IT 역사와 패러다임의 이해

Professor. Kim, Sung Tae

Understanding Digital Society

❖**4 Basic Periods (Based on Tools)**

- ▪ **Premechanical Age (3000 B.C. - 1450 A.D.)**

- ▪ **Mechanical Age (1450 – 1840)**

- ▪ **Electromechanical Age (1840 – 1940)**

- ▪ **Electronic Age (1940 – Present)**

❖**Characterized by a principal technology used to solve the input, processing, output and communication problems of the time**

❖ **Earliest age of information technology**

❖ **Communication: Writing and Alphabets**

- **First humans communicated only through speaking and picture drawings.**

- **About 3000 B.C., the <u>Sumerians</u> in Mesopotamia devised cuneiform.**

- **About 2000 B.C., <u>Phoenicians</u> created symbols.**

- **<u>The Greeks </u>later adopted the Phoenician alphabet and added vowels.**

cuneiform

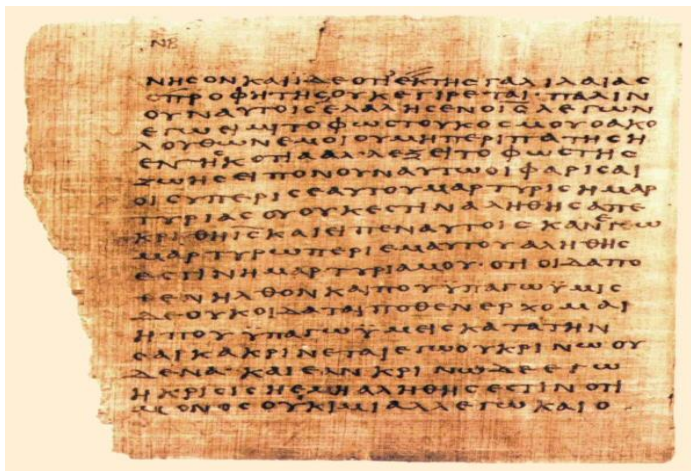Greek alphabet

Phoenician alphabet

❖Input technologies: **Paper** and Pens

- Sumerians' technology was a stylus that could scratch marks in wet clay.

- About 2600 B.C., Egyptians wrote on papyrus.

- About 100 A.D., Chinese made paper from rags.

❖Storage Devices: Books

- Religious leaders in Mesopotamia kept books.

- The Egyptians kept scrolls.

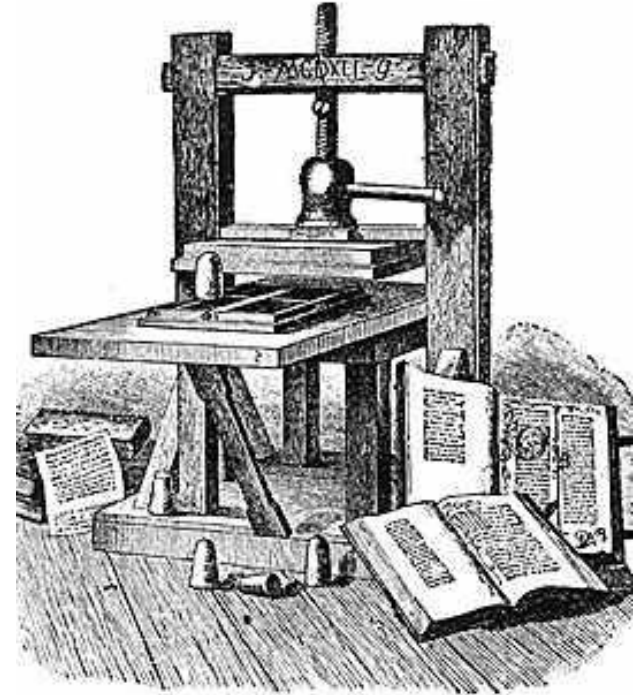- Around 600 B.C., Greeks began to fold sheets of papyrus vertically into leaves and bind them.

❖**People started to produce machines.**

❖**Printing Press**

- **Johannes Gutenberg invented the movable metal-type printing press in 1450.**

- **Thousand of copies could be made with a single run.**

- **The first information explosion.**

❖**Slide Rules**

- ▪ **Slide rule is an early example of digital computing device and analog computer.**

- ▪ **Early 1600s, William Oughtred invented slide rule.**

- ▪ **The Pascaline(1642, Blaise Pascal)**
  - ✓**used a series of wheels and cogs to add and subtract numbers.**

- ▪ **Leibniz's Calculator(1694, Gottfried Leibniz)**
  - ✓**cylinder with a set of teeth of incremental lengths**
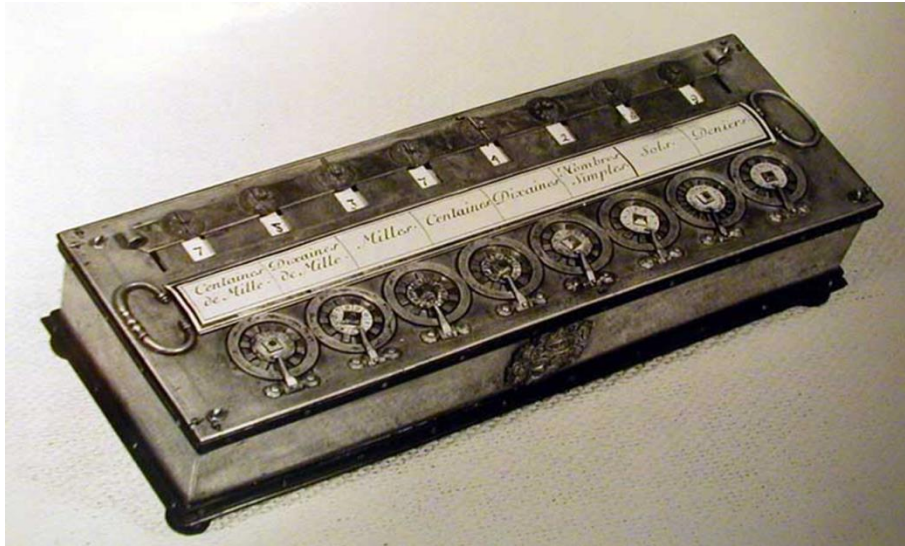
→ **Pascaline**

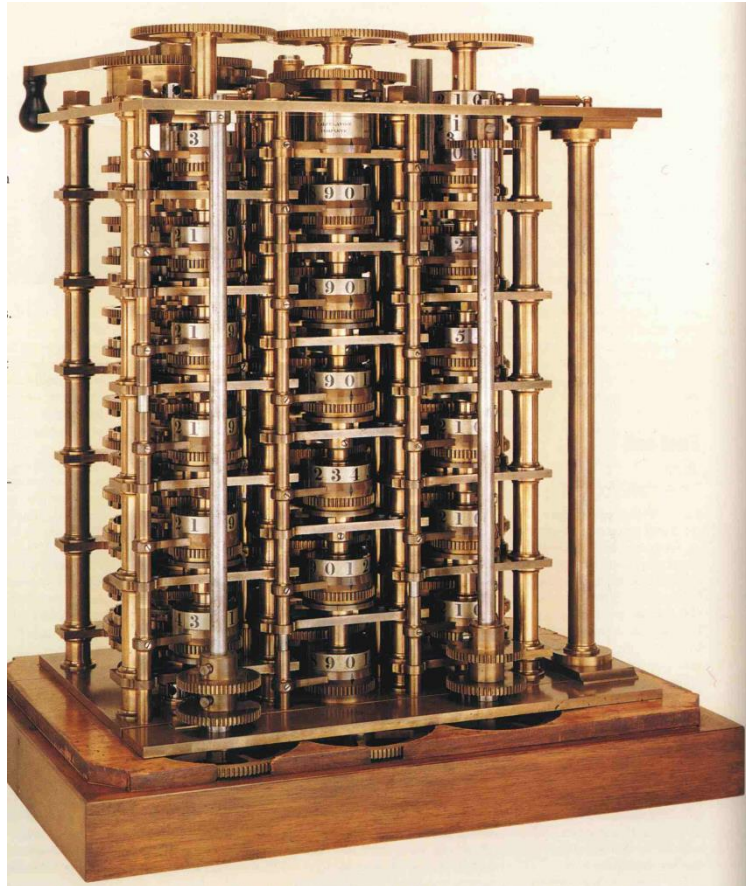**Leibniz's Calculator** ←
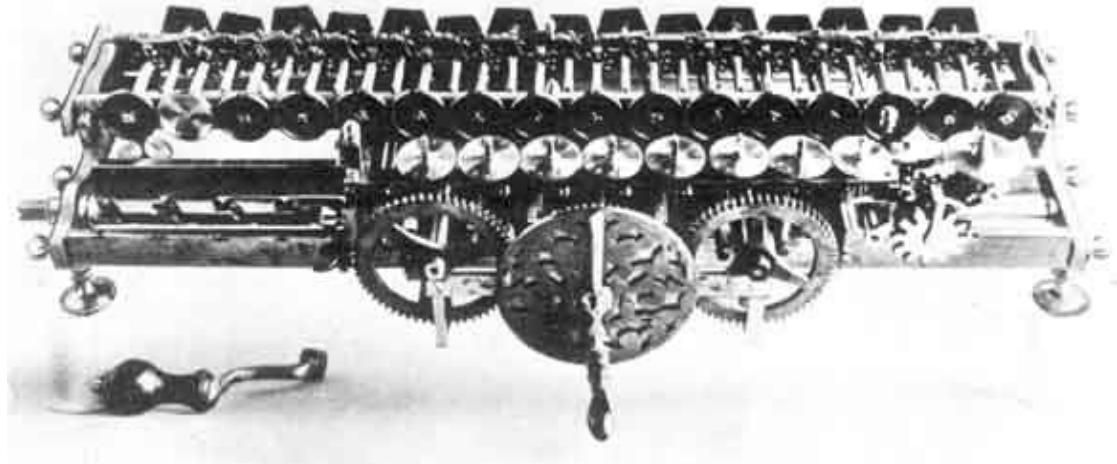
❖**Difference Engine** (1820, Charles Babbage)

- ▪ A steam powered adding machine.
- ▪ It could calculate numbers and print results.

❖**Analytical Engine** (1837, Charles Babbage)

- ▪ Mechanical calculator that could solve almost any mathematical problem.

Difference engine
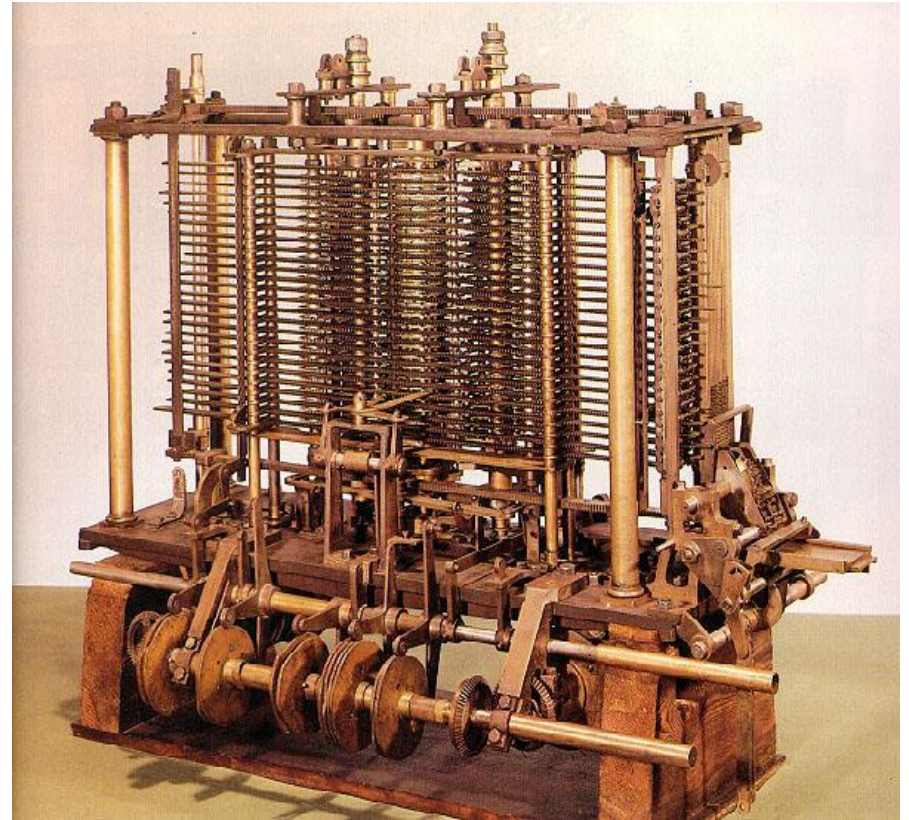
Analytical engine

3. Electromechanical Age

❖ **The discovery of ways to harness electricity** was the key advance of this age(1840s).

❖ **Knowledge and information could be converted into electrical impulses.**

The Detroit News Timely Topics

Bell's First Telephone

Electromechanical Age

Voltaic Battery

Telegraph

Late 18th

Early 19th

first large-scale automatic digital computer: Mark 1 (by Harvard University)

Telephone (Bell)

Radio (Marconi)

1835

1876

1894

1940
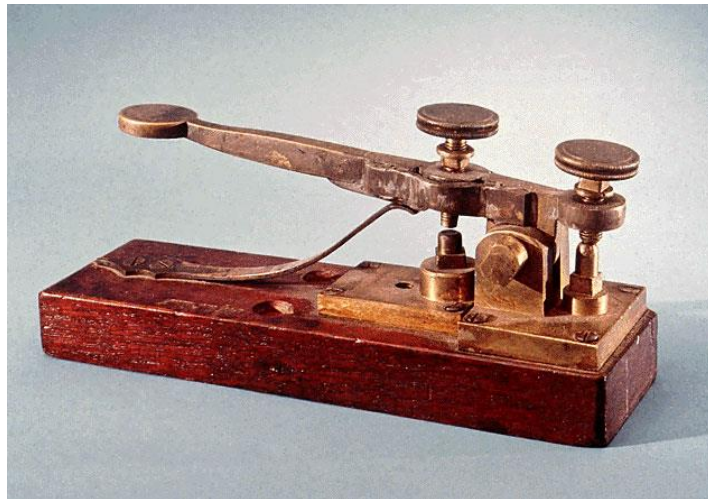
Morse Code
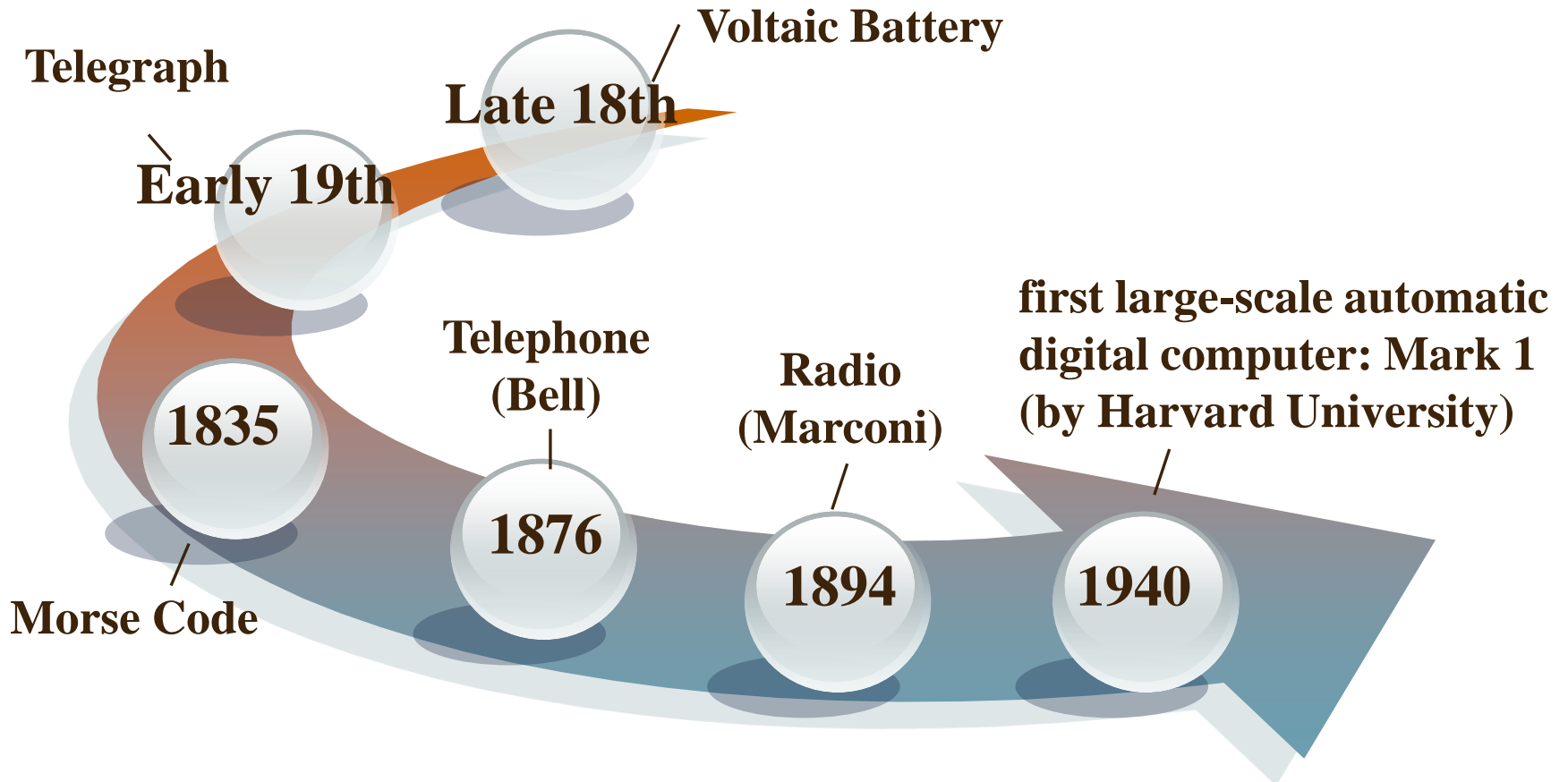
Development of Telephone & Computer

❖ **History of Telephone (Student's project; 10m)**

http://www.youtube.com/watch?v= PiBCZ7vUNKI

❖ 조지다이슨 컴퓨터의 탄생**(17)**

❖ **http://www.ondemandkorea.com/ted-george-dyson-the-birth-of-the-computer.html**

❖**Computers** came into use in this age.

(*youtube: a brief history of computers

❖ENIAC (1946)

- **E**lectronic **N**umerical **I**ntegrator **a**nd **C**omputer

- The first high-speed, digital computer.

- Weighed more than 5 tons.

❖EDSAC (1949)

- **E**lectronic **D**elay **S**torage **A**utomatic **C**alculator

- The first stored program computer.

Electronic Age

❖ <u>UNIVAC (1951)</u>

   ▪ <u>Universal Automatic Computer</u>

   ▪ First general-purpose commercial computer.

❖ IBM 701 (1952)

   ▪ IBM enters into 'the history of computers'

❖ Apple 1 (1976)

   ▪ the first Apple computer (PC)

❖**IBM PC (1981)**

- **the first IBM Personal Computer**

- **personal computer revolution**

❖**Apple Lisa Computer (1983)**

- **The first home computer with a Graphical User Interface**

*****youtube: (humor) the future technology**

❖ **"Evolution of Media"**
http://www.youtube.com/watch?v=tVy76THYMDs

❖ 뇌처럼 작동하는 컴퓨터 **(17)**

http://www.ondemandkorea.com/ted-kwabena-boahen-a-computer-that-works-like-the-brain.html

❖**Information Age**

   →**Information/Knowledge Society**

❖**Computer Age**

   →**Computer/Network Society**

❖**Digital Age→Digital Society**

❖**Internet Age→Internet/Global Society**

❖**Social Media Age → SNS Society??**

❖**Future Society????????**

패러다임"**Paradigms**" 이란**?**

Professor. Kim, Sung Tae

Understanding Digital Society

❖ **Two different perspectives regarding the relationship between technology and society**

- ▪ **Technological Determinism**

- ▪ **Social Determinism**

Technological Determinism

❖ **Technology determines social change and history.**

❖ **Social progress is driven by the technological innovation.**

❖ **Functions, uses, and cultural values of technology are determined by the structure of the technology itself.**

Social Determinism

❖ **Technological development is a result of social factors like economy, education, and politics.**

❖ **Social interactions and constructs alone determine individual behavior.**

2. Positions: Good vs. Bad?

❖ **Two different perspectives regarding impacts of technologies on society**

- ▪ **Utopian**

- ▪ **Anti-Utopian**

   "panopticon"

* **Youtube: Steve Jobs on how technology changes the world**

Utopian vs. Anti-Utopian

Utopian   Perspective   **Anti-Utopian**

Utopian
- Global village
- Unprecedented access to information
- No barriers like gender, age, race, economic status...

Anti-Utopian
- Commercial market
- Make individual under control (panopticon)
- Barriers and digital divide exists. Threat of Cultural Imperialism

* YouTube: World Wide Web Creator Worries About Internet Control

Utopian vs. Anti-Utopian

Utopian — Perspective — **Anti-Utopian**

Utopian	Anti-Utopian
▪ Online information sources are current and timely ▪ Ability to access multiple and interconnected information sources	▪ New security issues arise (privacy issues, problem of viruses) ▪ Problems of being 'lost in cyberspace'

❖ **Marshall McLuhan**

❖ **Harold Innis**

❖ **Panopticon....**

❖ *** Video: Steve Jobs on how technology changes the world**

❖**Let's talk "your paradigms"? How we assess the relationship between technologies and society?**

❖**Exercise 1**

"the internet has provided more channels to enhance real-time communications among people...convenient....fast...."

❖**Exercise 2**

❖**"As more Korean people use the SNS like Kakaotalk, many worry increasing invasion of personal privacy....."**

❖**Exercise 3**

❖**"In his 'Understanding Digital Society" class, professor Kim Sung Tae argues that recently many people in Korea resist to use the SNS for many reasons including stressful…..time-wasting…**

❖**Exercise 4**

❖**" Korean Government launched the Blue House Twitter services last year…..expect more interactive and real-time communications with people….."**

❖ **Exercise 5**

❖ **"....the main reasons of online game addiction among teen-agers include increasing divorced-families, lack of media literacy education.....**

❖ **Exercise 6**

❖ **Historically, the Internet was invented for the US military to defend former Soviet Union missile assaults…..since then, the technology has had many benefits for other areas such as education, news agency…..**