Global ICT Statistics Conference

The Role of ICT Statistics in Policy Making

July 19, 2010

Ministry of Knowledge Economy

Ministry of Knowledge Economy (MKE)

MKE deals with national real economy, and supports new growth industries

- Create a more business-friendly environment
- Develop new growth engines by supporting ICT and high-end manufacturing
- Promote foreign trade, pursue Foreign Direct Investment (FDI)
- Mandated to engage in energy cooperation projects, expand renewable resources and distribution networks

Ministry of Knowledge Economy

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I. Importance of ICT statistics

1. Importance of statistics

Statistics are our "Compass," to show the shapes of the past and the present, as well as our future direction

- **Statistics is the base of decisions**

  Offering insightful guides in every field

  (e.g. policy, business, sports, consumption activities, etc.)

- **Efforts to make statistics measuring qualitative factors are continuously needed.**

- **ICT industry is important over the world, and it has more statistics than any other industry.**

2. Importance of the global standardization of statistics

"Promoting development" through ICT statistics

The partnership helps close the global ICT data gap

- Developing ICT in education indicators
- Developing ICT in government indicators
- Developing a global database

PARTNERSHIP ON MEASURING ICT FOR DEVELOPMENT

ITU OECD UNITED NATIONS UNCTAD UN-DESA UNESCO ECONOMIC COMMISSION FOR AFRICA United Nations ESCAP CEPAL ECLAC ESCWA eurostat

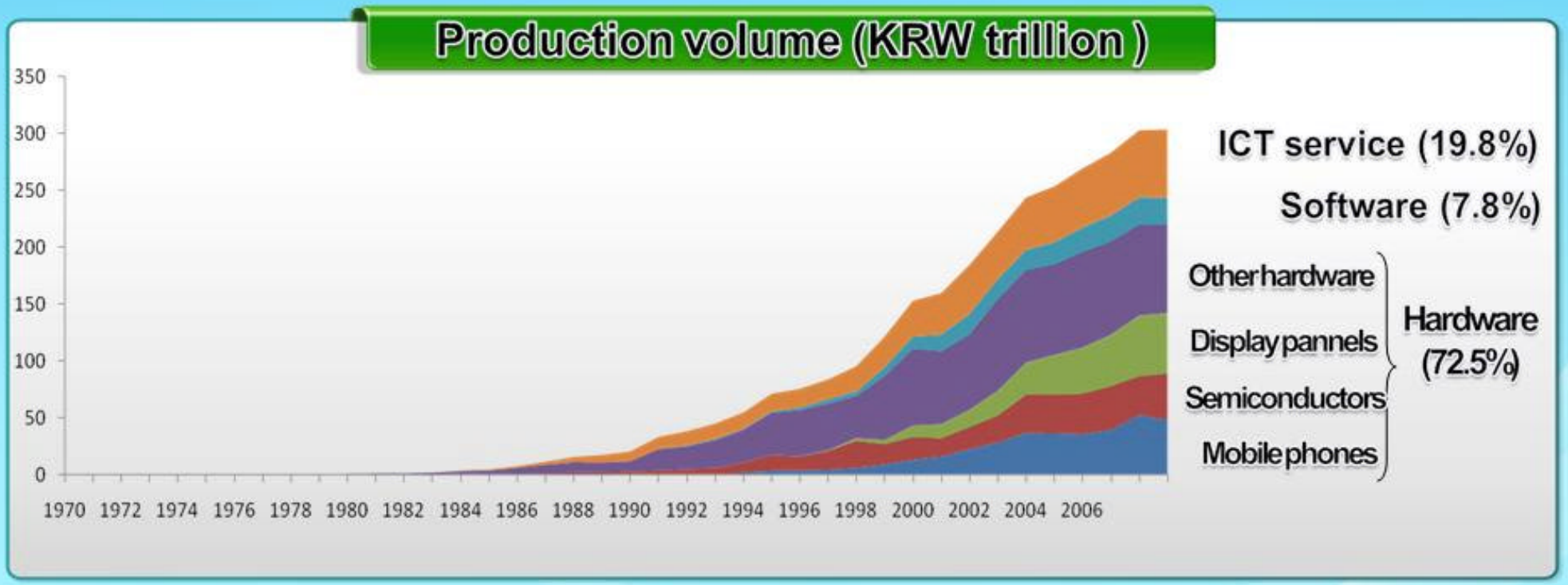
II. Statistics of the Korean ICT industry

1. Korea's ICT sector: rapid growth

A Production

KRW 1.5 billion in 1970 (0.01% of GDP) → KRW 222 trillion in 2009 (8.3% of GDP)

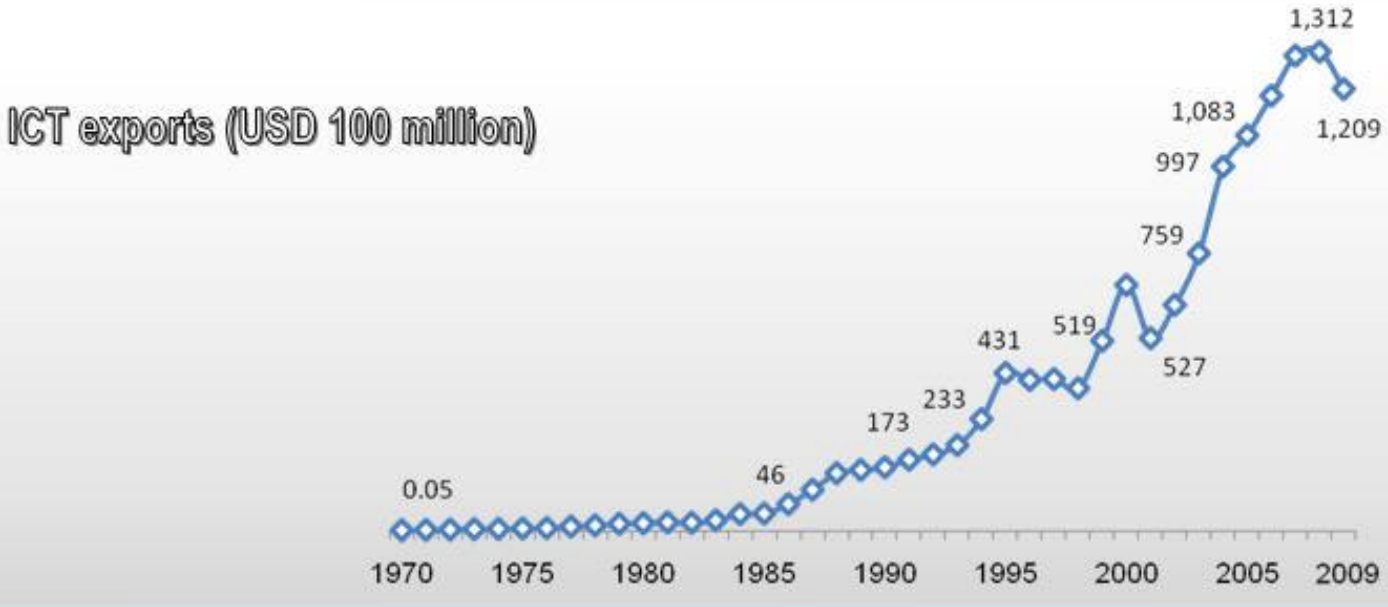
140 thousand-fold increase



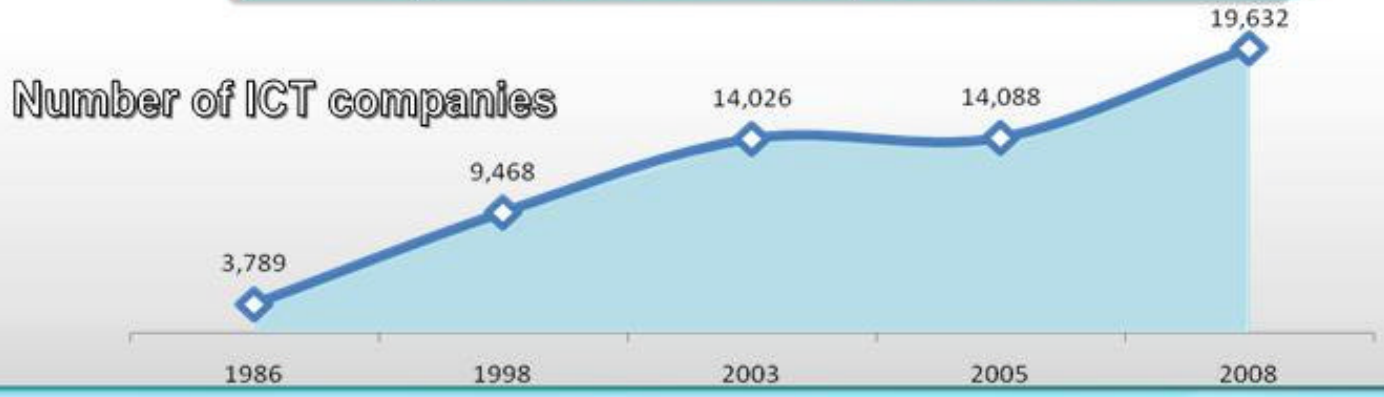
- From 2002 to 2009, the CAGR for the hardware industries was 8.6%, whereas the figures for the SW and ICT service industries were 3.8% and 4.9%.

B ICT, a strong export industry for Korea

$5 million in 1970 ➡ $121 billion in 2009

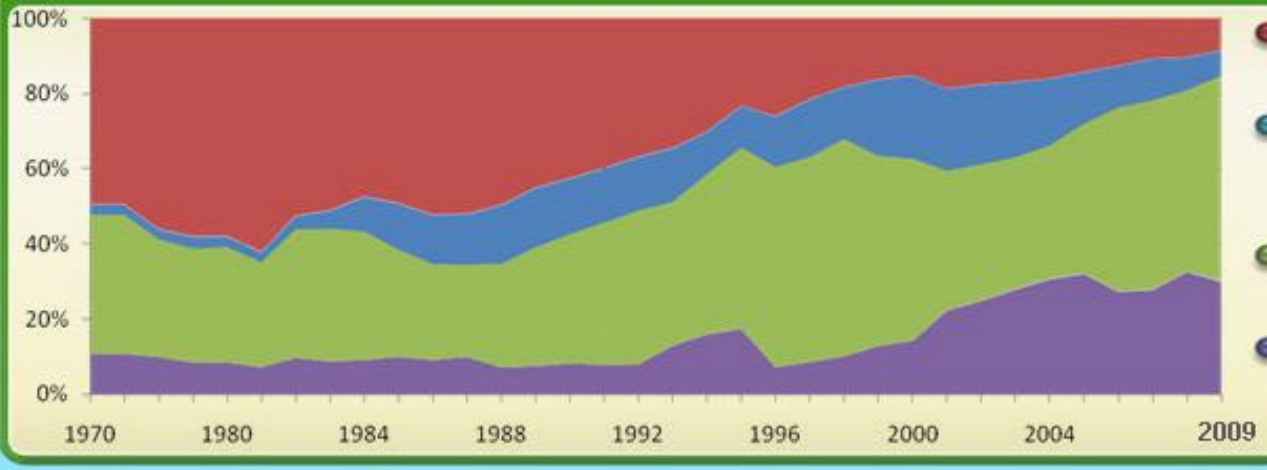


3,789 in 1986 ➡ 19,632 in 2008



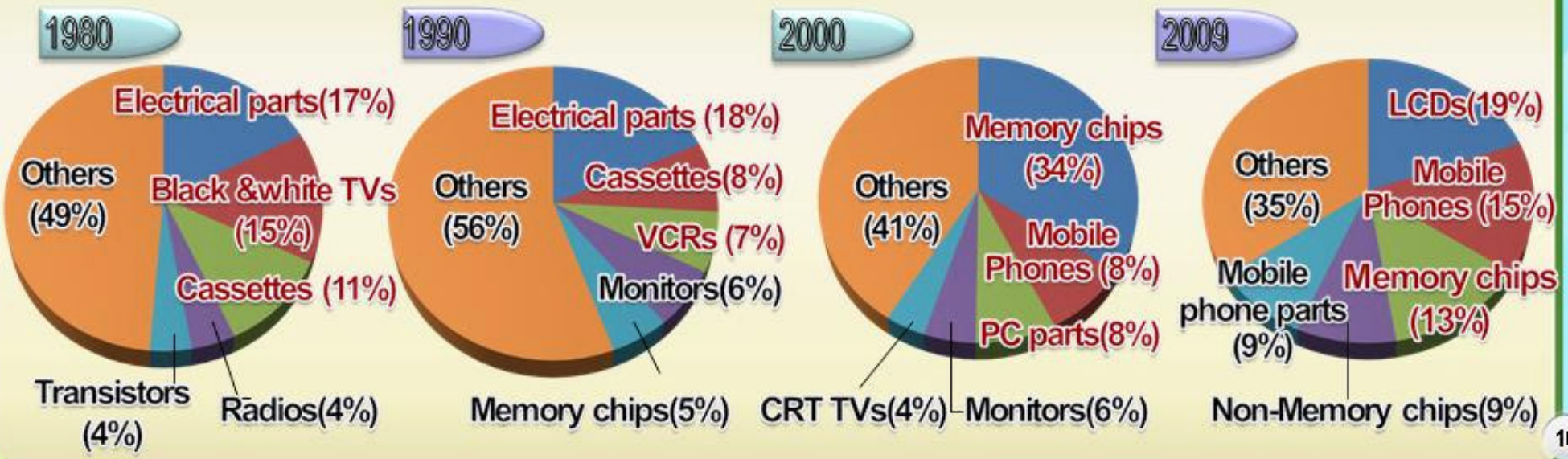
C Korea's shifting ICT export portfolio

Shift from labor-intensive goods to technology and capital-intensive goods



- Home appliances
  - * 49.5% in 1970 ➡ 8.5% in 2009
- Information devices (PCs)
  - •2.7% in 1970 ➡ 22.1% in 2000 ➡ 6.8% in 2009
- Electrical parts
  - * 37.1% in 1970 ➡ 54.6% in 2009
- Mobile devices
  - * 10.7% in 1970 ➡ 30.1% in 2009

More technology-intensive goods among top 10 export items

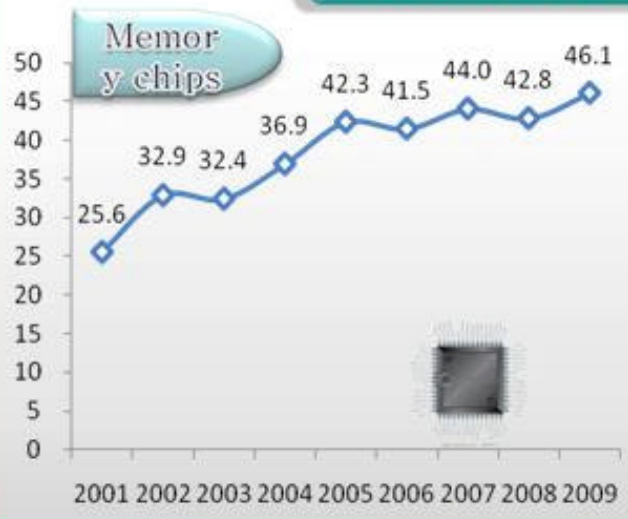


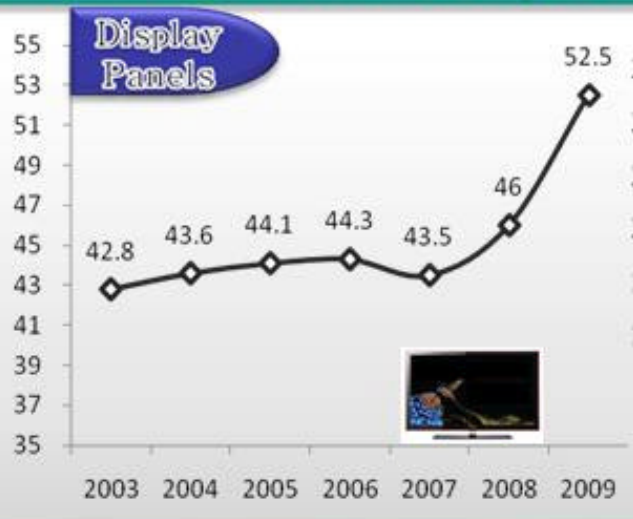
D Korea's Top 3 ICT products

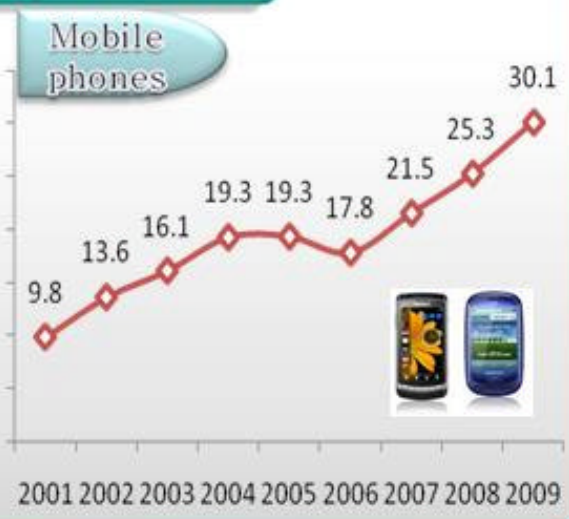
- Manufacturers of Korea's top three ICT products (memory chips, display panels and mobile phones) entered the global market in the 1980s and 1990s, and are already No. 1 or 2 in the world

* Memory chips: 64K D-RAM developed in 1983 → No. 1 global market share (46.1%) in 2009
* Display panels: 1G LCD production line launched in 1995 → No. 1 global market share (52.5%) in 2009
* Mobile phones: mobile phones developed in 1988 → No. 2 global market share (30.1%) in 2009

Global market share for Korea's top 3 ICT products







E Korea's ICT infrastructure

Advanced ICT infrastructure

- In 2009, the average subscription (mobile or landline) rate was 1.4 phones for each person
  - * Landline subscriptions per 100 people: 24.5 in 1988 ➡ 46.7 in 2000 ➡ 41.2 in 2009
  - * Mobile phone subscriptions per 100 people: 0.05 in 1988 ➡ 57.0 in 2000 ➡ 98.4 in 2009
- One in three Koreans has high-speed Internet service
  - * High-speed Internet service subscriptions per 100 people: 0.0 in 1998 ➡ 33.5 in 2009
  - * Internet service subscriptions per 100 people: 6.78 in 1998 (No. 35 in the world)
    ➡ 77.0 in 2008 (No. 1 in the world)

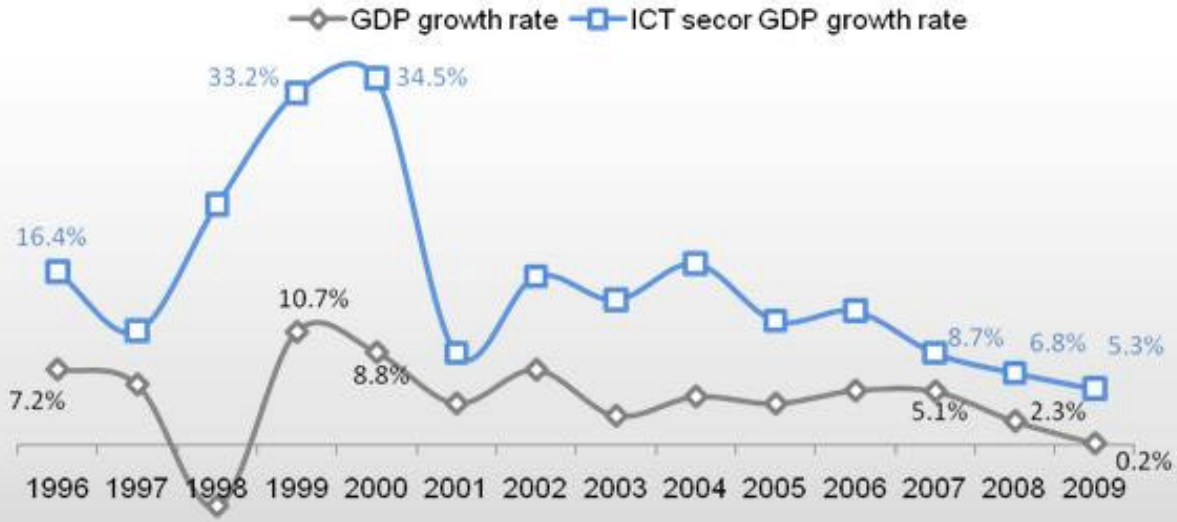
Korea's ranking in international indicators

- Internet Usage Statistics (OECD, 2008): Korea has the highest number of households with broadband access, as well as the highest number of Internet users who have created their own websites
- ICT Development Index (ITU, 2010): Ranked No. 3
- E-government Readiness Index (UN, 2010): Ranked No. 1

2. The ICT sector and the Korean economy

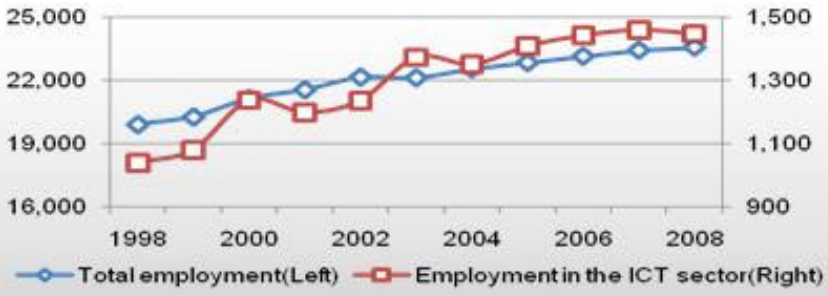
The ICT sector has driven economic growth, with higher employment, income levels

ICT sector GDP



- **GDP growth rate**
  * 7.2% in 1996 ➡ 0.2% in 2009
- **ICT sector's growth rate**
  * 16.4% in 1996 ➡ 5.3% in 2009

ICT sector employment (1,000 persons)



- **Total Employment**
  * Approx. 20 million in 1998 ➡ approx. 24 million in 2008
  (growth of 1.8% on annual average)
- **Employment in the ICT Industry**
  * Approx. 1 million in 1998 ➡ 1.45 million in 2009
  (growth of 3.4% on annual average)

3. Recent trends in ICT sector

Rapid growth after overcoming the economic crisis

- Korea's ICT sector grew 20% for two consecutive quarters—about triple the overall economic growth rate for the same time frame.
- The ICT sector played a pivotal role in the record trade surplus achieved by Korea in 2009.

GDP growth rate (year-on-year)

Trade Balance ($100 milion)

III. The role of ICT statistics in policy making

1. Changes in ICT policy

Korea's ICT sector has benefited from an active and flexible response to internal and external changes

1960s-1970s	• Lack of capital and resources • No ICT infrastructure	• Plan to Promote the Electronics Industry (1968) Electronics Industry Promotion Act (1969) - Electronics exports: $500,000 in 1962→$1 billion in 1974
1980s-mid 1990s	• Oil shock • Success of Japanese ICT companies	• Plan to Promote the Electronics Industry (1981) - Developed 64K DRAM in 1983 → exports reached $10 billion in 1987
1990s-2000	• Spread of the Internet • Asian financial crisis	• Launch of MIC (1994) • Framework Act on Informatization Promotion(1995) - commercialized CDMA technology in 1996
2000-2007	• Spread of globalization • Rise of the emerging economies	• Next-generation Growth Engine Policy (2004), • IT839 (2004) - Electronic goods exports reached $100 billion in 2005
2008-present	• The ICT industry matures • ICT convergence spread	• Government reorganization (2008) - MIC's functions reassigned to MKE and other ministries

2. Factors in Korea's ICT success

Factors in Korea's ICT success

Policy

Growth strategies focused on **technology, exports, informatization**

- **Export-oriented growth strategies and support for technology**
- Korea became an **ICT powerhouse** thanks to **informatization efforts**, which established a information and communications infra.

Business

Strong entrepreneurship, excellent human resources

- **Active investment and excellent human resources** in semiconductors, display panels and mobile phones
  - these **industries** were once considered to have **no competitive edge**

External Factor

Freer and more **open international trade**

- **The emergence of the GATT and the IMF, and the WTO's** shift to a multilateral regime, worked as complementary factors **providing Korea with expanded markets**

2. Factors in Korea's ICT success (continued)

Another success factor of Korean ICT has been the scientific development of policy based on statistics.

Korea's ICT statistics

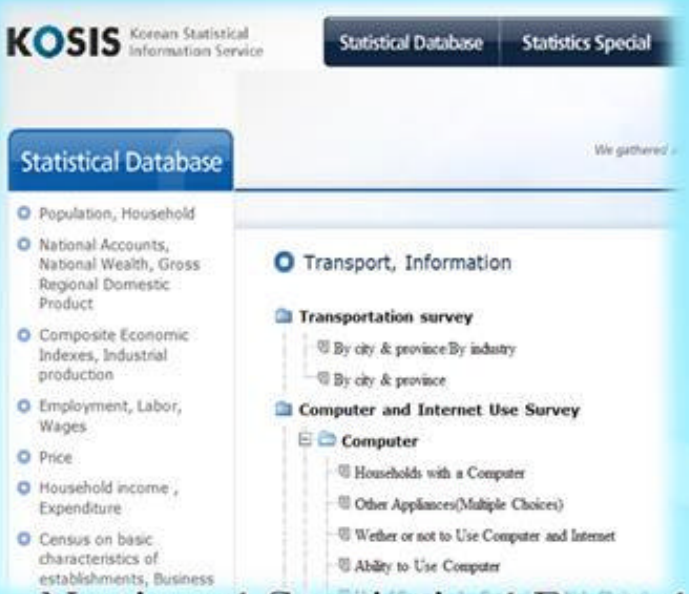
- Macro-economic indices: ICT national income, employment, prices, trade, production, etc.
- Communication Statistics: Communication subscriber, household, prices, etc.
- Information Infra: Domain/IP, Internet, PC, internet/mobile banking, etc.
- Information Gap: Digital divide index, information usage gap, etc.
- Dysfunction : Internet addiction, spam, hacking/Virus etc
- E-business : e-commerce/ cyber shopping volume, e-commerce adopting, e-business system adoption etc

Korea has various ICT statistics, which are compiled according to international standards.

3. Features of Korea's ICT statistics

Features of Korea's ICT statistics

- Creating ICT statistics that reflect the rapidly changing ICT paradigm
- Activating fragmented statistical research through purpose-specific classification such as technologies, product items, and so on
- Generating statistical data for the entire ICT product process: production, inventory, shipment, export/import, etc.
- Accumulating time series data related to ICT industry since 1990s



National Statistical Portal

ICT Statistical Portal

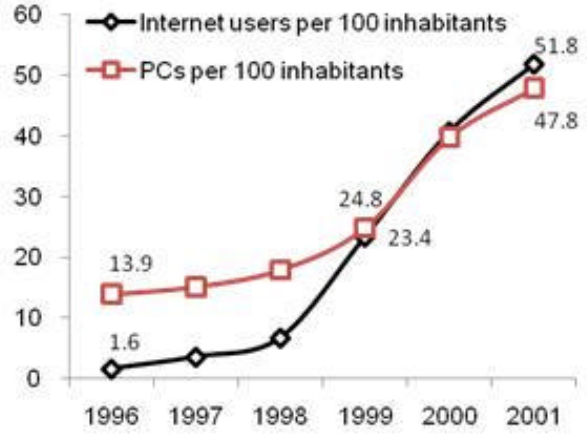
4. The role of ICT statistics in policy making

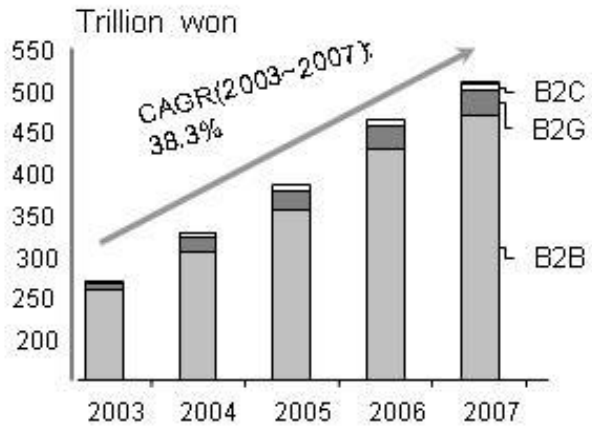
ICT Statistics is the basis of policy-making and judgments about ICT economic and social phenomena

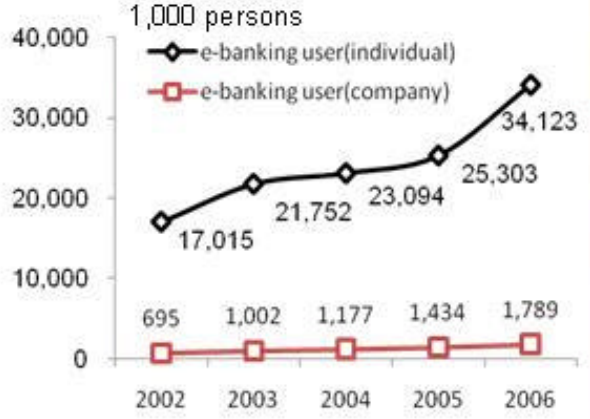
- Improving the transparency and accountability of policy making
- Improving policy by evaluating policy performance

Policy-making process using statistics

5. Case study : e-commerce







Policy-making and judgments about social phenomena

statistics

Policy implementation

statistics

Evaluation of policy performance

Basic Act on Electronic Commerce in 1999
Electronic Signature Act in 2001
e-Commerce Consumer Protection Act in 2002

Feed back

e-Banking Transaction Act in 2006

IV. The direction of the ICT policy and statistics

1. Global trends of ICT sector

Rapid, ongoing change and technology innovation

- Release times are becoming shorter and so are product life cycles.
  * 12 months from Apple iPhone 3GS to iPhone 4; 15 months from Google Android OS v1.1 to v2.2
- Japanese companies that were among the top 10 two decades ago have been pushed down.
  - New, innovative companies such as Google and Apple have gained prominence over the past decade.
  * In terms of market capitalization, six companies remained in the top 10 for 10 years. Only one company, IBM, has remained there for 20 years.

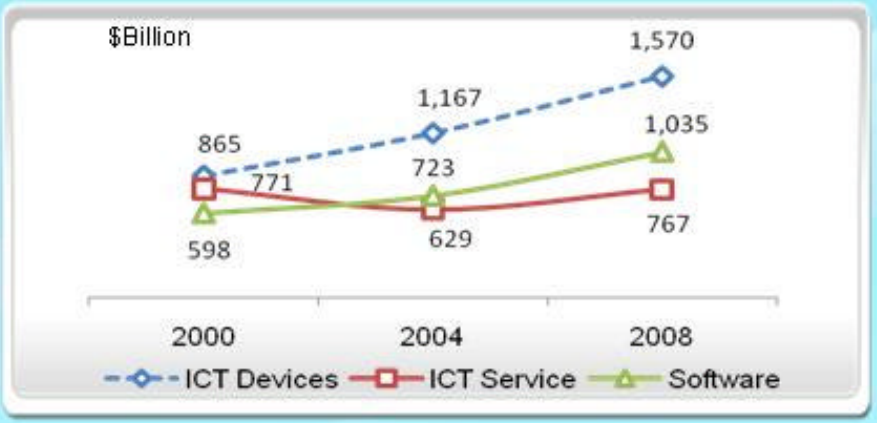
Ranking	1989			1999			2009		
	NAME	Market Capitalization	Nationality	NAME	Market Capitalization	Nationality	NAME	Market Capitalization	Nationality
1	IBM	541	USA	Microsoft	6,044	USA	Microsoft	2,685	USA
2	Hitachi	344	Japan	Cisco	3,551	USA	Google	1,970	USA
3	Panasonic	341	Japan	Intel	2,745	USA	Apple	1,910	USA
4	Toshiba	284	Japan	Nokia	2,222	Finland	IBM	1,709	USA
5	NEC	194	Japan	IBM	1,925	USA	Cisco	1,377	USA
6	Fujitsu	191	Japan	Oracle	1,581	USA	Oracle	1,229	USA
7	Sony	171	Japan	Dell	1,301	USA	HP	1,218	USA
8	Sharp	146	Japan	Ericsson	1,286	Sweden	Intel	1,127	USA
9	Lucent	139	USA	Qualcomm	1,247	USA	Samsung	872	Korea
10	Sanyo	135	Japan	Sony	1,223	Japan	Qualcomm	774	USA

* Market capitalization as of December 31 each year, excluding telecommunication service companies

* In decline On the rise

2. Changes in the ICT industry

Competitive edge	• Facilities/price/quality • Suppliers' market	• Labor/creativity/speed • Consumers' market
Growth engine	• Growth of the ICT industry	• Slower growth of ICT; rise of convergence market • Since the ICT bubble burst, growth of the global ICT industry dropped to the single digits; only 4.6% growth is expected in 2010
Competitiion structure	• Advanced countries (US, EU, Japan)	• Emerging economies, including China and India, have joined the race • ICT production in China: USD 265.6 billion in 2005 → USD 413.1 billion in 2008
Priority	• Growth led by the h/w industry	• Software industry gaining prominence * Market share exceeded that of the hardware industry in 2002 and began to grow 8.4% annually on average



3. Korea's ICT policy direction

Preparation for changes in the ICT Paradigm	• Establishment of the ICT industry Development of Vision 2020 • Establishment of "ICT Trend Outlook" Forum
Creation of the New ICT market	• Dissemination of convergence among ICT & other industries • Process improvement through ICT usage
Expansion of growth potential	• Incubating ICT experts • Find and reduce/eliminate regulatory issues in ICT and SW field
Upgrading ICT statistics potential	• Operating ICT statistics task force • Surveying regular statistics demand • Promoting statistics quality diagnosis

4. Suggestions for ICT statistics

Suggestion

1. **Generating timely and accurate ICT Statistics**
   - Reflecting the characteristics of the rapidly changing ICT industry

2. **Generating demand-oriented ICT Statistics**
   - Reflecting the paradigm shift of the ICT Industry

3. **Expanding online service of ICT Statistics**
   - Activating online service through the ICT Statistical Portal

4. **Enhancing international ICT statistics cooperation**
   - UNSD, ITU, OECD, Eurostat, etc.

5. Closing

Closing

Knowledge economy society realization in which statistics are the most important resource.

Timely new statistics development to identify and address rapidly changing social circumstances.

I**nternational understanding** of ICT statistics and acquisition of developed statistics systems

Our government will also actively join international ICT statistics partnership

Thank you

Ministry of Knowledge Economy