The Role of ICT Statistics in Policy Making

July 19, 2010
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
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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
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

Production volume (KRW trillion)

- ICT service (19.8%)
- Software (7.8%)
- Other hardware
- Display panels
- Semiconductors
- Mobile phones

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

ICT exports (USD 100 million)

3,789 in 1986 → 19,632 in 2008

Number of ICT companies
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

- 1980: Others (49%), Black & white TVs (15%), Cassettes (11%), Transistors (4%), Radios (4%)
- 1990: Others (56%), Cassettes (8%), VCRs (7%), Monitors (6%), Memory chips (5%), CRT TVs (4%)
- 2000: Others (41%), Mobile Phones (8%), PC parts (8%), Memory chips (34%), Monitors (6%), Non-Memory chips (9%)
- 2009: Others (35%), Mobile Phones (15%), Memory chips (19%), LCDs (19%), Non-Memory chips (13%)
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
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.
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

**1980s-mid 1990s**
- Oil shock
- Success of Japanese ICT companies

**1990s-2000**
- Spread of the Internet
- Asian financial crisis

**2000-2007**
- Spread of globalization
- Rise of the emerging economies

**2008-present**
- The ICT industry matures
- ICT convergence spread

**Plan to Promote the Electronics Industry (1968)**
- Electronics Industry Promotion Act (1969)
  - Electronics exports: $500,000 in 1962→$1 billion in 1974

**Plan to Promote the Electronics Industry (1981)**
- Developed 64K DRAM in 1983
  - Exports reached $10 billion in 1987

**Launch of MIC (1994)**
  - Commercialized CDMA technology in 1996

- Electronic goods exports reached $100 billion in 2005

**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

<table>
<thead>
<tr>
<th>Policy</th>
<th>Growth strategies focused on technology, exports, informatization</th>
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<tbody>
<tr>
<td></td>
<td>➤ Export-oriented growth strategies and support for technology</td>
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<tr>
<td></td>
<td>➤ Korea became an ICT powerhouse thanks to informatization efforts, which established a information and communications infra.</td>
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<table>
<thead>
<tr>
<th>Business</th>
<th>Strong entrepreneurship, excellent human resources</th>
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<tr>
<td></td>
<td>➤ Active investment and excellent human resources in semiconductors, display panels and mobile phones</td>
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<td></td>
<td>- these industries were once considered to have no competitive edge</td>
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<th>External Factor</th>
<th>Freer and more open international trade</th>
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<td></td>
<td>➤ 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</td>
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</tbody>
</table>
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

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
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

- Policy-making and judgments about social phenomena
  - Statistics
- Policy implementation
  - Statistics
- Evaluation of policy performance

Feedback: Statistics
5. Case study: e-commerce

Policy-making and judgments about social phenomena

Policy implementation

Evaluation of policy performance

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

Feedback

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.

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

* In decline

Orange rise
2. Changes in the ICT industry

- **Competitive edge**
  - Facilities/price/quality
  - Suppliers’ market

- **Growth engine**
  - Growth of the ICT industry

- **Competition structure**
  - Advanced countries (US, EU, Japan)

- **Priority**
  - Growth led by the h/w industry

- **Labor/creativity/speed**
  - Consumers’ market

- **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

- **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

- **Software industry gaining prominence**
  - Market share exceeded that of the hardware industry in 2002 and began to grow 8.4% annually on average

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**Global ICT market**

<table>
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<tr>
<th>Year</th>
<th>ICT Devices</th>
<th>ICT Service</th>
<th>Software</th>
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<tbody>
<tr>
<td>2000</td>
<td>598</td>
<td>771</td>
<td>767</td>
</tr>
<tr>
<td>2004</td>
<td>723</td>
<td>723</td>
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<tr>
<td>2008</td>
<td>1,035</td>
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</table>
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

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

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

International understanding of ICT statistics and acquisition of developed statistics systems.

Our government will also actively join international ICT statistics partnership.
Thank you