MIS 304: Using and Managing Information Systems

Ch1: Managing in the Digital World

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** Originally created by Matthew Hashim and Faiz Currim for MIS 304. Was later updated and modified by Wenli Zhang.

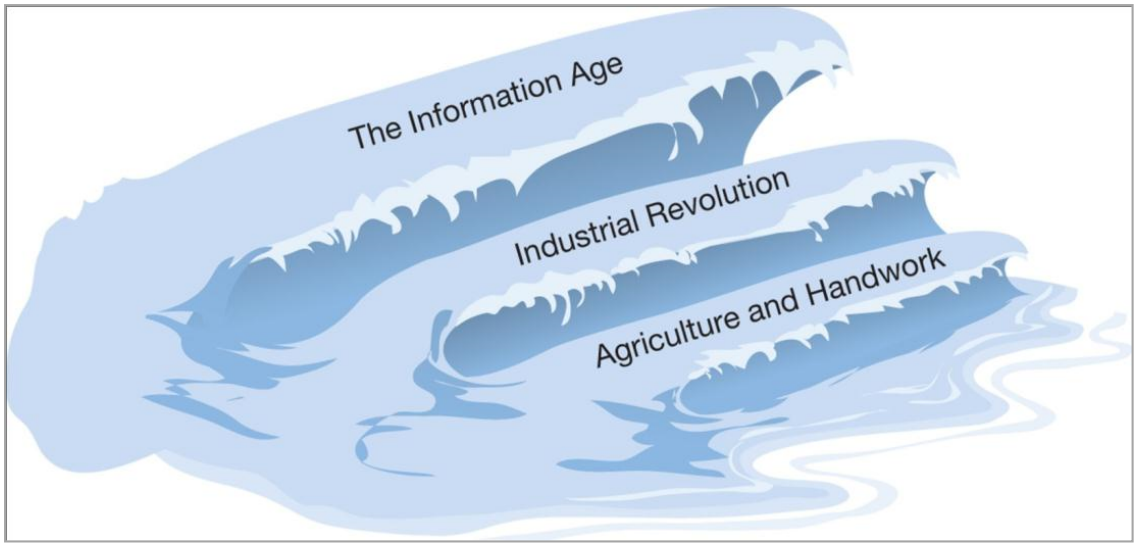
Learning Objectives

1. Information Systems Today
2. Evolution of Globalization
3. Information Systems (IS) Defined
4. The Dual Nature of Information Systems
5. IS Ethics

1. Information Systems Today

- Describe the characteristics of the digital (technology-enabled) world and the advent of the Information Age.

Rise of the Information Age



Alvin Toffler is an American writer and futurist.
Known for his works discussing the digital revolution.

The Information Age, the *Third Wave*, as described by Toffler

Toffler's Future Shock: "too much change in too short a period of time"

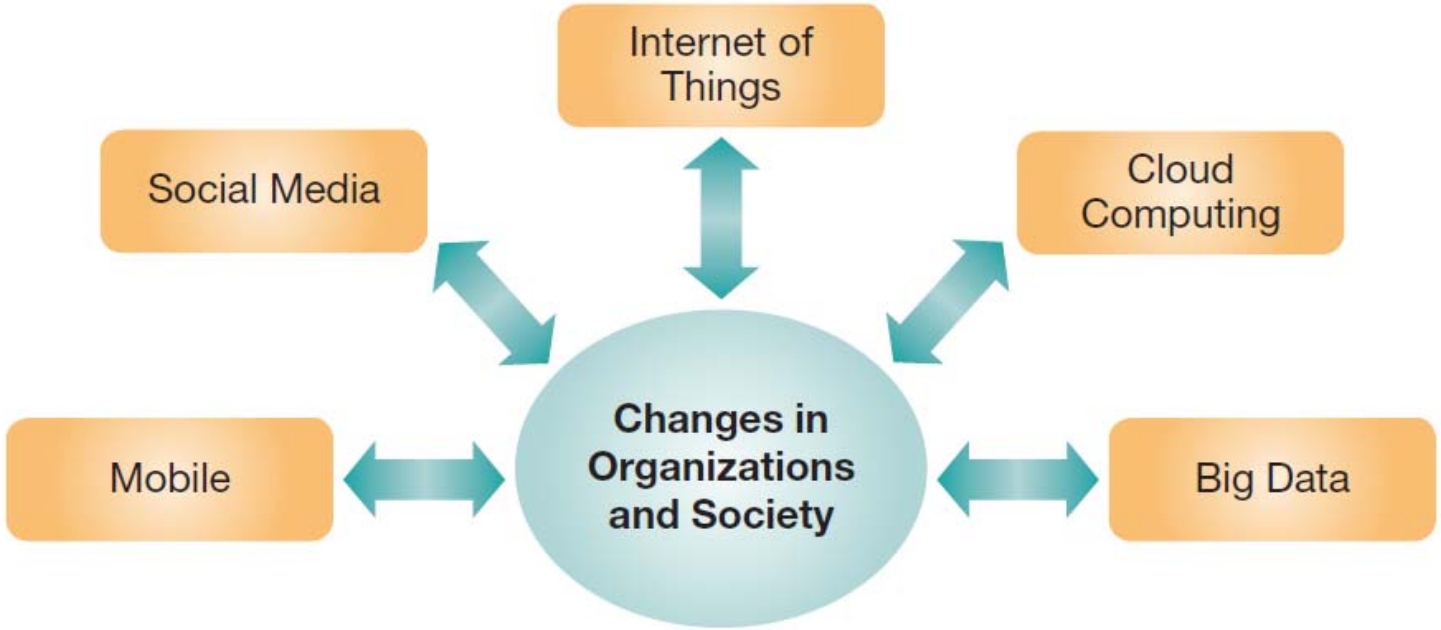
Case study: Technology at Starbucks

- A not-so-simple coffee store
- Using technology to support success
  - Connecting with customers
  - Mobile payments
  - Virtual Talent
  - Contextual retailing

Discuss: to what extent do such innovations influence your choice of coffee shops ?
What would make you switch to another store ? Why ?

Starbucks wants to be your new wallet
https://youtu.be/NbNlQ0ct9LI

Five IT Megatrends in the Information Age



Trends in the Information Age: Mobile Computing

- Post PC age
- Developing world mobile devices often leapfrog traditional PCs
  - China Internet users: 688 million (50.3%)
  - Mobile phone users: 620 million (90.1%)
- Implications:
  - Increased collaboration
  - The ability to manage business in real time
  - New ways to reach customers

PC vs. Smartphone

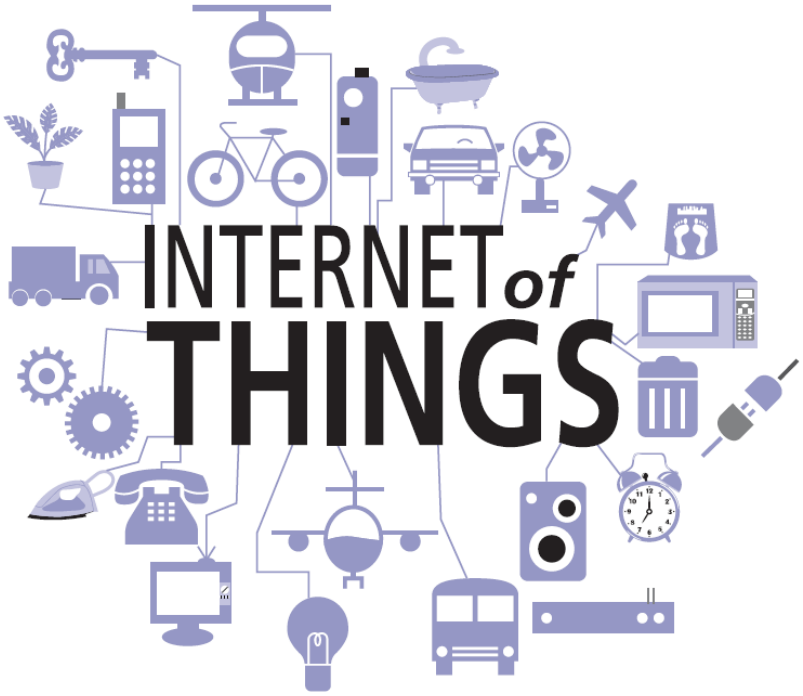
Topic	PC	Smartphone
Power	Powerful	Compact
Cost	Vary widely	Not as much as computers
Screen size	Between 17" and 24" in most cases	Ranging from 2.5" to 4.8"
Portability	Not considered to be portable	More portable than any computer
Storage	TB	Ranging from 8 GB to 64 GB
Connectivity	Wi-Fi / Ethernet	3G, 4G / Wi-Fi
Operating system	Fully featured	Android OS/apple iOS/windows phone
Data entry and user input	mouse keyboard touchscreen	on-screen touch keyboard

Trends in the Information Age: Social Media

- Over 1.28 billion (and growing) Facebook users share status updates or pictures with friends and family
- Organizations use social media to encourage employee collaboration or to connect with their customers

Trends in the Information Age: The Internet of Things

- Devices have embedded computers and sensors, enabling connectivity over the Internet
- By 2008, more devices were connected to the Internet than people living on earth

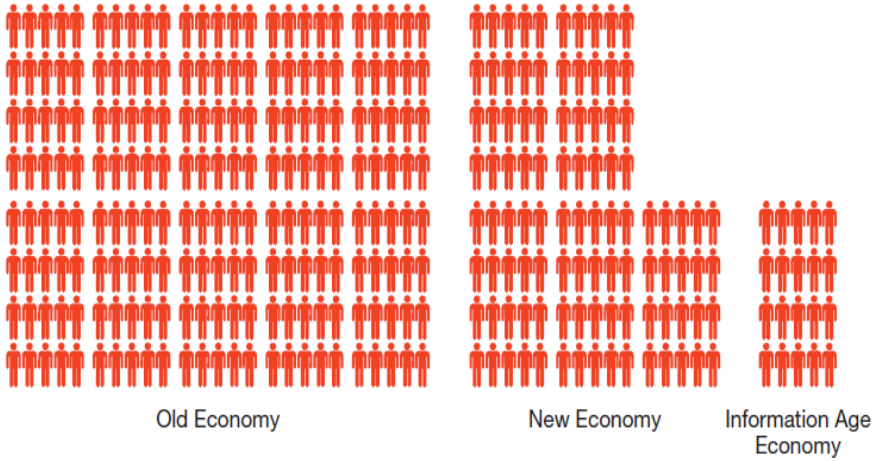


Trends in the Information Age: Cloud Computing

- Web technologies enable using the Internet as the platform for applications and data
- Advantage:
  - Backup and reliability
  - Access from any device
- Disadvantage:
  - Require connectivity to function

Trends in the Information Age: Big Data

- IDC estimated that in 2011, 1.8 zettabytes of data were generated = 57 billion 32GB iPads
- Good business decisions depend on good data.
- "Big Data" is a key part of "business intelligence"



Companies in the Information age economy are creating value not from people, but from data.

Five IT Megatrends in the Information Age

Internet of Things

Social Media

Cloud Computing

Discussion: Starbucks uses cloud to manage innovation

http://www.computerweekly.com/news/2240232395/Starbucks-uses-cloud-to-manage-innovation-and-disruptive-technologies

Mobile

Changes in Organizations and Society

Using weather data to drive sales

Starbucks sent a simple email promoting hot drinks to customers who are experiencing cold weather.

With no incentive/offer, Starbucks saw large incremental sales vs. control group and emails had above average open rate – suggesting high relevance

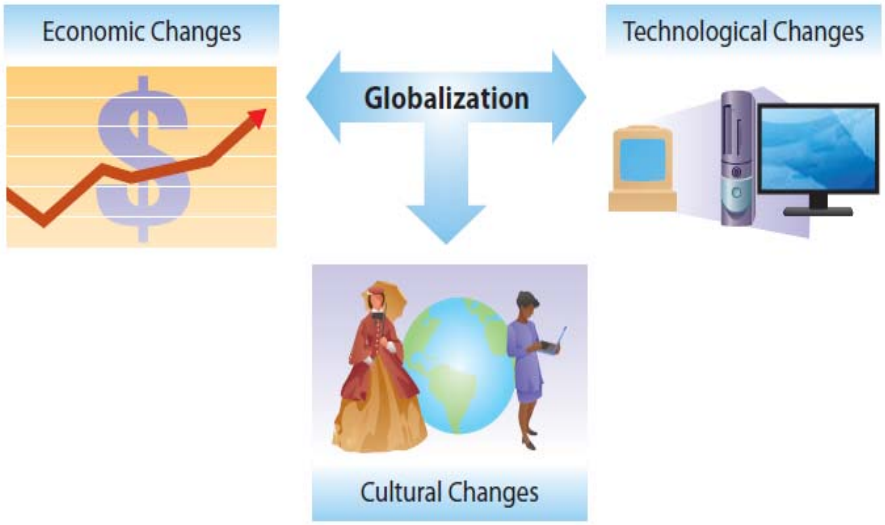
Big Data

2. Evolution of Globalization

- Describe key drivers of globalization, and some of the opportunities and challenges globalization presents.

Key Drivers of Globalization

- Economic change
  - International trade, global finance, labor outsourcing
- Cultural change
  - Multiculturalism from media, international travel, ethnic foods
- Technological change
  - Computing and communication platforms, global patent and copyright laws



The Rise of Outsourcing

- Outsourcing: moving of business processes or tasks to another company

Companies are offshoring production to overseas countries (such as China) to utilize talented workers or reduce costs.
Source: Lianxun Zhang/fotolia.

Key Reasons for Outsourcing

- To reduce or control costs
- To free up internal resources
- To gain access to world-class capabilities
- To increase the revenue potential of the organization
- To reduce time to market (TTM)
- To increase process efficiencies
- To be able to focus on core activities
- To source specific capabilities or skills

Opportunities of Operating in the Digital World

- Falling Transportation Costs
- Falling Telecommunication Costs
  - These have helped create shared perspectives of behavior, desirable goods, and even forms of government
- Reaching Global Markets
- Accessing a Global Labor Pool
  - Highly skilled or low-cost labor pools exist in many countries that are now economically accessible

Challenges of Operating in the Digital World

- Government
  - Political instability
  - Regulatory: taxes/tariffs, import/export restrictions
- Geo-economic
  - Time zones, infrastructure
  - Workforce: welfare, demographics, expertise
- Cultural
  - Working with, providing services to

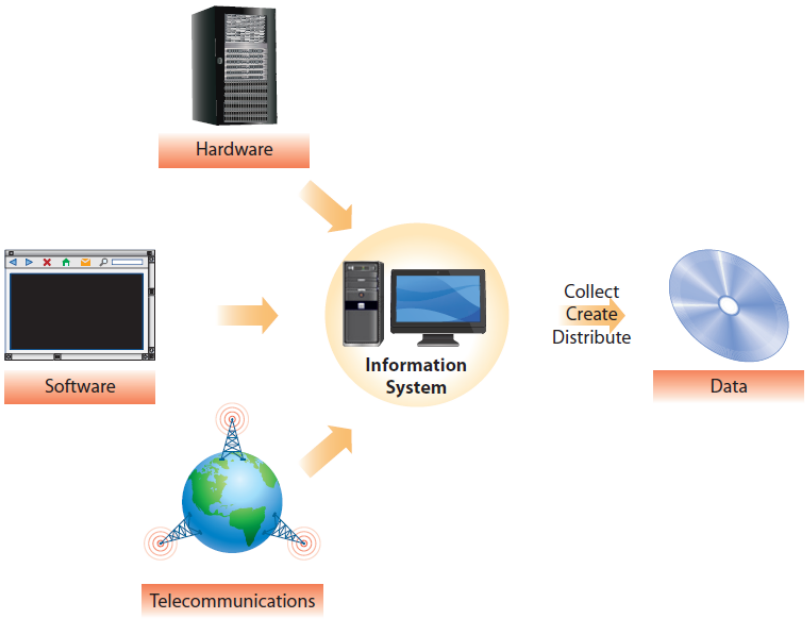
3. Information Systems Defined

- Explain what an information system is, contrasting its data, technology, people, and organizational components.

What is an Information System?

- **Information systems** (IS) use **information technology** (IT) to collect, create, and distribute useful **data**

- Information technology:
  - Hardware, software, telecommunications, etc. (*see Chapter 3 for more details*)



Information Systems Components

- Data
- People
- Organizations

Data: The Root and Purpose of Information Systems

Data	Information	Knowledge
465889727	465-88-9727	465-88-9727 → John Doe
Raw Symbols	Formatted Data	Data Relationships
Meaning: ---------- ???	Meaning: ---------- SSN	Meaning: ---------- SSN → Unique Person

- Alone, raw data is not very useful
- When processed into information, data becomes useful
- When information is understood and used for decisions, it becomes knowledge

Data: the raw information
Once data is processed and analyzed, it becomes **information.**
Knowledge is the ability to understand information and make decisions or predictions based on the information

People: Builders, Managers, and Users of Information Systems

- As the use of information systems grows, so does the need for dedicated IS professionals.

Rank	Career	Job Growth (10-year forecast)	Median Pay (in US$)
1	Biomedical engineer	62%	87,000
2	Clinical nurse specialist	26%	86,500
3	Software architect	28%	121,000
4	General surgeon	24%	288,000
5	Management consultant	29%	110,000
6	Petroleum geologist	21%	183,000
7	Software developer	28%	88,700
8	IT configuration manager	29%	95,800
9	Clinical research associate	36%	95,100
10	Reservoir engineer	17%	179,000

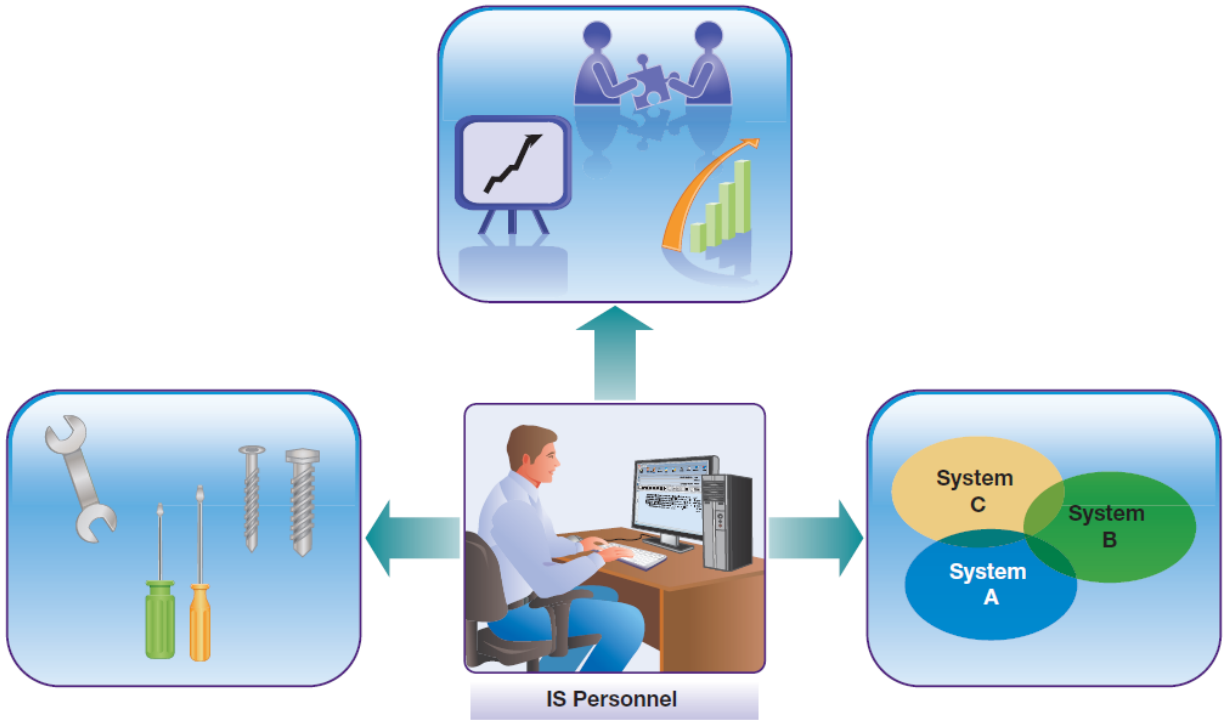
Source: Based on http://money.cnn.com/pf/best-jobs.

Careers in Information Systems

- Develop
  - Systems analyst, software developer, systems consultant
- Maintain
  - IS auditor, database administrator, Webmaster
- Manage
  - IS manager, IS security manager, chief information officer (CIO)
- Study
  - University professor, government scientist

What Makes IS / MIS Personnel Valuable?

- A blend of technical, business, and system skills



IS Productivity Paradox

The direct contribution of IS to the company profitability can be hard to measure.

Organizations: The Context of Information Systems

- Information systems can help organizations
  - Be more productive and profitable
  - Gain competitive advantage
  - Reach more customers
  - Improve service to their customers
- This holds true for all types of organizations—professional, social, religious, educational, and governmental

4. The Dual Nature of Information Systems

- Be able to describe the dual nature of information systems in the success and failure of modern organizations.

Information Systems Gone Wrong

- American Airlines computer glitch
  - Caused 700 delayed flights, 125K affected passengers, FAA flight halt, public apology from CEO
  - http://www.npr.org/sections/thetwo-way/2013/04/16/177502667/american-airlines-grounds-all-flights-due-to-computer-glitch

American Airlines computer glitch strands passengers:

https://youtu.be/at17-ZOCmbo

Information Systems Gone Wrong

- A variety of social media “failures”
  - People do or say things they shouldn’t and it can’t really be taken back.
  - E.g., a tweet from the Blackberry official twitter account showed that it was sent from an iPhone

- Cybersecurity threats
  - E.g., **Sony picture was hacked**
  - **https://youtu.be/k6vtFLfPSMM**

Information Systems for Competitive Advantage

- **FedEx**
- Over 250,000 employees in 200 countries
- one firm using information systems for competitive advantage
  - Continuous update and fine-tuning provides high-quality package tracking and enables FedEx to become a global leader in express transportation, handling 25% of all package deliveries

5. IS Ethics

- Describe how computer ethics impact the use of information systems and discuss the ethical concerns associated with information privacy and intellectual property.

Computer Ethics

"Describes the moral issues and standards of conduct as they pertain to the use of information systems"

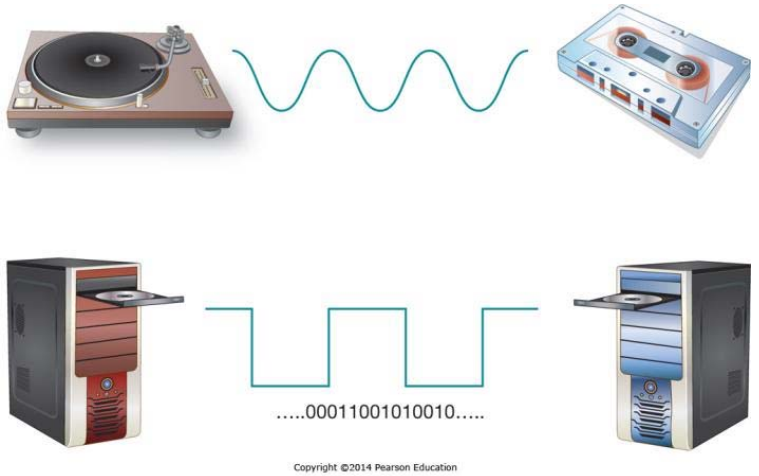
- Collecting and analyzing user data may have negative impacts
  - Social decay
  - Increased consumerism
  - Loss of privacy

Privacy

- Privacy on the Web
  - Who owns the computerized information about people? Answer: the company that maintains the database of customers is free to sell it…within limits
- E-mail Privacy
  - Legally, there is no right to e-mail privacy
  - Electronic Communications Privacy Act (ECPA), passed in 1986, protects phone conversations,
    but not e-mail
- Protecting your privacy
  - U.S FTC Fair Information Practice Principles: notice/awareness, choice/consent, access/participation, integrity/security, enforcement/redress

Intellectual Property

- Copying digital music is almost effortless
- In many non-Western societies, using someone else's work is considered praise for the creator
- Using another's work without purchase or attribution has significant legal and ethical ramifications



The Digital Divide

- Many people are being left behind in the information age
  - Strong linkage between computer literacy and a person's ability to compete in the information age
  - People in rural communities, the elderly, people with disabilities, and minorities lag behind national averages for Internet access and computer literacy
  - The challenges in overcoming the digital divide are even greater in developing countries

Case study: Ethical Dilemma
The Human Cost of the Newest Gadgets

- Moral dilemmas
- Consequences—maximize benefits, minimize harms
- Actions—honesty, fairness, respect, etc.
- Globalization—Apple and Foxconn:
  - Poor working conditions in China
  - **https://youtu.be/sgbxUDvncko**
  - Profit maximization vs. worker rights

- **If you were in Tim Cook's shoes, what would you do?**

Questions?

- Post your question on **piazza** if you feel it may benefit others.

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