PROMISING INVESTMENT OPPORTUNITIES

Information & Communications Technology

02_ Trends in the Global ICT Industry
03_ Trends in the Domestic ICT Industry
05_ Direction of Investment Promotion in ICT
07_ Promising Regions for Investment
08_ National Competitiveness Rankings in ICT
09_ ICT Industry Organizations and Associations
1. Trends in the Global ICT Industry

Current Status and Prospects of IT Market (Gartner)

- The IT market is estimated to record USD 3.5 trillion in 2012, increasing 1.7% compared to the previous year.
  - The pace of growth of the overall IT market has slowed significantly, despite the dramatic growth of the hardware market thanks to the strong performance of mobile phones and tablet PCs, as the IT services market stagnated due to the decrease in investment and the drop in wired/wireless voice telecommunications services led the overall telecommunications market to shrink.
- The IT market is expected to record USD 3.7 trillion in 2013, increasing 3.8% compared to the previous year thanks to the slight recovery in the global economy.
  - The hardware market is expected to see a strong performance due to the growth of mobile phones and tablet PCs, while software and IT services are also predicted to take off again.
  - In particular, the rapid growth of wireless communications is expected to result in the expansion of the telecommunications market, which will grow by over 2%p compared to the previous year.

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Growth ('11-'12)</th>
<th>Growth ('12-'13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HW</td>
<td>672</td>
<td>748</td>
<td>798</td>
<td>856</td>
<td>6.6%</td>
<td>7.4%</td>
</tr>
<tr>
<td>SW &amp; IT services</td>
<td>1,029</td>
<td>1,114</td>
<td>1,132</td>
<td>1,184</td>
<td>1.7%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Communications services</td>
<td>1,568</td>
<td>1,663</td>
<td>1,655</td>
<td>1,681</td>
<td>-0.5%</td>
<td>1.6%</td>
</tr>
<tr>
<td>IT Total</td>
<td>3,269</td>
<td>3,525</td>
<td>3,584</td>
<td>3,721</td>
<td>1.7%</td>
<td>3.8%</td>
</tr>
</tbody>
</table>

Source: Gartner (September 2012)

Current Status and Prospects of Broadcasting Services

- The broadcasting services market in 2012 is estimated to stand at USD 475.2 billion, rising by 61% compared to the previous year, due to the slight increase in TV advertising thanks to the London Olympics.
- The market is expected to see a slower growth rate, at 4.9% and recording USD 498.5 billion, as TV advertising slightly decreases due to a lack of special events and uncertainties in sports games.
- As a result, the global ICT market in 2013 is expected to grow slightly thanks to the recovery in the communications services, hardware and software markets, despite the shrinking broadcasting services market.

Trends in the broadcasting services market

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broadcasting Services</td>
<td>427.0</td>
<td>447.8</td>
<td>475.2</td>
<td>498.5</td>
</tr>
<tr>
<td>Growth Rate</td>
<td>8.0%</td>
<td>4.9%</td>
<td>6.1%</td>
<td>4.9%</td>
</tr>
</tbody>
</table>

Note: The sales revenues of broadcasting services by PWC are calculated as the total of TV advertising fees, TV subscription fees, radio advertising fees and other related fees.

2. Trends in the Domestic ICT Industry

• Production of the ICT industry in 2012 is estimated to be KRW 362.9 trillion, decreasing by 1.3% compared to the previous year.
  - Despite the rapid growth of broadcasting services, IPTV and wired/wireless contents, broadcasting and communications services grew at a slower rate compared to the previous year due to a decrease in the sales of wired/wireless telephone services and the weak performance of supplementary services.
  - Information and communications devices are expected to record negative growth despite increased demand for system semiconductors and the increased production of information devices such as tablet PCs and ultra-books, as the production of major items such as mobile phones, digital TVs, memory semiconductors and display panels decreased.
  - Software is expected to grow at a slower pace than the previous year as the growth of the IT services market slows due to the economic recession and the subsequent decrease in corporate investment in IT, although package software and exports of software show strong performance.

• The production of the ICT industry in 2013 is expected to reach KRW 371.3 trillion, increasing by 2.3% compared to the previous year.
  - Broadcasting and communications services are expected to grow slightly based on the expansion of LTE unity fares of wireless communications, while supplementary communications services and convergence services including wired/wireless contents and IPTV are expected to continue seeing rapid growth. The broadcasting market is expected to maintain stable growth, as program providers record fast growth.
  - Information and communications devices are expected to start growing as demand for ultrabooks, media tablets, semiconductors and display panels increases and the production of devices for broadcasting and communications accelerates due to increased demand for smartphones, communications equipment, premium digital TVs and LED from emerging countries.
  - Software is expected to see slight growth compared to the previous year as the overall software industry penetrates overseas markets, package software show rapid expansion and IT service companies launch next-generation services.
### Current Status and Prospects of Domestic ICT Industry

(Unit: USD 100 million)

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013 (e)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communications</td>
<td>43.6</td>
<td>44.1</td>
<td>44.4</td>
<td>45.0</td>
</tr>
<tr>
<td>Broadcasting</td>
<td>10.7</td>
<td>12.0</td>
<td>13.2</td>
<td>14.5</td>
</tr>
<tr>
<td>Convergence</td>
<td>8.7</td>
<td>9.9</td>
<td>11.3</td>
<td>12.7</td>
</tr>
<tr>
<td>Total</td>
<td>63.0</td>
<td>66.0</td>
<td>68.8</td>
<td>72.2</td>
</tr>
<tr>
<td><strong>Devices</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communications devices</td>
<td>73.2</td>
<td>74.6</td>
<td>62.9</td>
<td>-15.7</td>
</tr>
<tr>
<td>Broadcasting devices</td>
<td>15.5</td>
<td>15.9</td>
<td>15.0</td>
<td>-5.7</td>
</tr>
<tr>
<td>Information devices</td>
<td>9.9</td>
<td>9.9</td>
<td>0.0</td>
<td>10.5</td>
</tr>
<tr>
<td>Parts</td>
<td>174.3</td>
<td>171.9</td>
<td>-1.4%</td>
<td>175.0</td>
</tr>
<tr>
<td>Total</td>
<td>273.2</td>
<td>272.3</td>
<td>-0.3%</td>
<td>263.4</td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td>27.2</td>
<td>29.2</td>
<td>30.7</td>
<td>32.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>363.2</td>
<td>367.5</td>
<td>362.9</td>
<td>371.3</td>
</tr>
</tbody>
</table>

Source: Korea Communications Commission, NIPA, 2011

### Software and IT services relatively weak

- Development of the ICT industry has disproportionately focused on hardware, while the development of the software and IT service sectors is a third that of the global market.

### Korea vs Global Market

- The need to strengthen competitiveness in combining software and hardware is increasing.
- As the focus of the ICT industry shifts from hardware to software, the convergence of hardware and software is becoming a critical factor in the competitiveness of the ICT industry.
- Other sectors such as manufacturing and services are also rapidly shifting their focus to software.
- The government is mapping out policies to enhance software competitiveness and nurture talent.
3. Direction of Investment Promotion in ICT

Emergence of New Technologies and Industries from Technology Convergence

- IN, NT, BT, CT, and other forms of technological convergence are expected to trigger innovative social and economic transformation, including the rise of new industries.
- Changes in the IT environment, including contents, terminals, and network digitalization, are expected to result in the development of digital convergence, such as ubiquitous services.
- Investment-promotion efforts are focused on supporting services related to R&D and expanding outsourcing for R&D, in accordance with shorter life spans of technologies and larger-scale investment projects.

Current Status of IT Convergence Industry

- IT Convergence: Combining IT with existing technologies or traditional industries to advance technologies and industries.
- Actively attracting foreign businesses for technology transfer and training skilled workers.
- In Korea, IT convergence with the automobile, machinery, construction, and energy industries is being rapidly developed while convergence with the domestic medical and robot industries is relatively weak.
- Therefore, investment promotion is focused on attracting more investors by linking the IT industry with other industries in which Korea is competitive.

IT Convergence Market Size (estimated)

<table>
<thead>
<tr>
<th></th>
<th>Global Market Size</th>
<th>Domestic Market Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT+automobiles</td>
<td>120</td>
<td>5</td>
</tr>
<tr>
<td>IT+shipbuilding</td>
<td>13.5</td>
<td>0.36</td>
</tr>
<tr>
<td>IT+construction</td>
<td>244</td>
<td>3.4</td>
</tr>
<tr>
<td>IT+machinery</td>
<td>160</td>
<td>9.1</td>
</tr>
<tr>
<td>IT+textiles</td>
<td>165.9</td>
<td>3.1</td>
</tr>
<tr>
<td>IT+medicine</td>
<td>160</td>
<td>1.3</td>
</tr>
<tr>
<td>IT+robots</td>
<td>18.7</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Source: Korea Communications Commission, annual report 2011
Spectrum Shift of Investment Promotion to R&D Centers and IDCs

- Environment for R&D Centers
  - World-class IT infrastructure, high awareness of the IT industry, highly skilled researchers, easy access to other Asian countries, safety from natural disasters compared to Japan and Southeast Asian nations

- Foundation of Asian Base for Internet Data Center (IDC)
  - The recent internet environment, which is focused on a smart ecosystem, calls for cloud computing that helps users respond swiftly to the rapidly changing business environment regardless of time or place.
  - Global companies are increasingly interested in founding IDCs in Korea, as the earthquake in Japan in March of 2011 highlighted Korea’s stable supply and low prices of electricity.
  - ex. Foundation of IDC in Korea and a joint venture with KT by SoftBank (Japan) (December 2011)

- Policy Direction and Future Policies
  - Companies expected to lead the emerging IT convergence sector are key subjects of policies, which are aimed at making Korea an Asian R&D hub by attracting R&D centers.
  - ex. Cisco (USA) has founded a global joint R&D center (GCoE) in Songdo, and is using it as an R&D headquarters for the construction of U-cities.

ICT Industry Trends in 2013

Top 10 Strategic Technology Trends for 2013

01 | Media tablets and beyond
02 | Mobile-centric applications and interfaces
03 | Contextual and social user experience
04 | Internet of Things
05 | App stores and marketplaces
06 | Next-generation analytics
07 | Big data
08 | In-memory computing
09 | Extreme low-energy servers
10 | Cloud computing
4. Promising Regions for Investment

Promising Clusters

Status of Regional Clusters

<table>
<thead>
<tr>
<th>Cluster area</th>
<th>Specialized Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metropolitan area</td>
<td>IT, Parts and materials</td>
</tr>
<tr>
<td>Chungcheong area</td>
<td>IT-related industries</td>
</tr>
<tr>
<td>Daegyeong area</td>
<td>IT fusion/complex industry</td>
</tr>
<tr>
<td>Gangwon area</td>
<td>Bio-IT fusion industry</td>
</tr>
</tbody>
</table>

Promising Regions

<table>
<thead>
<tr>
<th>Specialized Sectors</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pangyo Global R&amp;D Center</td>
<td>IT convergence, GE, Sartorius</td>
</tr>
<tr>
<td>Songdo IT Industry Complex</td>
<td>IT, semiconductors, Kaco, Rittal</td>
</tr>
<tr>
<td>Magok District, Seoul</td>
<td>IT convergence, LG Science Park</td>
</tr>
<tr>
<td>Sangam DMC</td>
<td>IT research, services and manufacturing, Toray, SME Global Support Center</td>
</tr>
<tr>
<td>IT Convergence Complex at Daegu-Gyeongbuk FEZ</td>
<td>IT convergence, LG CNS</td>
</tr>
<tr>
<td>Advanced Industry Complex at Seongseo 5-cha District</td>
<td>Attracting urban high-tech industries, SSLM (Samsung Electronics-Sumitomo Chemical)</td>
</tr>
<tr>
<td>Mieum District, Busan and Jinhae</td>
<td>Global cloud data center, SBI-LG Systems (LG CNS-Soft Bank)</td>
</tr>
</tbody>
</table>
5. National Competitiveness Rankings in ICT

<table>
<thead>
<tr>
<th>Year</th>
<th>ITU</th>
<th>WEF</th>
<th>EIU</th>
<th>UN</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>19</td>
<td>16</td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>2008</td>
<td>11</td>
<td>13</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>2009</td>
<td>19</td>
<td>12</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>2010</td>
<td>11</td>
<td>10</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>2011</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2012</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
6. ICT Industry Organizations and Associations

Relevant Municipalities

<table>
<thead>
<tr>
<th>Relevant Municipalities</th>
<th>Contact</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seoul</td>
<td>Kim Gyeong-bae, Assistant Director for Investment Promotion Division (02-2171-2844)</td>
<td>Operating incubating offices including Sangam DMC</td>
</tr>
<tr>
<td>Gyeonggi-do</td>
<td>Lee Seung-ho, Assistant Director for Investment Promotion Division (031-8008-2746)</td>
<td>-</td>
</tr>
<tr>
<td>Busan</td>
<td>Lee Bo-hyung, Advisor to Investment Promotion Division (051-888-4804)</td>
<td>-</td>
</tr>
<tr>
<td>Busan-Jinhae Free Economic Zone</td>
<td>Kim Jung-wook, Assistant Director for High-Tech Industry Team 1 (051-979-5314)</td>
<td>LG CNS plans to move in and the accommodation of relevant companies is expected</td>
</tr>
</tbody>
</table>

Relevant Organizations

<table>
<thead>
<tr>
<th>Korea Communications Commission</th>
<th><a href="http://www.kcc.go.kr">http://www.kcc.go.kr</a></th>
<th>ICT industry statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>National IT Industry Promotion Agency</td>
<td><a href="http://www.nipa.kr">http://www.nipa.kr</a></td>
<td>ICT industry trends and reports on each sector</td>
</tr>
<tr>
<td>Electronics and Telecommunications Research Institute</td>
<td><a href="http://www.etri.re.kr">http://www.etri.re.kr</a></td>
<td>ICT industry technologies and research reports</td>
</tr>
<tr>
<td>Korea Internet &amp; Security Agency</td>
<td><a href="http://www.kisa.or.kr">http://www.kisa.or.kr</a></td>
<td>-</td>
</tr>
<tr>
<td>Korea Association for ICT Promotion</td>
<td><a href="http://www.kait.or.kr">http://www.kait.or.kr</a></td>
<td>-</td>
</tr>
<tr>
<td>Korea Software Industry Association</td>
<td><a href="http://www.sw.or.kr">http://www.sw.or.kr</a></td>
<td>-</td>
</tr>
<tr>
<td>Korea Information Technology Service Industry Association</td>
<td><a href="http://www.itsa.or.kr">http://www.itsa.or.kr</a></td>
<td>-</td>
</tr>
<tr>
<td>Federation of Korean Information Industries</td>
<td><a href="http://www.fkii.or.kr">http://www.fkii.or.kr</a></td>
<td>-</td>
</tr>
<tr>
<td>IT Find</td>
<td><a href="http://www.itfind.or.kr">http://www.itfind.or.kr</a></td>
<td>-</td>
</tr>
</tbody>
</table>
# Invest KOREA’s Global Network

## Korea Business Centers (42)

### EUROPE
- **Frankfurt, Germany**
  - Tel: (49-69) 2429-920/9
  - E-mail: frankfurt@kotra.or.kr
- **Hamburg, Germany**
  - Tel: (49-40) 3405-760
  - E-mail: info@kotra.de
- **Munich, Germany**
  - Tel: (49-89) 2424-2630
  - E-mail: munich@kotra.or.kr
- **Paris, France**
  - Tel: (33-1) 5535-8888
  - E-mail: paris@kotra.or.kr
- **Madrid, Spain**
  - Tel: (34-91) 556-6241
  - E-mail: madridkc@kotra.or.kr
- **London, UK**
  - Tel: (44-20) 7520-5300
  - E-mail: kotra@kotra.co.uk
- **Brussels, Belgium**
  - Tel: (32-21) 203-2142
  - E-mail: kotrabru@kotra.or.kr
- **Milan, Italy**
  - Tel: (39-02) 79-5813
  - E-mail: kotramil@kotra.it
- **Zurich, Switzerland**
  - Tel: (41-44) 202-1232
  - E-mail: ktz@kotra.ch

### ASIA & OCEANIA
- **Moscow, Russia**
  - Tel: (7-495) 258-1627
  - E-mail: info@kotra.ru
- **Stockholm, Sweden**
  - Tel: (46-8) 30-8090
  - E-mail: stockholm@kotra.nu
- **Copenhagen, Denmark**
  - Tel: (45) 3312-6658
  - E-mail: info@kotra.dk
- **Amsterdam, Netherlands**
  - Tel: (31-20) 673-0555
  - E-mail: info@korea-tradecenter.nl
- **Vienna, Austria**
  - Tel: (43-1) 586-3876
  - E-mail: kotravi@kotra.at
- **Dubai, United Arab Emirates**
  - Tel: (971-4) 450-4360
  - E-mail: ktcdxb@emirates.net.ae
- **Singapore**
  - Tel: (65) 6426-7200
  - E-mail: kotrads@singnet.com.sg
- **Sydney, Australia**
  - Tel: (61-2) 9264-5199
  - E-mail: info@kotra.org.au
- **Melbourne, Australia**
  - Tel: (61-3) 9867-1988
  - E-mail: info@kotramelbourne.org.au
- **Tokyo, Japan**
  - Tel: (81-3) 3214-6951
  - E-mail: kotratky@kotra.or.jp
- **Osaka, Japan**
  - Tel: (81-6) 6262-3831
  - E-mail: osaktc@kotra.or.jp
- **Nagoya, Japan**
  - Tel: (81-52) 561-3936
  - E-mail: nagoya@kotra.or.jp
- **Fukuoka, Japan**
  - Tel: (81-92) 473-2005/6
  - E-mail: fukukota@kotra.or.jp
- **Beijing, China**
  - Tel: (86-10) 6410-6162
  - E-mail: pekktc@kotra.or.kr
- **Shanghai, China**
  - Tel: (86-21) 5108-8771/2
  - E-mail: shanghai@kotra.or.kr

### MIDDLE EAST
Guangzhou, China  
Tel: (86-20) 2208-1600  
E-mail: canton@kotra.or.kr

Qingdao, China  
Tel: (86-532) 8388-7931/4  
E-mail: qdkbc@kotra.or.kr

Hangzhou, China  
Tel: (86-571) 8110-3099  
E-mail: lj88@kotra.or.kr

Nanjing, China  
Tel: (86-25) 8328-8991  
E-mail: ksy@kotra.or.kr

Hong Kong, China  
Tel: (852) 2545-9500  
E-mail: kotra5@kotra.or.kr

Taipei, Taiwan  
Tel: (886-2) 2725-2324  
E-mail: kotra.tpe@msa.hinet.net

Kuala Lumpur, Malaysia  
Tel: (60-3) 2117-7100  
E-mail: gunwony@kotra.or.kr

Jakarta, Indonesia  
Tel: (62-21) 574-1522  
E-mail: jakarta@kotra.or.kr

Mumbai, India  
Tel: (91-22) 6631-8000  
E-mail: ktcmumbai@kotra.or.kr

New York, USA  
Tel: (212) 826-0900  
E-mail: kotrany@hotmail.com

Los Angeles, USA  
Tel: (323) 954-9500  
E-mail: info@kotrala.com

Chicago, USA  
Tel: (312) 644-4323  
E-mail: info@kotrachicago.com

Dallas, USA  
Tel: (972) 243-9300  
E-mail: joongik@kotradallas.com

Washington D.C., USA  
Tel: (202) 857-7919  
E-mail: washington@kotra.or.kr

Silicon Valley, USA  
Tel: (408) 632-5000  
E-mail: info@kotrasv.org

Detroit, USA  
Tel: (248) 618-6001  
E-mail: detroit@kotradtt.org

Vancouver, Canada  
Tel: (604) 683-1820  
E-mail: ktc@kotrayvr.com

Toronto, Canada  
Tel: (416) 368-3399  
E-mail: info@kotra.ca

Head Office  
13, Heolleungno, Seocho-gu, Seoul, Republic of Korea  
Tel: (82-2) 1600-7119 Fax: (82-2) 3460-7920  
E-mail: ikonline@kotra.or.kr  
Homepage: www.investkorea.org  
www.twitter.com/investinkorea  
www.facebook.com/InvestKorea