EUROCPR 2013
A Digital Agenda in Search of Evidence: Issues and Trends
The Centre for European Policy Studies, Brussels

Digital Policy of Korea

Issues and Challenges

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(CPRsouth board member)
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Korea’s ICT Statistics at a Glance
Korea’s ICT Statistics at a Glance

Unit: Thousand(1000)

<table>
<thead>
<tr>
<th>Service</th>
<th>2005</th>
<th>2007</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile phone</td>
<td>38,340</td>
<td>43,490</td>
<td>52,510</td>
<td>105%</td>
<td></td>
</tr>
<tr>
<td>Broadband Internet</td>
<td>12,190</td>
<td>14,709</td>
<td>17,859</td>
<td>62%</td>
<td>35*</td>
</tr>
<tr>
<td>Mobile Internet</td>
<td>560</td>
<td>5,630</td>
<td></td>
<td></td>
<td>69%</td>
</tr>
</tbody>
</table>

4G LTE subscriber: Total 15,811,360 (29%, Dec 2012)

* Subscribers per 100 inhabitant

Smartphone Users
Smart Device Subscription Trends

1. Korea Smartphone subscriber
   Total 32,727,249 (as of Dec 2012)
   Smartphone subscription proportion: 59.39% out of total mobile telecommunication market
   ** Market share by telecom companies:
   SKT 48.82%, KT 31.32%, LG U+ 19.85%

2. Korea Smart pad subscriber
   Total 721,876 (as of Dec 2012)
   Smart pad subscription proportion: 1.31% out of total mobile telecommunication market
   Market share by telecom companies:
   KT 57.12%, SKT 40.52%, LG U+ 2.36%

3. LTE subscriber
   Total 15,811,360 (as of Dec 2012)
   LTE subscription proportion: 28.69% out of total mobile telecommunication market
   Market share by telecom companies:
   SKT 47.63%, LG U+ 27.71%, KT 24.67%
Evolution of Wireless Network in Korea

- **2G/2.5G**
  - AMPS
  - GSM / cdmaOne

- **3G**
  - W-CDMA / cdma-2000

- **3.5G**
  - HSDPA / EV-DV

- **Wireless subscriber network**

- **Wireless LAN**
  - IEEE 802.11
  - IEEE 802.3

- **Wired LAN**
  - IEEE 802.3

- **Mobile Internet**
  - IEEE 802.16

- **4G or Wired-Wireless Convergence Network**
Digital Evolution of Korea

- Development of digital technology & broadband network leads to bundle & convergence service over other sector (between, Telco & Broadcaster)
- Evolution: IPTV, Digital Cable
- Convergence: Satellite / Terrestrial DMB

* Ref: ITU TSB IPTV Consultation meeting (Doc. iptv026e)
Ranking - update


<table>
<thead>
<tr>
<th>Index &amp; Ranking</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT-Development Index (ITU)</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Networked Readiness Index (WEF)</td>
<td>10</td>
<td>9</td>
<td>11</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Digital Economy Rankings (EIU/IBM)</td>
<td>16</td>
<td>15</td>
<td>19</td>
<td>13</td>
<td>-</td>
</tr>
<tr>
<td>ICT National Competitiveness Index (Japanese Ministry of Internal Affairs and Communications)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ICT Investment Environment Index (German Federal Ministry of Economics and Technology)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>IT Industrial Competitiveness Index (EIU/BSA)</td>
<td>3</td>
<td>8</td>
<td>16</td>
<td>-</td>
<td>19</td>
</tr>
</tbody>
</table>

-EIU “IT Industrial Competitiveness Index” is lack of consistency and validity of evaluation due to the changes in annual evaluation standards and data sources; thus, the index is limited to compare IT competitiveness by countries.
Korea Digital Policy Review
Network

- TDX (1986)
- CDMA (1996)
- ADSL/VOIP (1998)
- BcN (2004)
- 4G/Future Internet

Device

- PC 256MD RAM
- Mobile Phone/Laptop
- DTV/Netbook
- Smartphone
- SmartTV

Media

- CATV (1995)
- Satellite broadcasting (2001)
- IPTV 2.0/3DTV

Timeline:

- 1996
- 1999
- 2002
- 2006
- 2010
1. Building a broadband integrated services digital network
2. Building a creative knowledge-based nation

Rapid growth and informatization in ICT sectors

Framework Act on Informatization Promotion Committee

The 1st Informatization Plan (1996~2000)

Cyber Korea 2 (1999~2002)


ICT policy direction

Convergence with other industries

1. Enhancing innovative IT
2. Needs practical IT convergence strategies

U-Korea (2006~2010)

Smart Korea (2010~2014)

1. The world top level of U infrastructure
2. Realization of the world’s first U-society
3. Contributing to building advanced Korea

1. High-speed Internet penetration
2. Fostering the entire nation’s information literacy

ICT policy direction
<table>
<thead>
<tr>
<th>ICT Policy and Regulation Organization</th>
<th>MOC (Ministry of Post and Communications) Up to 1994</th>
<th>MIC (Ministry of Information and Communications) 1994-2008</th>
<th>KCC (Korea Communications Commission) 2008-2012</th>
<th>MFCS (Ministry of Future &amp; Creative Science) 2013-</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Major Policy</strong></td>
<td>• KII (Korea Information Infrastructure) Plan</td>
<td>• Cyber Korea • e-Korea • u-Korea</td>
<td>• Smart Korea</td>
<td>• Giga Korea</td>
</tr>
<tr>
<td><strong>Pros.</strong></td>
<td>• Fixed telephone penetration • Information Infrastructure established</td>
<td>• Broadband fixed Internet penetration • Mobile Telephone • WIBRO, HSDPA, DMB</td>
<td>• Broadcast &amp; Communication convergence • Smartphone</td>
<td>• Integrated ICT policy based on C-P-N-D</td>
</tr>
<tr>
<td><strong>Cons.</strong></td>
<td>• Fast follower but still late mover</td>
<td>• Separated regulation for broadcasting and communications • Delayed convergence</td>
<td>• C-P-N-D regulation spread over many different ministries • Inefficient policy</td>
<td>?</td>
</tr>
</tbody>
</table>
Policy Case Study
1. Broadband Internet Access
1980's
- Introduction period

1982
- First connection to the Internet

1984
- Offer commercial email service (DACOM)

1986
- Introduction of .kr domain

1987
- Prepare national backbone network basic plan 1
- Prepare blueprint for high speed information infrastructure (1993)

1990's
- Growth period

1994
- Start of Commercial Internet Service (KT-ISDN)

1998
- Start high speed Internet service (Thrunet-HFC)

1999
- Start ADSL service (Hanaro Telecom)
- Reach 10 million Internet users

2000’s
- Maturity period

2001
- No. 1 in world in high speed networks (OECD)
- Reach 20 million Internet users

2004
- Reach 30 million internet users

2006
- Start FTTH service
- Introduction of world first WiBro, and HSDPA service

2012
- LTE
1. Hanaro Telecom’s (→SK Broadband) big move: ADSL (1999)
   - 2nd Local Service Provider: WLL (wireless local loop) failed
   - Focus on “customer acquisition” than “retention”
   - Beyond “Low Price”
   - To survive, **Give up ISDN, adopt ADSL**

2. KT’s reaction?
Case Study 1

Advertisement: FTTH (Fiber vs. Copper)
100% Optic fiber to desktop in every house
• Direct installation without quality degradation
• Direct installation with some quality degradation

Network Coverage

<table>
<thead>
<tr>
<th>Distance (Km)</th>
<th>Coverage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2Km</td>
<td>78%</td>
</tr>
<tr>
<td>3Km</td>
<td>36% (78%)</td>
</tr>
<tr>
<td>4Km</td>
<td>17% (95%)</td>
</tr>
<tr>
<td></td>
<td>5% (100%)</td>
</tr>
</tbody>
</table>

ADSL Services
How Did We Achieve Success?

Success Attributes: Policy, Demand, and Supply
Consider...

**Government Role**
• Government projects and initiatives
  ▪ Most schools and public agencies connected
  ▪ Broadband services adopted early by Government
  ▪ Public awareness programs promoted
• Pro-competitive telecom policy
  ▪ Liberalized entries and forbearance in regulation
  ▪ Facility-based competition (LLU lately introduced)
• Cost effective incentives
  ▪ Internet PC and Cyber Building Certification programs
Korean consumers: Enthusiastic adoption of new services
  - Affluent, technologically savvy, and young population

Many killer applications fully utilized the Net capabilities
  - Popular online games
  - Extensive use of IT in education
  - Internet broadcasting stations
  - Online stock trading widespread

Intermediaries boosted wholesale demand
  - PC cafes filled the gap between the carriers and end users
  - Venture boom with .com businesses promoted awareness
• **Supplier: Dire need for survival**
  - New local competitor → full-blown competition
  - Facility-based competitive network buildup

• **Geographical advantages**
  - Dense network (95% in 4km from COs, 47% in apartments)
  - Extensive legacy infrastructure already in place

• **Low usage charges and dropping costs**
  - Lower fixed monthly fees
  - Network costs reduced (Economy of Scale)
Success Attribute: Well Fitted
Lessons from Korean Case

- **All attributes fitted: Policy, Demand, and Supply**
  - **Policy**: Align incentives of all key players
    Need to assume early adopter roles
  - **Demand**: Target for attractive services/applications
  - **Supply**: Facility based and efficient competition

- **Timing and coordination**
  - Need to reach critical mass as fast as possible
  - Sequence less important: chicken & egg?
  - Make small successes to build momentum
2. Samsung-KT Smart TV case
KT & Samsung Case

**Claims**

• Smart TV cause heavy traffic, making internet speed low
• Samsung must pay appropriate amount of money for usage
• Free rider issues of Network Neutrality

**Claims**

• Lack of evidence that Smart TV cause heavy traffic
• Smart TV Blocking would affect negatively national ICT development
• Heavy traffic caused by smart TV users, not by Samsung
SKT & LG U+: no action
Block: Feb. 10, 2012

Warned KT that “Violating user agreements and Telecommunications Business Act.”

May 4th, 2012

KCC recommended Samsung to actively participate in discussing net neutrality
<table>
<thead>
<tr>
<th>Date</th>
<th>Event – time line</th>
</tr>
</thead>
<tbody>
<tr>
<td>04. 2011</td>
<td>Korea Communications Commission (KCC) held a forum “Establishment of net neutrality policy forum”</td>
</tr>
<tr>
<td>12.05.2011</td>
<td>Korea Information Society Development Institute (KISDI) announced “Net neutrality guideline”: 1) user rights, 2) transparency, 3) no blocking, 4) no unreasonable discrimination, 5) rational traffic management.</td>
</tr>
<tr>
<td>12.26.2011</td>
<td>KCC announced “net neutrality and Internet traffic management guideline”; it was neither realistic neither effective for solving blocking mVoIP or smart TV blocking related problems.</td>
</tr>
<tr>
<td>02.10.2012</td>
<td><strong>Korea Telecom (KT) blocked Samsung Smart TV’s connection (before the 1st discussion of KCC which was to be hold in five days. Samsung electronics seek an injunction against KT.</strong></td>
</tr>
<tr>
<td></td>
<td>- Samsung electronics withdrew injunction.</td>
</tr>
<tr>
<td>02.16.2012</td>
<td>Held the 1st net neutrality policy advisory committee</td>
</tr>
<tr>
<td>05.04.2012</td>
<td>- <strong>KCC warned KT that “violating user agreements and Telecommunications Business Act.”</strong></td>
</tr>
<tr>
<td></td>
<td>- <strong>KCC recommended Samsung to actively participate in discussing net neutrality.”</strong></td>
</tr>
<tr>
<td></td>
<td>- <strong>Allowed the entry of MVNO conditionally.</strong></td>
</tr>
<tr>
<td>07.13.2012</td>
<td>- KCC announced a guideline regarding “reasonable management and usage of net”; that is, net operator gained leadership of traffic management.</td>
</tr>
<tr>
<td>07.18.2012</td>
<td>- Open Internet Association opposed the guideline which is being postponed.</td>
</tr>
<tr>
<td>01.25.2013</td>
<td>To date,</td>
</tr>
<tr>
<td></td>
<td>In late 2011, KCC introduced net neutrality guideline.</td>
</tr>
<tr>
<td></td>
<td>In 2012, a net neutrality policy advisory committee was composed.</td>
</tr>
<tr>
<td></td>
<td>In 2013, a new government has begun and KCC will separately compose “net neutrality consultative group”.</td>
</tr>
</tbody>
</table>
Conclusion: Challenges
1. Frequent government organizational changes: *Mixed Success*

   - **Ministry of Post and Communication**
     - Telephone supply delayed. TDX developed

   - **Ministry of Information and Communication**
     - Successful as a Fast Follower
     - but, convergence delayed

   - **Korea Communication Commission**
     - Broadcast/Comm Integrated
     - but, no ICT control tower
     - C-P-N-D separated

   - **Ministry of Future and Creative Science**
     - C-P-N-D integrated

**ICT ecosystem: C(contents), P(platform), N(network), D(device) perspective**

2. Giga Korea plan: Infrastructure upgrade (Mbps to Gbps), next generation devices, software, platform, contents, and network technologies. (2013 - 2020)

   **Target:** Fixed Network 10 Gbps, Mobile network 1 Gbps
Gangnam Style – No. 1 song in youtube

PSY - GANGNAM STYLE (강남스타일) M/V

www.youtube.com
Thank You!
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imcpark@kaist.ac.kr