- High fixed cost, low marginal cost
 - Not only fixed, but sunk

- No significant capacity constraints

15

15

TOTAL INVENTORY

* inventory in a typical store



Source: <http://changethis.com/manifesto/10.LongTail/pdf/10.LongTail.pdf>

16


16

Cost Structure of Information

- What's the "right" price of digital goods?
 - Set price where $MC = MR$?
 - How do we compete with "Free"?
 - Business Models for "Free" Digital Products

17

17


Wireless / Networking

≡ Wireless / Networking ▾
 Fundamentals
 Get Connected
 Uses and Upgrades

Top 6 Free Music and Movie Download Tips - Kazaa - BitTorrent - Limewire P2P

By [Bradley Mitchell](#)

Ads:
[Music P2P File Sharing](#)
[Peer to Peer Wireless](#)
[Movie Music Download](#)
[Tips Music](#)

Download of free music and movie files from P2P networks remains a very popular activity of Internet users in homes or schools.

However, you will likely encounter some technical difficulties when attempting P2P music (or movie) downloads to your personal computer. Follow the tips below to solve these networking problems and download free music more efficiently.

Many free music and movie files are subject to copyright law. Ensure your Internet file sharing activities remain legal at all times.

18

18

About.com Wireless / Networking

Wireless / Networking ▾ Fundamentals Get Connected Uses and Upgrades

Top 6 Free Music and Movie Download Tips - Kazaa - BitTorrent - Limewire P2P

By Bradley Mitchell

Ads: Music P2P File Sharing P2P Peer-to-peer wireless network music download Tips Music

Free has a cost

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19

19

Consumption of Information

Two prominent features:

1. Experience good
2. Overload

20

20

Experience Good

- Quality can only be ascertained after consumption
- Consumer must experience information to value it
- Consumers' valuations vary dramatically

21

21

Experience Good

What strategies do sellers use to help consumer “experience” product such as:

- Music
- Books
- Software
- News?

22

22


Class Discussion

- If you were William Hung's album producer, what would you do to reduce the uncertainty of customer experience which hinders customers from purchasing his songs?

23

23

Music > Pop > William Hung



WILLIAM HUNG
INSPIRATION

Released 6 Apr, 2004
© 2004 KOCH Records

HK\$ 48.00 Buy

Inspiration

William Hung >

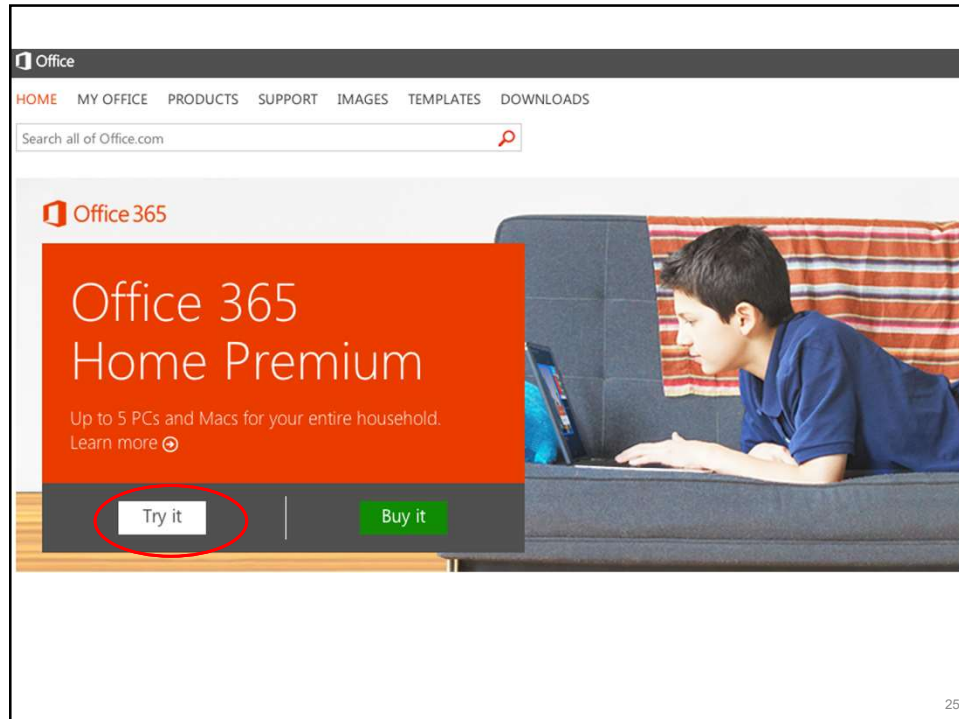
Songs Ratings and Reviews Related

▲ Name
1. Words of Gratitude
2. She Bangs
3. Bailamos
4. Inspirational Thoughts: Passion
5. I Believe I Can Fly
6. Hotel California
7. Can You Feel the Love
8. Two Worlds
9. Inspirational Thoughts: Perseverance
10. Rocketman
11. Free
12. Circle of Life
13. Inspirational Thoughts: Happiness
14. Y.M.C.A.
15. Shake Your Bon-Bon

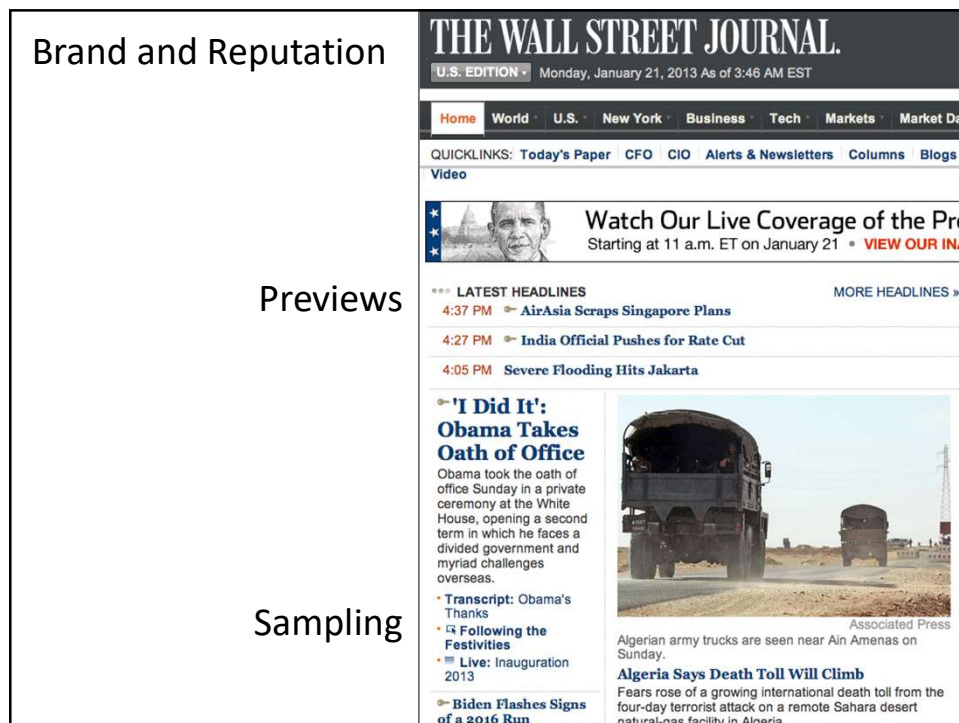
► Preview All

24

24



25



26

The New York Times

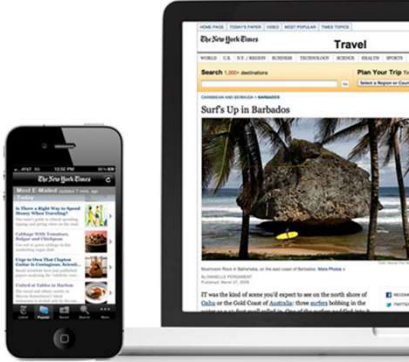
Beginning in April, visitors to NYTimes.com can access 10 free articles each month, rather than 20.

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Source: <http://www.nytimes.com/subscriptions/Multiproduct/lp6128.html>

27

27

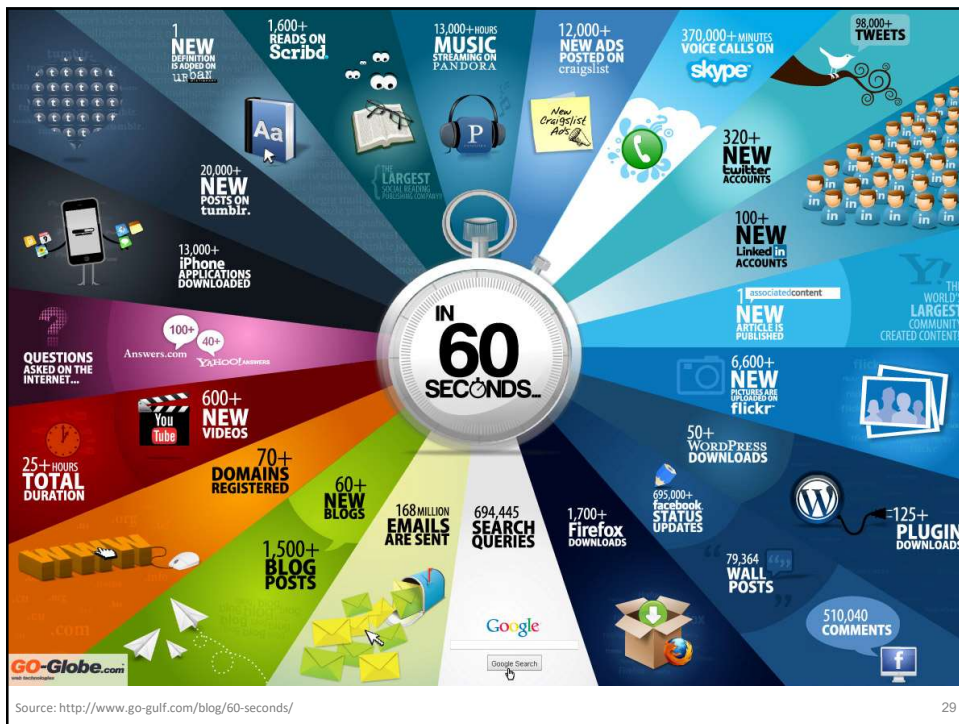
Consumption of Information

Two prominent features:

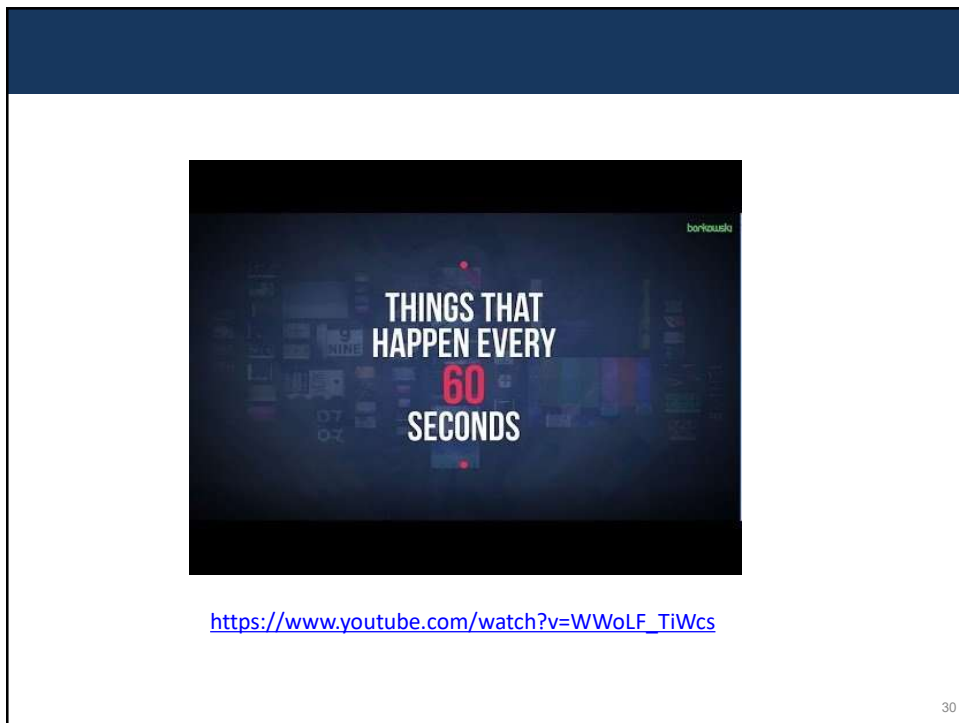
1. Experience good
2. **Overload**

28

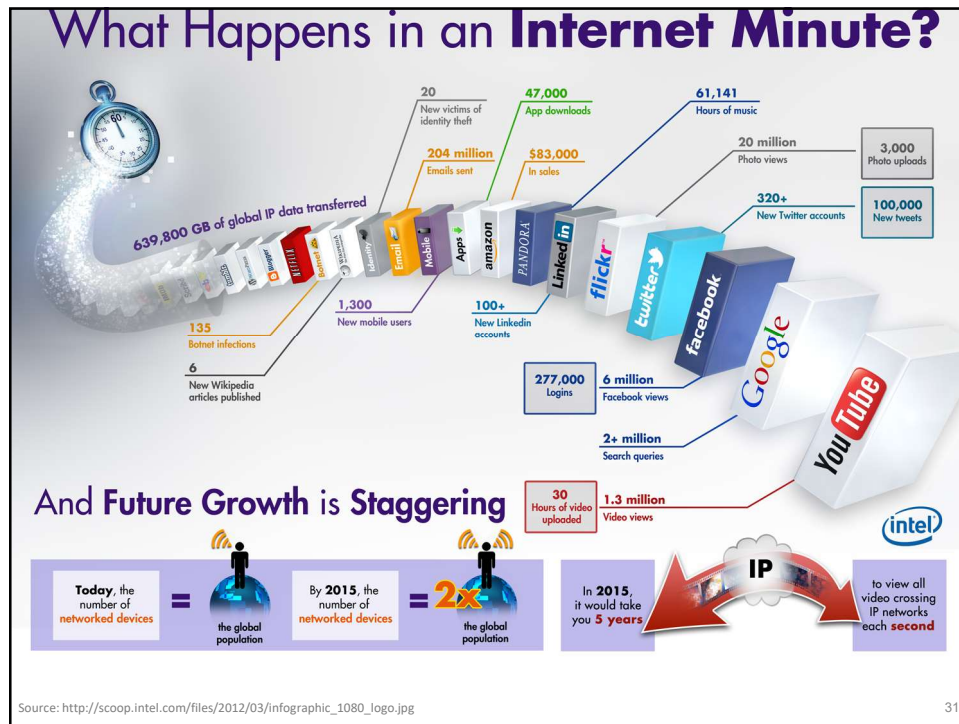
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29



30



31

- Every day, 2.5 quintillion bytes of data are created, with 90 percent of the world's data created in the past two years alone.²
- Data production will be 44 times greater in 2020 than in 2009.³
- The volume of business data worldwide is expected to double every 1.2 years.⁴
- Wal-Mart processes one million customer transactions per hour, stored in databases estimated to contain more than 2.5 petabytes of data.⁵
- The enormous data influx is straining IT infrastructures. In a recent survey, 55 percent of executives said data is slowing down their IT systems.⁶
- Poor data management can cost up to 35 percent of a business's operating revenue.⁷

¹ One zettabyte is approximately equal to a thousand exabytes or a billion terabytes.

² "Bringing Big Data to the Enterprise," IBM, 2012

³ "A Comprehensive List of Big Data Statistics," Wikibon Blog, 1 August 2012

⁴ "eBay Study: How to Build Trust and Improve the Shopping Experience," KnowIT Information Systems, 8 May 2012

⁵ "Big Data Meets Big Data Analytics," SAS, 2011

⁶ "Global Survey: The Business Impact of Big Data," Avanade, November 2010

⁷ "'Big Data' Facts and Statistics That Will Shock You," Fathorn Digital Marketing, 8 May 2012

Source: A.T. Kearney (2013) "Big Data and the Creative Destruction of Today's Business Models"

32

32

Information Overload

“There was 5 exabytes of information created between the **dawn of civilization through 2003**, but that much information is now created **every 2 days**, and the pace is **increasing**.”

~ Eric Schmidt

33

33

Information Overload

- Implication: Economics of attention
 - Information is not scarce, attention is.

“A wealth of information creates a poverty of attention.”

~ Herbert Simon

34

34

Information Overload

What can firms do in an overloaded world?

- Targeted & Personalized Recommendations
- Provide “Search and Filter”

35

35

What to Watch

My Subscriptions

Social

Playlists

History

Watch Later

SUBSCRIPTI...

Add channels

Popular on Yo

Music

Sports

Gaming

Browse chan...

Manage subsc...

Search channels

Best of YouTube

★

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📺

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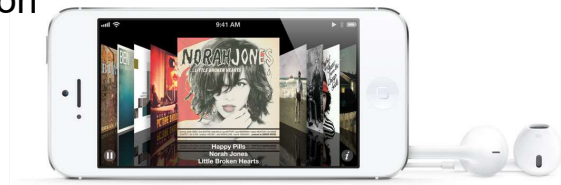
Matt Gran...

Subscribe

36

>> Technology/Systems

- Infrastructure to:
 - Store,
 - Retrieve,
 - Filter,
 - Manipulate,
 - View,
 - Transmit, and
 - Receive information



37

37

Technology/Systems

How does technology add value to information?

1. *Provides accessibility to information*
 - Real-time/timeliness
2. *Enriches information*
 - Manipulation and filtering
 - Combining data sources
3. *Facilitates exchange of information*

38

38

>> Role of IS in Business

- Technology is embedded in business
 - Sales, Marketing, Customer Service

- IT has operational and strategic roles

39

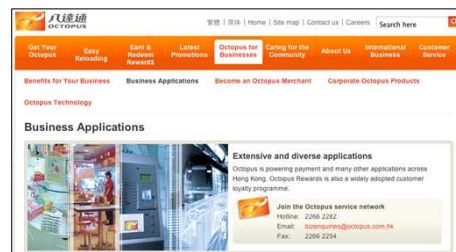
39

Role of IS in Business

- Support and Enhance Business Process
 - Facilitate transactions

 - Record activities

 - Track inventory/Balance



40

40

Role of IS


- Support and Enable Decision Making
 - What items to add or discontinue?
 - Which markets should I enter/exit?
 - What incentives can I provide to key customers?
 - Where should I invest in?

41

41

BUSINESS INSIDER

A Venture Capital Firm Just Named An Algorithm To Its Board Of Directors — Here's What It Actually Does

 ROB WILE
MAY 13, 2014, 11:19 AM

A Hong Kong VC fund has just appointed an algorithm to its board.

Deep Knowledge Ventures, a firm that focuses on age-related disease drugs and regenerative medicine projects, says the program, called VITAL, can make investment recommendations about life sciences firms by poring over large amounts of data.

Just like other members of the board, the algorithm gets to vote on whether the firm makes an investment in a specific company or not. The program will be the sixth member of DKV's board.

VITAL's software was developed by UK-based Aging Analytics.

"[The goal] is actually to draw attention developing it as an independent decision maker," Deep Knowledge Venture's Charles Groome told BI.

How does the algorithm work?

VITAL makes its decisions by scanning prospective companies' financing, clinical trials, intellectual property and previous funding rounds.



Google images

Source: <http://www.businessinsider.com/vital-named-to-board-2014-5>

42

42

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Article

Why CIOs should be business-strategy partners

Our latest survey of business and IT executives finds that IT performance increases across the board when CIOs are involved in shaping business strategy.

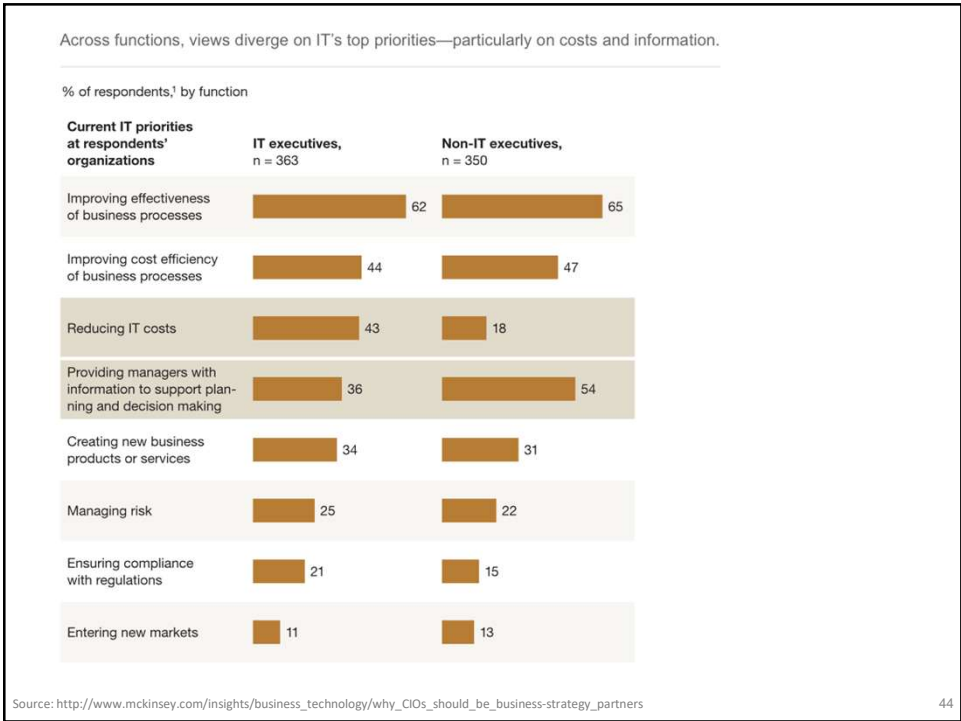
February 2015 | by Pedja Arandjelovic, Libby Bulin, and Naufal Khan

When CIOs play an active role in business strategy, IT performance on a wide range of functional and business tasks improves. But in McKinsey's latest survey on business technology, few executives say their IT leaders are closely involved in helping shape the strategic agenda, and confidence in IT's ability to support growth and other business goals is waning. Moreover, IT and business executives disagree strongly on the function's overall priorities—though both sides agree on the need for better data and analytics talent, a challenge that has grown in importance since the previous survey. The results suggest that closing the gap to engage more CIOs in strategy discussions could deliver business benefits and address widespread concerns over IT effectiveness.

Source: http://www.mckinsey.com/insights/business_technology/why_CIOs_should_be_business-strategy_partners

43

43



44

>> Roadmap

Today:

- **Fundamentals of IT**

Next:

- Strategic IT
- Impacts of IT

45

45

Fundamentals of IT

- What are the unique characteristics of information?
- What are the functions of technology?
- What are the roles of Information Systems in business?

46

46

Resources

- Hal R. Varian (1998) “*Markets for Information Goods*” (<http://people.ischool.berkeley.edu/~hal/Papers/japan/japan.html>)
- McKinsey (2014) “Why CIOs should be business-strategy partners” (http://www.mckinsey.com/insights/business_technology/why_CIOs_should_be_business-strategy_partners)

47