2014 ICT Industry Outlook of Korea

KOREA INFORMATION SOCIETY DEVELOPMENT INSTITUTE

36 Jang gun maeul 3 gil, Gwacheon-si, Gyeonggi-do, 427-710, Korea
Phone : +82-2-570-4383
Fax : +82-2-570-4099

Message from the President

The ICT industry in Korea has no doubt been established as a critical growth engine for production, investment, exports and employment. The industry is also globally competitive with world-class ICT infrastructure. Even at a time when both domestic and global demand was falling amid the global economic uncertainty, Korea's ICT exports hit a record high in 2013. Despite such an impressive expansion, concerns remain over Korea's future growth engines due to the limitations in knowledge and R&D as well as weakened global competitiveness of the nation's software sector.

Under these circumstances, the growth of the ICT industry is emerging as one of the key policy goals to realize a creative economy pursued by the new administration. Along with the promotion of the ICT industry, it is urgent to develop policies aimed at facilitating convergence as an enabler of creativity in all industrial sectors. In this regard, there is a growing need to provide comprehensive and objective information on the ICT industry assessment and outlook, which can be used as the basis for developing government policies relating to ICTs and a source of reference for the private sector in Korea and other countries in making investment decisions.

This study aims to assess the performance of Korea's ICT industry for the year 2013 and provide projections on production, exports and subscribers of each ICT sectors, taking into account various issues raised within the industry. It also analyzes the global competitiveness of the ICT industry based on major global competitiveness indexes and examines new growth businesses in order to draw implications to be considered in planning future strategies for the ICT industry.

This report describes the current state and competitiveness of Korea's ICT industry in three parts. Part I outlines the trends and outlook for the ICT industry in the areas of communications services, broadcasting services, broadcasting and communications convergence services, ICT equipment and software. Part II provides comparisons of Korea and other countries in terms of ICT infrastructure and other areas of the ICT industry to find out where Korea's competitiveness lies and where improvements are needed. Lastly, Part III offers insights into the Internet TV media market, which is emerging as a new growth engine for the Korean ICT industry, and discusses policy directions.

The 2014 ICT Industry Outlook of Korea is the 13th of its kind published annually by the Korea Information Society Development Institute. In this year's report, we make sure that more comprehensive and improved information on the current Korean ICT industry is provided. We hope that this report helps our readers-both domestic and overseas-gain a better understanding of the Korean ICT industry and make full use of the report in decision-making processes for various purposes. We also look forward to your honest and candid opinions about the report. Thank you.

President
Korea Information Society Development Institute

Contents

List of Tables

List of Tables

List of Figures

Introduction

This report consists of three parts. Part I outlines communications services, broadcasting services, broadcasting and communications convergence services, ICT equipment and the software sector of Korea's ICT industry with a focus on their current status and outlook. To provide more detailed information, communications services are classified into fixed communications services and wireless communications services. Revenue projections are also provided for each area. Broadcasting services are categorized into terrestrial broadcasting, paid broadcasting and program provider services, and subscriber and revenue figures are estimated for each area. Broadcasting and communications convergence services consist of IPTV broadcasting services and fixed-mobile content. ICT equipment is divided into communications equipment, broadcasting equipment, information equipment and components, and projections on production and exports are presented for each category. Finally, production and export forecasts of software products are provided.

Part II provides comparisons of ICT infrastructure between Korea and other developed countries including OECD countries based on quantitative data in order to figure out Korea's competitive standing regarding ICTs. Strengths and weaknesses in Korea's broadcasting and communications industries as commonly identified in objective evaluations by various international institutions are also highlighted to seek improvement plans.

Part III attempts to examine the current state and implications of the Internet TV media market, which is fast emerging as a new paradigm in the broadcasting landscape as well as a new growth engine for the ICT industry in general. To this end, the evolving TV media environment, definition and classification of the Internet TV media and related market size are assessed along with the analysis of business strategies embraced by various domestic and global TV media players such as broadcasting and communications service providers, device manufacturers, and software and Internet service providers.

Part I

Current Status and Outlook of ICT Industry of Korea

1. ICT Industry in General

1.1. Production

Production in the ICT industry in 2013 is estimated to have increased by 5.1% year on year to 391.5 trillion won. Despite high growth in IPTV and fixed-mobile content as well as in wireless communications services backed by the expansion of subscribers to LTE service, the broadcasting and communications service sector has experienced a modest slowdown in growth compared to the previous year due to decreased sales in fixed-line communications and sluggish growth in the broadcasting market. The ICT equipment sector posted a rapid growth rate thanks to the increase in the production of major electronic goods such as mobile phones, digital TVs and memory semiconductors, although the production of information devices such as personal computers and laptops slowed down. Despite the growing entry of domestic software firms into global markets, growth in software and IT services is forecast to slow due to the faltering domestic IT service market with the falling demand for new IT projects in the public and private sectors.

Production in the ICT industry in 2014 is projected to grow by 3.8% year on year to 406.5 trillion won. For broadcasting and communications services, the communications market is expected to grow at a slower pace next year due to a continued decline in fixed-line communications sales and a slowdown in average revenue per user (ARPU) growth in wireless communications services. However, a recovery in the broadcasting market resulting from continued high growth in IPTV and fixed-mobile content, rebound of the terrestrial advertisement market, and positive effects of new home shopping channels are expected to keep the broadcasting and communications service segment on a stable growth path. Despite Korea's competitive edge in the smartphone industry, growth in broadcasting and communications equipment is likely to decelerate due to the moderate demand for mobile phones with the mobile phone market entering its maturity stage and the demand for handset components such as memories and display panels falling. In the software and IT service sector, the overseas expansion of software firms and further growth of small and medium-sized package software firms are anticipated, but the growth rate of the IT service market is forecast to slightly decline because of the limited domestic market and a subsequent slowdown in new investments in ICTs.

Table 1.1 ICT Industry Production

(Unit: KRW trillion, %)

		2011	2012 (p)	2013 (e)	2014 (e)
Service	Communications	43.9	44.4 (1.2)	45.1 (1.4)	45.6 (1.1)
	Broadcasting	12.0	13.2 (10.0)	13.7 (4.2)	14.7 (6.9)
	Convergence	10.0	10.9 (8.7)	11.9 (9.8)	13.1 (9.4)
	Sub-Total	65.9	68.5 (4.0)	70.7 (3.3)	73.3 (3.6)
Equipment	Communications Equipment	74.2	67.6 (-8.9)	72.4 (7.2)	75.6 (4.3)
	Broadcasting Equipment	15.7	14.7 (-6.3)	15.0 (2.1)	15.1 (0.8)
	Information Equipment	10.7	12.0 (11.8)	12.3 (3.0)	12.7 (3.2)
	Components	173.1	178.3 (3.0)	187.7 (5.3)	194.7 (3.7)
	Sub-Total	273.7	272.6 (-0.4)	287.4 (5.5)	298.1 (3.7)
Software and IT Services		29.5	31.5 (6.9)	33.4 (5.8)	35.1 (5.1)
Total		369.1	372.6 (1.0)	391.5 (5.1)	406.5 (3.8)

Note: 1. ICT application-based devices are excluded from the ICT industry in this report
2. ( ) indicates YoY growth
3. All production and revenue figures below are nominal

Source: KAIT for production of communications services and broadcasting equipment until 2012, Broadcasting Industry Fact Finding Report 2012 for broadcasting services, KEA for production value of information equipment, components, software and computer-related services, KISDI Outlook from 2013 onward

1.2. Exports

Exports of ICT equipment in 2013 are estimated to have increased by 9.3% year on year to US$ 143.2 billion. While demand for information devices and digital TVs decreased, exports have been rapidly boosted by the increased market shares of communications devices, particularly smartphones, in the global market as well as higher demand for memory semiconductors and price increases.

Exports of ICT equipment in 2014 are projected to further grow by 5.1% year on year to reach US$ 150.5 billion. Despite the continued global competitiveness of Korean-made smartphones and stronger demand for mobile phones in emerging economies, export growth is likely to slow due to sluggish demand for semiconductors and display panels and falling replacement demand for digital TVs.

Table 1.2 ICT Equipment Exports/Imports

(Unit: US$ million, %)

		2011	2012 (p)	2013 (e)	2014 (e)
Communications Equipment	**Exports**	27,574	22,602 (-18.0)	27,936 (23.6)	30,021 (7.5)
	Imports	9,374	6,132 (-34.6)	6,560 (7.0)	6,907 (5.3)
	Balance	18,200	16,469 (-9.5)	21,375 (29.8)	23,114 (8.1)
Broadcasting Equipment	**Exports**	10,939	9,449 (-13.6)	10,139 (7.3)	10,250 (1.1)
	Imports	2,878	2,913 (1.2)	3,157 (8.4)	3,159 (0.1)
	Balance	8,061	6,536 (-18.9)	6,982 (6.8)	7,090 (1.6)
Information Equipment	**Exports**	7,620	7,718 (1.3)	7,352 (-4.7)	7,424 (1.0)
	Imports	9,293	9,030 (-2.8)	8,712 (-3.5)	8,571 (-1.6)
	Balance	-1,673	-1,312 (-21.6)	-1,360 (3.7)	-1,147 (-15.7)
Components	**Exports**	89,134	91,229 (2.4)	97,733 (7.1)	102,837 (5.2)
	Imports	46,592	46,679 (0.2)	49,501 (6.0)	51,280 (3.6)
	Balance	42,542	44,550 (4.7)	48,232 (8.3)	51,557 (6.9)
ICT Equipment Total	**Exports**	135,267	130,997 (-3.2)	143,160 (9.3)	150,531 (5.1)
	Imports	68,137	64,754 (-5.0)	67,930 (4.9)	69,917 (2.9)
	Balance	67,129	66,243 (-1.3)	75,230 (13.6)	80,614 (7.2)

Note: 1. ( ) indicates YoY growth
2. The figures do not include exports of ICT application devices and magneto-optical media from NIPA's ICT exports
Source: NIPA for exports until 2012, KISDI Outlook from 2013 onward

2. Current Status and Outlook by Sector

2.1. Communications Services

2.1.1. Fixed Communications Services

■ **Fixed Telephony**

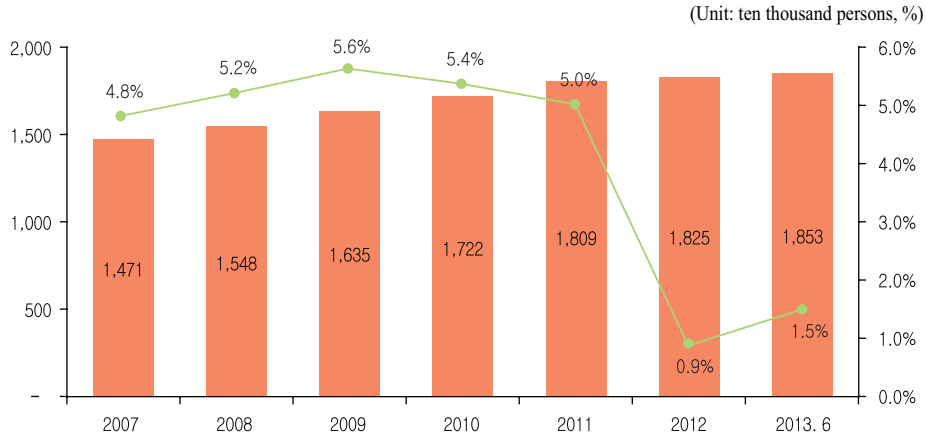
Revenue from telephone services in 2013 is estimated to have fallen by 9.8% year on year to 4,874.6 billion won. Negative growth is likely to continue in the second half of 2013 in the sector not only due to the long-term effect of its replacement by wireless telephony and the expansion of bundled services, but also due to the switch to Internet telephony that is cheaper than local and long-distance calls.

Revenue from telephone services in 2014 is forecast to drop by 7.9% year on year to 4,490.2 billion won. In mid- to long-term, the replacement of fixed telephony by wireless telephony, the All Internet Protocol (ALL-IP) trend, improved quality and cost effectiveness of Internet telephony, and high-quality broadband availability are expected to keep driving the shift toward Internet telephony, while causing a gradual fall in local telephone subscription.

■ **Broadband Network Services**

Revenue from broadband network services in 2013 is estimated to have increased by 0.6% year on year to 4,442.6 billion won. Persisting tariff competition is observed in this saturated market with service providers offering discounts for contracted/bundled products. Also, as the market is nearing saturation in terms of the number of subscribers, growth remains stagnant.

Figure 1.1 Subscriber and Revenue Trends in Broadband Internet Services



Source: Ministry of Science, ICT and Future Planning

Revenue from broadband network services in 2014 is forecast to remain the same at 4,442.1 billion won. Although the number of subscribers is likely to show moderate growth owing to the increase in one or two-member households, increase in SOHOs and wider availability of Internet-based services, revenue growth is projected to remain stagnant due to the market maturity and the release of an array of bundled products triggered by tariff competition.

Table 1.3 Fixed Communications Services Revenues

(Unit: KRW 100 million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Telephony	56,810	54,031 (-4.9)	48,746 (-9.8)	44,902 (-7.9)
Broadband Network	44,013	44,168 (0.4)	44,426 (0.6)	44,421 (0.0)
Fixed Communications Total	160,390	153,517 (-4.3)	142,464 (-7.2)	133,489 (-6.3)

Note: 1. ( ) indicates YoY growth
Source: KAIT for production until 2012, KISDI Outlook from 2013 onward

2.1.2. Wireless Communications Services

■ Mobile Telephony

Revenue from mobile communications services in 2013 is estimated to have increased by 5.8% year on year to 21,660.2 billion won. As of the end of July 2013, mobile telephone subscriptions recorded a steady 2.0% year-on-year growth at approximately 54.13 million thanks to the introduction of LTE service and the growing use of smartphones and tablet computers. As the share of LTE service subscribers with a relatively high ARPU rose from 29.5% in late December 2012 to 44.3% in July 2013, revenue from mobile communications services is likely to grow further.

Table 1.4 Monthly Growth in the Number of Mobile Phone Subscribers

(Unit: thousand persons)

	Dec. '12	Jan. '13	Feb. '13	Mar. '13	Apr. '13	May '13	Jun. '13	Jul. '13
Mobile Phone Subscribers	53,624	53,640	53,746	53,835	53,888	54,009	54,100	54,111
LTE Subscribers	15,811	17,259	18,676	19,605	20,838	22,000	22,973	23,993
Smartphone Users	32,727	33,298	33,822	34,330	34,665	35,193	35,561	35,946

Source: Ministry of Science, ICT and Future Planning, Fixed/Wireless Communications Services Statistics

Production of mobile communications services in 2014 is forecast to increase by 4.2% year on year to 22,569.8 billion won. Subscriber growth is likely to remain at the same level as in the previous year owing to the wider availability of LTE service and the growing popularity of low-priced phones that offer cheaper tariffs than existing telecom services. Along with the continued proliferation of smartphones, the introduction of faster mobile broadband services such as LTE-A and broadband LTE-A, and the subsequent increase in the number of users subscribing to custom-tailored tariffs are likely to boost revenue moderately. However, this revenue growth trend will be limited due to the expansion of alternative services, the government's pressure to lower tariffs, and the growing penetration of low-priced phones.

Table 1.5 Mobile Communications Services Revenues

(Unit: KRW 100 million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Mobile Communications	198,069	204,799 (1.4)	216,602 (5.8)	225,698 (4.2)
Wireless Communications Total	203,277	209,649 (3.4)	221,418 (5.6)	230,275 (4.0)

Note: 1. ( ) indicates YoY growth
Source: KAIT for production until 2012, KISDI Outlook from 2013 onward

2.2. Broadcasting Services

2.2.1. Terrestrial Broadcasting

Revenue from terrestrial broadcasting services in 2013 is estimated to have increased by 1.1% year on year to 4,012.4 billion won. Growth declined in the first half of 2013 due to falling ad revenues and program sales due to the economic slump at home and abroad, but it recovered to a level similar to that of the previous year in the second half on the back of the ad market's rebound.

Revenue from terrestrial broadcasting services in 2014 is projected to rise by 3.2% year on year to reach 4,140.8 billion won. Overall revenue is expected to grow owing to the anticipated ad revenue growth during the Sochi Winter Olympic Games, the Incheon Asian Games and the Brazil World Cup scheduled in 2014 as well as a growing income from the re-transmission of terrestrial programs following the expanded digital conversion of pay channels.

Table 1.6 Terrestrial Broadcasting Services Revenues

(Unit: KRW 100 million, %)

	2011	2012	2013 (e)	2014 (e)
Terrestrial Broadcasting	39,314	39,687 (1.0)	40,124 (1.1)	41,408 (3.2)

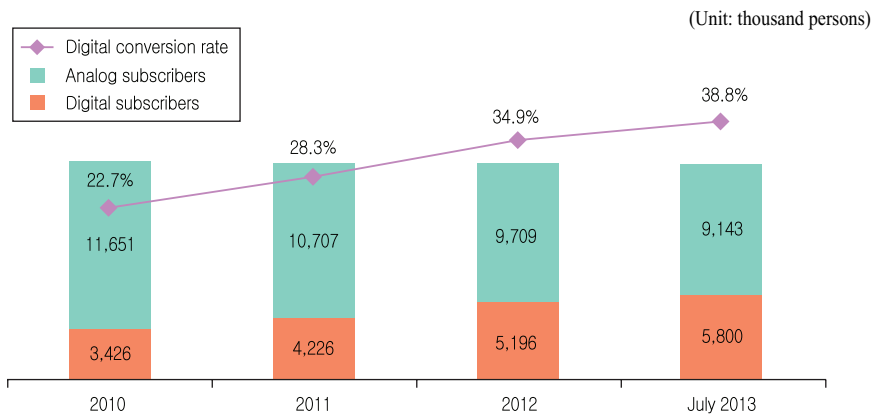
Note: 1. ( ) indicates YoY growth
2. Based on revenues from broadcasting business and not from other businesses
Source: Broadcasting Industry Fact Finding Report until 2012, KISDI Outlook from 2013 onward

2.2.2. Paid Broadcasting Services

■ Cable Broadcasting

Revenue from cable broadcasting services in 2013 is estimated to have decreased by 1.7% year on year to 2,280.5 billion won. The sector's ARPU rose on the back of the expansion of digital conversion among cable TV subscribers, but its license fees declined due to the subscriber erosion caused by the bundled products of the competing platform, IPTV, which in turn led to reduced revenue.

Figure 1.2 Percentage of Conversion to Digital Cable



Source: Korea Cable Television and Telecommunications Association

Revenue from cable broadcasting services in 2014 is projected to grow by 4.1% year on year to reach 2,373.2 billion won. Although the paid broadcasting services market has become saturated in terms of the number of subscribers, there is room for further growth due to the growing number of total households driven by the increase in the number of one-member households, anticipated increase in corporate subscriptions and the growing number of TV screens within the same household. In addition, the anticipated improvement in license fees from digital conversion, ad revenue from sporting events slated in 2014 and the expansion of VOD services are all likely to have a positive impact on the revenue prospect for terrestrial broadcasting services.

■ Satellite Broadcasting

Revenue from satellite broadcasting services in 2013 is estimated to have climbed by 12.0% to 580.4 billion won. While single satellite service subscriptions are on the decline following the discontinuation of satellite DMB service in 2012, the increase in overall subscriptions thanks to the growing sales of OTS (Olleh TV Skylife) bundled service substantially boosted license fees as well as ad income. As a result, the satellite broadcasting services sector recorded a high year-on-year growth rate in revenue.

Revenue from satellite broadcasting services in 2014 is projected to increase by 5.6% to reach 612.9 billion won, whereas year-on-year growth is likely to be smaller due to the subscriber retention through the accelerated digital conversion of cable TV providers and a slowdown in OTS bundled product growth.

Table 1.7 Paid Broadcasting Services Revenues

(Unit: KRW 100 million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Cable Broadcasting	21,222	23,206 (9.3)	22,805 (-1.7)	23,732 (4.1)
Satellite Broadcasting	4,687	5,182 (10.6)	5,804 (12.0)	6,129 (5.6)

Note: 1. ( ) indicates YoY growth
2. Based on revenue from broadcasting business and not from other businesses
3. Cable broadcasting is a sum of system operators and relay operators
4. Satellite broadcasting is a sum of general satellite broadcasting and satellite DMB

Source: Broadcasting Industry Fact Finding Report until 2012, KISDI Outlook from 2013 onward

2.2.3. Program Production and Delivery Business

■ Program Providers (PP)

Revenue from program provider (PP) services in 2013 is estimated to have increased by 7.9% year on year to 5,986.9 billion won. Ad revenue rapidly declined in the first half of 2013 amid the economic slump, but is expected to recover as the anticipated improvement in the economy in the second half is likely to lead to growth in ad revenue as well as home shopping revenue.

Revenue from program provider services in 2014 is projected to rise by 10.6% year on year to 6,619.5 billion won. The continued migration of analog cable subscribers to digital cable is expected to increase income from license fee distribution, while the

expansion of digital conversion is also expected to boost VOD revenue. In addition, the 2014 Sochi Winter Olympic Games, the Incheon Asian Games and the Brazil World Cup are anticipated to increase the demand for advertisement as well as improve consumer sentiment, which will in turn lead to an increase in home shopping-related revenue.

Table 1.8 Program Production and Delivery Business Revenues

(Unit: KRW 100 million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
PP Service	47,177	55,480 (17.6)	59,869 (7.9)	66,195 (10.6)
Program Production and Delivery Business Total	53,889	63,017 (16.9)	67,874 (7.7)	74,730 (10.1)

Note: 1. ( ) indicates YoY growth
2. Based on revenue from broadcasting business and not from other businesses
Source: Broadcasting Industry Fact Finding Report (for program providers) and KAIT preliminary estimates (for program production business) until 2012, KISDI Outlook from 2013 onward

2.3. Broadcasting and Communications Convergence Services

2.3.1. IPTV Broadcasting

Revenue from IPTV broadcasting services in 2013 is estimated to have soared by 33.7% year on year to 1,127 billion won. The IPTV sector recorded a high rate of growth backed by a marked increase in subscribers, which is the result of aggressive subscriber attraction strategies based on fixed-mobile bundled products that combine satellite and IPTV services such as OTS (Olleh TV Skylife) of Skylife. In addition, stronger demand for VOD is expected to boost the overall income and this steady growth trend is likely to continue into the second half helped by home shopping fee income.

Table 1.9 IPTV Subscribers by Service Provider

(Unit: thousand persons)

	2011 Dec.	2012 Dec.	Growth	2012 Sep.	2013 Sep.	Growth
KT	3,076	4,030	31.0%	3,783	4,713	24.6%
SK Broadband	883	1,403	58.9%	1,307	1,903	45.6%
LG U+	862	1,054	22.3%	980	1,439	46.8%
Total	4,821	6,487	34.6%	6,070	8,056	32.7%

Note: 1. OTS subscribers are included in KT's subscribers and media TV subscribers are included in SK Broadband's subscribers (8,015 as of October 2013), while B2B IPTV subscribers are included in LG U+'s subscribers from 2013
Source: IR data from KT, SK Broadband and LG U+

Revenue from IPTV broadcasting services in 2014 is forecast to grow by 18.9% year on year to 1,340.5 billion won. Subscriber growth from fixed-mobile bundled services is likely to continue, while an increase in home shopping revenue from the World Cup season in 2014 as well as home shopping fee income and other income from the expansion of VOD service is also anticipated. However, subscriber growth and related revenue growth in the already saturated paid broadcasting services sector are projected to slow to some extent due to the digital conversion of cable TV channels, and the enhanced competitiveness and subscriber retention of SME service operators through M&As.

Table 1.10 IPTV Broadcasting Revenues

(Unit: KRW 100 million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
IPTV	6,162	8,429 (36.8)	11,270 (33.7)	13,405 (18.9)

Note: 1. ( ) indicates YoY growth
Source: KAIT until 2012, KISDI Outlook from 2013 onward

2.3.2. Fixed-Mobile Content

Production of fixed-mobile content in 2013 is estimated to have increased by 7.8% year on year to 10,805.7 billion won. The Internet game segment is estimated to have grown by 10.6% year on year helped by the brisk sales of major game companies and the growth of the mobile game market. The Internet advertising market is estimated to have expanded by approximately 9.3% owing to the growth of the mobile advertising market, despite a slowdown in the display advertising sector's growth amid the sluggish economy.

Table 1.11 Online Ad Revenues of Three Major Portals

(Unit: KRW million)

Category		12 1Q	12 2Q	12 3Q	12 4Q	13 1Q	13 2Q	2012~2013 Growth Rate in 1H
NHN	Search Ads	227,268	231,519	225,955	239,647	244,933	246,131	7.0%
	Display Ads	41,855	44,909	41,565	48,087	40,943	44,773	-1.2%
Daum	Search Ads	47,453	46,191	44,599	43,332	63,902	65,614	38.3%
	Display Ads	51,775	60,266	54,717	62,829	51,077	56,963	-3.6%
SK Coms	Search Ads	15,712	15,452	14,539	14,064	13,830	13,568	-12.1%
	Display Ads	21,285	25,628	20,808	17,659	12,498	12,220	-47.3%
Total	Search Ads	290,433	293,162	285,093	297,043	322,665	325,313	11.0%
	Display Ads	114,915	130,803	117,090	128,575	104,518	113,956	-11.1%
	Total	405,348	423,965	402,183	425,618	427,183	439,269	4.5%

Note: Based on separate criteria
Source: IR data from each company

Production of fixed-mobile content in 2014 is forecast to increase by 8.4% year on year to reach 11,713.1 billion won. The Internet game segment is expected to record a higher growth rate owing to sustained demand for fixed-mobile Internet games around the world, releases of high-performance smartphones, and the diversification of mobile game genres ranging from simple casual games to mid-core games, including RPG, supported by the growing penetration of high-speed mobile services such as LTE-A. In the meantime, major sporting events such as the Brazil World Cup and the Asian Games in 2014 will have a positive impact on the Internet ad market, particularly the mobile ad market, where mobile search ads are expected to further grow in tandem with the expansion of global social networking services such as Twitter and of domestic messenger services such as Kakao Talk and Line of Naver.

Table 1.12 Fixed-Mobile Content Revenues

(Unit: KRW 100 million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Fixed-Mobile Content	93,832	100,231 (6.8)	108,057 (7.8)	117,131 (8.4)

Note: 1. ( ) indicates YoY growth
Source: KAIT until 2012, KISDI Outlook from 2013 onward

2.4. ICT Equipment

2.4.1. Communications Equipment

● **Production**

Production of communications equipment in 2013 is estimated to have risen by 7.2% year on year to 72,428.8 billion won. The increased replacement demand in developed countries for mobile handsets, which account for 70% of the total production of communication devices, and the growing demand in emerging markets in keeping with the growing penetration of entry level smartphones as well as the expansion of LTE services in Korea and abroad have boosted the overall production volume of LTE-related devices, which have in turn driven the growth of overall communications equipment production.

Production of communications equipment in 2014 is forecast to climb by 4.2% year on year to 75,578.6 billion won. While an increase in the production of communications equipment, including optical transmission systems, coaxial cables and LTE equipment and the further penetration of smartphones in emerging economies are anticipated because of growing expectations that the global economy, particularly developed economies, will take an upturn, the production growth in the overall domestic communications equipment sector is projected to be decelerated due to an increase in overseas production.

● **Exports**

Exports of communications equipment in 2013 are estimated to have increased by 23.6% year on year to US$ 27,936 million. Such high growth in this sector is attributed to the active entrance of domestic fixed network manufacturers into global markets and a

subsequent increase in exports of optical transmission systems and coaxial cables as well as growing exports of LTE wireless communications systems and the increased market share of domestic mobile device makers in the global market.

Exports of communications equipment in 2014 are projected to further rise by 7.5% year on year to reach US$ 30,021 million. While stronger global demand for communications equipment and continued market expansion of domestic players are expected, the growth rate of exports is likely to moderately fall due to the heightened global competition in the device sector.

Table 1.13 Communications Equipment Supply and Demand

(Unit: production in KRW 100 million, exports/imports in US$ million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Production	742,084	675,882 (-8.9)	724,288 (7.2)	755,786 (4.3)
Exports	27,574	22,602 (-18.0)	27,936 (23.6)	30,021 (7.5)
Imports	9,374	6,132 (-34.6)	6,560 (7.0)	6,907 (5.3)
Balance	18,200	16,469 (-9.5)	21,375 (29.8)	23,114 (8.1)

Note: 1. ( ) indicates YoY growth
Source: KAIT for production and NIPA for exports until 2012, KISDI Outlook from 2013 onward

■ Mobile Handsets

● Production

Production of mobile handsets in 2013 is estimated to have increased by 10.6% year on year to 51,968.9 billion won. Production of smartphones and components is on the rise on the back of the replacement demand in developed countries and increased penetration of entry level smartphones in emerging markets. Korean handset makers continued to increase their market share in the global smartphone market. Samsung Electronics maintained the largest market share at 35.2%, widening its lead over Apple, while LG Electronics ranked 4th with a market share of 4.8%.

Production of mobile handsets in 2014 is forecast to grow by 6.3% year on year to 55,248.8 billion won. With the replacement demand for premium smartphones in developed economies and the growing penetration of smartphones in emerging economies, demand for mobile handsets, particularly for smartphones, is likely to remain

strong. The worldwide expansion of LTE-based smartphones, in particular, is expected to boost production of domestic LTE products, which boast world-class quality. On the other hand, growth in production value will be limited due to price competition and increased overseas production as the smartphone market enters its maturity stage.

● **Exports**

Exports of mobile handsets in 2013 are estimated to have increased by 26.7% year on year to US$ 25,626 million. Despite the increase in overseas production and exports, domestic players are showing solid performance in China, Western Europe and North America with a wide variety of product offerings including premium smartphones such as Galaxy Note 3 of Samsung Electronics and G2 of LG Electronics, which hold a lead over new products of competitors such as iPhone 5c and 5s.

Exports of mobile handsets in 2014 are projected to grow by 9.5% year on year to US$ 28,060 million. The competitive edge of domestic premium-grade smartphones is expected to be maintained, while their exports will likely to continue growing as smartphone manufacturers are expected to strengthen their marketing efforts with a variety of product portfolios including strategy phones and wearable devices in order to maintain their competitiveness. However, as the global smartphone market has approached its maturity stage, the demand in China and the United States, the two main drivers of global demand for smartphones, is forecast to decline. However, market competition is likely to be intensified due to the good performances of Chinese companies including Huawei and Lenovo. As a result, export growth is expected to be softened.

Table 1.14 Mobile Handset Supply and Demand

(Unit: production in KRW 100 million, exports/imports in US$ million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Production	535,454	469,805 (-12.3)	519,689 (10.6)	552,488 (6.3)
Exports	25,048	20,226 (-19.3)	25,626 (26.7)	28,060 (9.5)
Imports	5,281	3,146 (-40.4)	4,021 (27.8)	4,445 (10.6)
Balance	19,767	17,080 (-13.6)	21,606 (26.5)	23,615 (9.3)

Note: 1. ( ) indicates YoY growth
2. Mobile handsets include the components of wireless communications devices
Source: KAIT for production and NIPA for exports until 2012, KISDI Outlook from 2013 onward

2.4.2. Broadcasting Equipment

● Production

Production of broadcasting equipment in 2013 is estimated to have increased by 2.1% year on year to 15,002.7 billion won. Due to the nature of media devices being sensitive to economic situations, the global economic downturn had a big impact on the production of broadcasting equipment. This, coupled with the sluggishness in the digital TV segment, which is a key component of the media market, has resulted in a low growth in production.

Production of broadcasting equipment in 2014 is forecast to rise by 0.8% to reach 15,126.2 billion won. In 2014, the global TV market is expected to remain stagnant or improve moderately with a steady increase in demand for media products. With the completion of digital conversion of broadcast programs in developed countries, demand for set-top boxes rapidly fell, whereas demand for low- and mid-priced products is expected to grow owing to digital conversion in emerging economies.

● Exports

Exports of broadcasting equipment in 2013 are estimated to have increased by 7.3% year on year to US$ 10,139 million. Even though the TV sector grew due to low base effect in the first half of 2013 and the car stereo and audio device sector expanded at a double-digit rate, exports of set-top boxes and CCTV products recorded a big decline.

Exports of broadcasting equipment in 2014 are projected to increase by 1.1% year on year to US$ 10,250 million. Although the market shares of domestic companies are expected to rise in premium product categories as a result of the restructuring of Japanese competitors, fierce price competition triggered by strong performance of Chinese companies and the stagnant TV sales around the world are likely to result in a moderate increase in exports. A sharp increase in growth is also unlikely for media devices as the share of direct exports of domestic products is small amid the global economic downturn and overseas production is increasingly becoming a norm.

Table 1.15 Broadcasting Equipment Supply and Demand

(Unit: production in KRW 100 million, exports/imports in US$ million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Production	156,796	146,986 (-6.3)	150,027 (2.1)	151,262 (0.8)
Exports	10,939	9,449 (-13.6)	10,139 (7.3)	10,250 (1.1)
Imports	2,878	2,913 (1.2)	3,157 (8.4)	3,15 (0.1)
Balance	8,061	6,536 (-18.9)	6,982 (6.8)	7,090 (1.6)

Note: 1. ( ) indicates YoY growth
2. Broadcasting equipment is a sum of broadcasting devices and broadcasting appliances
Source: KAIT for production and NIPA for exports until 2012, KISDI Outlook from 2013 onward

■ Digital TV

● Production

Production of digital TVs in 2013 is estimated to have grown by 4.5% year on year to 7,651.9 billion won. The digital TV sector registered moderate growth owing to the base effect of the negative growth in the previous year, subsidies on Chinese electronic products in the first half of 2013, and new demand for digital TVs in emerging markets following the discontinuation of analog TV service. Samsung Electronics and LG Electronics occupied a combined market share of approximately 43% in the global LCD TV market on their global competitiveness. However, global competition is increasingly intensifying due to the progress made by Chinese TV maker, TCL.

Production of digital TVs in 2014 is forecast to increase by 1.2% year on year to 7,742.6 billion won. The global digital TV production growth slowed as the demand to replace CRT TVs, which started in earnest in 2003, has almost been met, while demand for digital conversion mostly in emerging economies will become an important factor in 2014 and beyond. In particular, it is projected that demand for OLED TVs and UHD TVs will grow despite the stagnation in the digital TV market.

● Exports

Exports of digital TVs in 2013 are estimated to have climbed by 9.0% year on year to US$ 6,859 million. The growth was led by LCD exports to China where shipments increased by 29% in the second quarter. Barring China, total shipments of LCD TVs have fallen by 3.5%.

Exports of digital TVs in 2014 are projected to increase by 2.1% year on year to US$ 7,002 million. Although smart TVs, super-resolution TVs and OLED TVs are appealing enough to stimulate replacement demand, they still lack competitiveness in terms of content, technology and price. Increased replacement demand is likely to occur mostly for low- and mid-priced products in emerging markets.

Table 1.16 Digital TV Supply and Demand

(Unit: production in KRW 100 million, exports/imports in US$ million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Production	77,345	73,259 (-5.3)	76,519 (4.5)	77,426 (1.2)
Exports	7,804	6,290 (-19.4)	6,859 (9.0)	7,002 (2.1)
Imports	198	290 (46.7)	321 (10.6)	323 (0.7)
Balance	7,606	6,000 (-21.1)	6,538 (9.0)	6,678 (2.2)

Note: 1. ( ) indicates YoY growth
2. Digital TVs are a sum of digital TVs, analog TVs and TV components
3. Production value of TV components is final figures until 2011 and estimates for 2012
Source: KAIT for production and NIPA for exports until 2012, KISDI Outlook from 2013 onward

2.4.3. Information Equipment

● **Production**

Production of information equipment in 2013 is estimated to have increased by 3.0% year on year to 12,321.5 billion won. Production growth is projected in the computer sector due to increased demand for auxiliary memory units (e.g. SSD: Solid State Drive), tablet computers and ultrabooks. In particular, new models of tablet computers are expected to be brought to the market mostly in the second half.

Production of information equipment in 2014 is forecast to be up by 3.2% year on year to reach 12,718.2 billion won. While production growth is expected for mobile computers such as tablet computers and ultrabooks, as well as auxiliary memory units such as SSD, a decline in new demand to replace traditional PCs will lead to a small increase in overall production growth compared to the previous year.

● **Exports**

Exports of information equipment in 2013 are estimated to have fallen by 4.7% year on year to US$ 7,352 million. With a continued decline in exports of printers and monitors, brisk exports of auxiliary memory units such as SSD are likely to contribute to mitigating the decline in exports of peripherals. While exports of mobile computers including ultrabooks and tablet computers are growing, overall exports of computers are likely to decline due to falling export prices and slowing demand for traditional PCs such as laptops and desktops.

Exports of information equipment in 2014 are forecast to increase by 1.0% year on year to US$ 7,424 million. Although exports of traditional PCs such as laptops and desktops are losing growth momentum, the penetration of ultrabooks and tablet computers will continue to grow and domestic device and component makers will be able to maintain or improve their competitiveness. This will contribute to a modest growth in information equipment exports.

Table 1.17 Information Equipment Supply and Demand

(Unit: production in KRW 100 million, exports/imports in US$ million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Production	106,948	119,620 (11.8)	123,215 (3.0)	127,182 (3.2)
Exports	7,620	7,718 (1.3)	7,352 (-4.7)	7,424 (1.0)
Imports	9,293	9,030 (-2.8)	8,712 (-3.5)	8,571 (-1.6)
Balance	-1,673	-1,312 (-21.6)	-1,360 (-3,7)	-1,147 (-15.7)

Note: 1. ( ) indicates YoY growth
Source: KAIT for production and NIPA for exports until 2012, KISDI Outlook from 2013 onward

■ Computers

● Production

Production of computers is estimated to have increased by 3.2% year on year to 5,580.8 billion won in 2013. With Samsung Electronics and LG Electronics releasing an array of new products in the second half, the domestic computer market is likely to see further growth. Additional launch of next-generation models of tablet computers by their global competitors such as Google and Amazon is also scheduled in the second half.

Production of computers in 2014 is projected to increase by 10.4% year on year to

6,159.2 billion won. Demand for mobile PCs is forecast to grow at home and aborad and as a response, computer makers will rush to release ultrabooks and tablet computers. Owing to competitive R&D efforts and the commercialization of new concept computers like all-in-one PC, wearable PC and Google Glass, the domestic computer sector is expected to maintain a growth trend.

● **Exports**

Exports of computers in 2013 are estimated to be down by 9.0% year on year to US$ 2,205 million. By the end of the year, a number of relatively cheap table computers will be debuted, fast replacing laptops and desktop PCs. Overall exports of computers, however, are likely to decrease due to falling prices of tablet computers.

Exports of computers in 2014 are forecast to increase by 4.0% year on year to US$ 2,294 million. According to Gartner, the tablet computer market will rapidly grow at a rate of over 30%. If Apple does not produce a 'low-priced iPad' in the future, Samsung Electronics is expected to narrow the gap with Apple in market share by utilizing its competitiveness in key components such as application processors, LCDs, mobile DRAMs and SSDs as well as its various product lineups.

Table 1.18 Computer Supply and Demand

(Unit: production in KRW 100 million, exports/imports in US$ million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Production	36,124	54,060 (49.6)	55,808 (3.2)	61,592 (10.4)
Exports	2,352	2,424 (3.1)	2,205 (-9.0)	2,294 (4.0)
Imports	5,052	4,570 (-9.5)	4,379 (-4.2)	4,212 (-3.8)
Balance	-2,700	-2,146 (-20.5)	-2,174 (1.3)	-1,918 (-11.8)

Note: 1. ( ) indicates YoY growth
Source: KAIT for production and NIPA for exports until 2012, KISDI Outlook from 2013 onward

2.4.4. Components

● **Production**

Production of components in 2013 is estimated to have grown by 5.6% year on year to 188,288 billion won. The component sector experienced an increased year-on-year growth rate owing to constant demand for PC memory chips and brisk sales of

smartphones and tablet computers in the mobile smart memory semiconductor market.

Production of components in 2014 is projected to rise by 3.9% year on year to reach 195,716.9 billion won. While the display market will grow at a modest pace thanks to the rapid increase in demand for tablet computers, the reduced demand for PCs and slower growth in smart devices are likely to lead to a modest decline in the growth rate.

● **Exports**

Exports of components in 2013 are estimated to have increased by 7.1% year on year to US$ 97,733 million. Despite poor performance in exports of display panels, overall exports of components are expected to substantially rise owing to increased demand for memory semiconductors and price increases.

Exports of components in 2014 are forecast to be further up by 5.2% year on year to reach US$ 102,837 million. While the display panel market will moderately grow on the back of competitive domestic technologies and cost advantages, the semiconductor market is projected to experience a slowdown in growth due to price adjustments of memory semiconductors and fierce global competition in the system semiconductor sector.

Table 1.19 Component Supply and Demand

(Unit: production in KRW 100 million, exports/imports in US$ million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Production	1,730,851	1,783,178 (3.0)	1,882,880 (5.6)	1,957,169 (3.9)
Exports	89,134	91,229 (2.4)	97,733 (7.1)	102,837 (5.2)
Imports	46,592	46,679 (0.2)	49,501 (6.0)	51,280 (3.6)
Balance	42,542	44,550 (4.7)	48,232 (8.3)	51,557 (6.9)

Note: 1. ( ) indicates YoY growth
Source: KAIT for production and NIPA for exports until 2012, KISDI Outlook from 2013 onward

■ Semiconductors

● **Production**

Production of semiconductors in 2013 is estimated to have grown by 11.3% year on

year to 68,241.8 billion won. The memory market recorded a high growth rate thanks to increased demand for DRAMs and NAND flash chips as well price increases. In particular, the increasing market shares of domestic companies in the global smartphone market boosted demand for mobile DRAMs. In addition, DRAM prices continued to rise due to a delay in DRAM production for PCs in the wake of a fire at an SK Hynix plant in China. On the other hand, production growth in system semiconductors for mobile application processors dramatically slowed after Apple moved its mobile application processor production from Samsung to TSMC of Taiwan.

Production of semiconductors in 2014 is forecast to increase by 5.7% year on year to reach 72,161.9 billion won. While the further penetration of mobile devices loaded with high-capacity DRAMs such as smartphones and tablet computers and the focus on tech migration to improve performance and reduce cost through 3D stacked memory for NAND flash are anticipated, growth in the memory market is likely to slow along with a slowdown in the mobile device market in general. The global non-memory sector encompassing microcomponents, ASIC/ASSP and sensors lacks new momentum for growth due to the weakening global competitiveness of domestic companies.

● **Exports**

Exports of semiconductors in 2013 are estimated to have climbed by 12.7% year on year to US$ 56,860 million. Exports of memory semiconductors posted a high growth rate thanks to the increased global demand for mobile DRAMs as well as increased exports to China and the United States backed by price hikes in DRAMs and NAND flash chips. On the other hand, growth in exports of system semiconductors of domestic companies significantly dropped due to Apple's departure from Samsung Electronics in its procurement of mobile application processors in addition to the strong performances of Taiwan and Chinese companies.

Exports of semiconductors in 2014 are projected to rise by 5.9% year on year to US$ 60,205 million. The slowdown in the global smart device market growth and price adjustments of memory semiconductors are expected to lead to a slowdown in exports of memory semiconductors. On the non-memory front, domestic companies are likely to fare well in certain product segments such as ASIC/ASSP, sensors and analog semiconductors on top of memory semiconductors, but they may see their global competitiveness weaken due to the growth of Taiwanese and Chinese competitors, who design and market low- and mid-priced mobile chips in keeping with the wider availability of smartphones.

Table 1.20 Semiconductor Supply and Demand

(Unit: production in KRW 100 million, exports/imports in US$ million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Production	611,158	613,223 (0.3)	682,418 (11.3)	721,619 (5.7)
Exports	50,146	50,430 (0.6)	56,860 (12.7)	60,205 (5.9)
Imports	32,483	32,242 (-0.7)	34,899 (8.2)	36,277 (4.0)
Balance	17,663	18,188 (3.0)	21,662 (19.1)	23,577 (8.8)

Note: 1. ( ) indicates YoY growth
Source: KAIT for production and NIPA for exports until 2012, KISDI Outlook from 2013 onward

■ Display Panels

● Production

Production of display panels in 2013 is estimated to have increased by 1.1% year on year to 86,757.2 billion won. Having achieved economies of scale, Korea is strong in mass production of LCD panels with a 50% share in the total global LCD panel production capacity. Although the drop in LCD panel prices has been somewhat stabilized with eased inventories of display panels through the recent adjustment of operating rates by Taiwanese companies, the decline in LCD panel prices, which began in the first half of 2013, is resulting in stagnant industrial output.

Production of display panels in 2014 is forecast to grow by 1.9% year on year to 88,394.6 billion won. Growing shipments of UHD TVs, smartphones and tablet computers are expected to boost demand for display panels. The slowdown in sales of the iPhone and Galaxy S4 indicates that the high-end smart device market has become saturated and that growth is likely to be led by entry level LCD panels rather than by high-priced displays. The smart device market is also projected to see growth in entry level LCD panels rather than high-priced display panels. In the case of OLED, technology prospects remain cloudy and investment into this segment will therefore be minimal. Nevertheless, large-scale investments are anticipated once new technologies are adopted by the market.

● Exports

Exports of display panels in 2013 are estimated to have fallen by 5.3% year on year

to US$ 30,224 million. Demand for LCD panels is in a downward swing compared to the previous year and only tablet computers enjoy increased demand. The sudden drop in panel prices in the second half of 2013 led to reduced exports of display panels. Demand for TVs is expected to be boosted in the second half with the extensive marketing efforts of TV set makers, but expansion of demand will be limited.

Exports of display panels in 2014 are projected to be up by 0.9% year on year to US$ 30,492 million. The display panel market is expected to return to growth on the technological and cost competitiveness of domestic companies. As for LCD sets and panels, demand for tablet computers will become the biggest determinant of growth. A moderate increase in demand for TVs is also projected, but negative growth is forecast for monitors and laptops.

Table 1.21 Display Panel Supply and Demand

(Unit: production in KRW 100 million, exports/imports in US$ million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Production	849,028	858,393 (1.1)	867,572 (1.1)	883,946 (1.9)
Exports	31,380	31,924 (1.7)	30,224 (-5.3)	30,492 (0.9)
Imports	6,691	6,468 (-3.3)	5,837 (-9.8)	5,799 (-0.7)
Balance	24,690	25,456 (3.1)	24,387 (-4.2)	24,693 (1.3)

Note: 1. ( ) indicates YoY growth
Source: KAIT for production and NIPA for exports until 2012, KISDI Outlook from 2013 onward

2.5. Software

- **Production**

Production of software and IT services in 2013 is estimated to have increased by 5.8% year on year to 33,384.2 billion won. Despite high growth in package software, particularly in application software, year-on-year growth is likely to slightly fall amid a slowdown in the IT service market growth.

Production of software and IT services in 2014 is forecast to grow by 5.1% year on year to 35,071.1 billion won. While sustained high growth is expected in the package software market, particularly in the application software segment, the IT service market is likely to experience a moderate drop in growth due to the limited demand in the domestic

market and a decrease in new IT investment.

● **Exports**

Exports of software and IT services in 2013 are estimated to have soared by 74.5% year on year to US$ 3,911 million. Such a high growth rate is attributed to increased exports of solutions in a wide range of areas including e-government, transportation, telecommunications and ERP driven by the growing global presence of Korean IT service providers.

Exports of software and IT services in 2014 are forecast to further increase by 37.2% year on year to US$ 5,366 million. This sector is expected to maintain a high growth rate on the back of the increased exports of industry-specific solutions and the accelerated entry of large-scale domestic IT service providers into overseas markets.

Table 1.22 Software Production and Exports

(Unit: production in KRW 100 million, exports/imports in US$ million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Production	295,229	315,477 (6.9)	333,842 (5.8)	350,711 (5.1)
Exports	1,518	2,241 (47.6)	3,911 (74.5)	5,366 (37.2)

Note: 1. ( ) indicates YoY growth
Source: KEA for production and exports until 2012, KISDI Outlook from 2013 and onward

■ **Package Software**

Production of package software in 2013 is estimated to have increased by 6.7% year on year to 4,741.3 billion won. Major software firms maintained a high growth trend on expanded presence in global markets and releases of new software products. Exports of package software to Japan and China remained buoyant, and exports of telecommunications, healthcare and e-government packages to Southeast Asian countries such as the Philippines and Singapore as well as Middle Eastern countries such as Saudi Arabia also increased.

Production of package software in 2014 is forecast to rise by 7.8% year on year to 5,109.5 billion won. With the regulation that restricts the participation of large companies in public sector projects beginning to have an impact, the software market for SMEs with competitive solutions is expected to grow at a moderate pace. An increase in demand for telecommunications, healthcare and other industry-specific solutions in tandem with

consistent demand for business applications in ERP, video conference and database management is likely to keep the sector on a high growth path. The forays of domestic companies into global markets are expected to be accelerated, particularly in the Southeast Asian region where the companies look to sell specialized solutions in e-government, healthcare and telecommunications as well as ERP and security solutions.

Table 1.23 Package Software Production

(Unit: KRW 100 million, %)

	2011	2012 (p)	2013 (e)	2014 (e)
Production	39,965	44,423 (11.2)	47,413 (6.7)	51,095 (7.8)

Note: 1. ( ) indicates YoY growth
Source: KEA for production and exports until 2012, KISDI Outlook from 2013 and onward

■ IT Services

Production of IT services in 2013 is estimated to have increased by 5.7% year on year to 28,643 billion won. As companies were intent on managing and improving the efficiency of existing systems rather than making new investments, the IT consulting and system integration market contracted. Only the IT system management and support service sector maintained growth. Exports of domestic IT services in 2013 recorded high growth owing to the increased exports of government systems including e-government systems, government procurement systems, and specialized solutions for finance and transportation along with the reorganization and diversification of export solutions by large IT service providers.

Production of IT services in 2014 is forecast to rise by 4.6% to 29,961.6 billion won. Increased demand for new projects using cloud computing, big data and mobilit as well as the accelerated entry into global markets by large IT service providers are anticipated in 2014. However, the overall production growth in the sector will moderately slow down due to the impact of the regulation restricting the participation of large IT service providers in the public sector. On the other hand, exports are likely to record a high growth rate as domestic IT companies are expected to endeavor to expand their presence in global markets with their industry-specific solutions for public sector, finance and transportation. They will also seek new business opportunities in convergence services and other sectors in order to overcome the difficulties they face in the domestic market due to reduced investment in the IT sector and restricted participation in the public sector.

Table 1.24 IT Service Production

(Unit: KRW 100 million, %)

	2011	2012 (p)		2013 (e)		2014 (e)	
Production	255,264	271,054	(6.2)	286,430	(5.7)	299,616	(4.6)

Note: 1. ( ) indicates YoY growth
Source: KEA for production and exports until 2012, KISDI Outlook from 2013 and onward

Part II

International Comparisons of ICT Industry Competitiveness of Korea

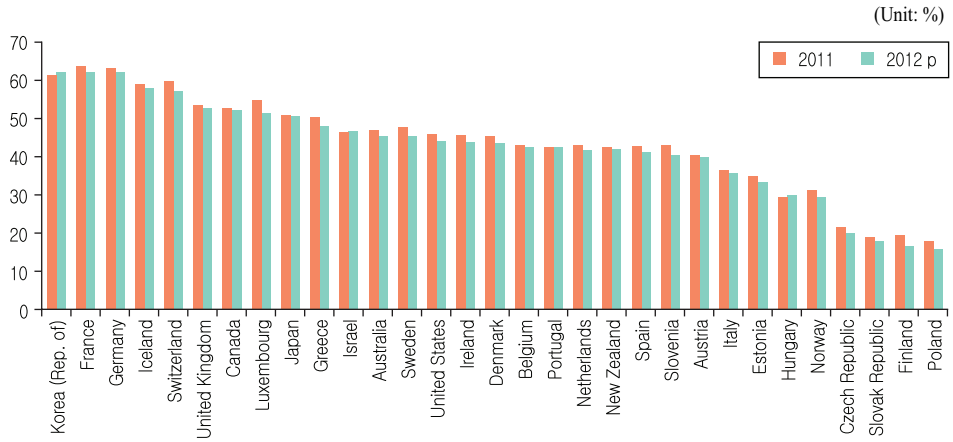
1. Comparison with Major Countries in ICT Infrastructure

1.1. Communications Infrastructure and Uptake

1.1.1. Fixed Communications Services

Most OECD countries show high penetration rates in fixed-telephone subscriptions. In Korea, the number of fixed-telephone lines per 100 inhabitants increased from 60.9 in 2011 to 61.9 in 2012, the highest among the OECD member countries thanks to the accelerated migration from existing telephone lines to fixed broadband subscriptions.

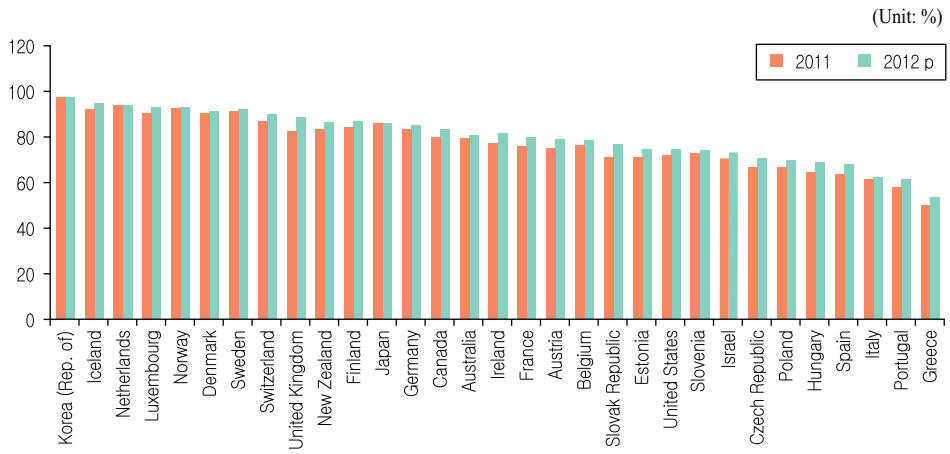
Figure 2.1 Fixed-telephone Subscriptions per 100 Inhabitants



Source: ITU database (2013)

With regard to the level and uptake of Internet-enabled infrastructure, Korea topped the list in 2012 among OECD countries at 97.4% in the percentage of households with Internet access. Considering that only eight countries have over 90% households with Internet access, Korea has a very high degree of broadband uptake.

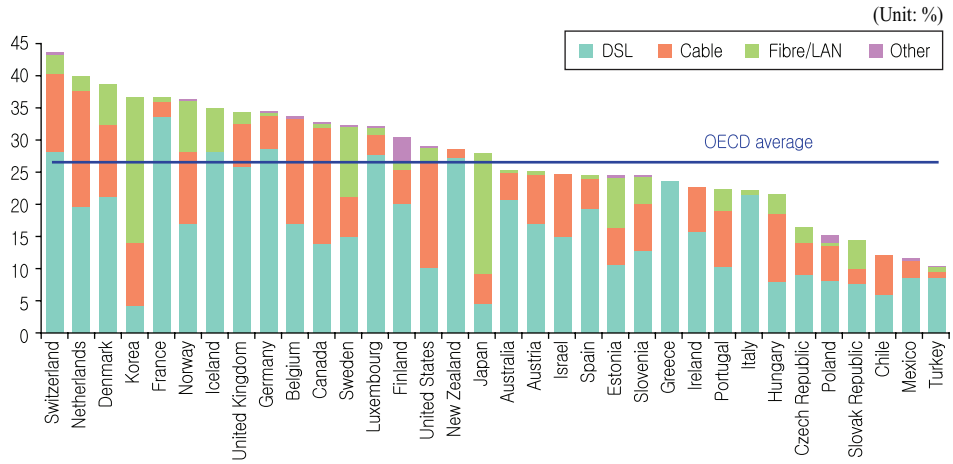
Figure 2.2 Percentage of Households with Internet Access



Source: ITU database (2013)

In terms of fixed broadband subscriptions per 100 inhabitants in 2012, Korea ranked 4th among OECD countries at 36.5. Compared with other countries, Korea maintains a strong OECD leadership in fiber optic broadband penetration with 22.5 out of 100 inhabitants having fiber connections.

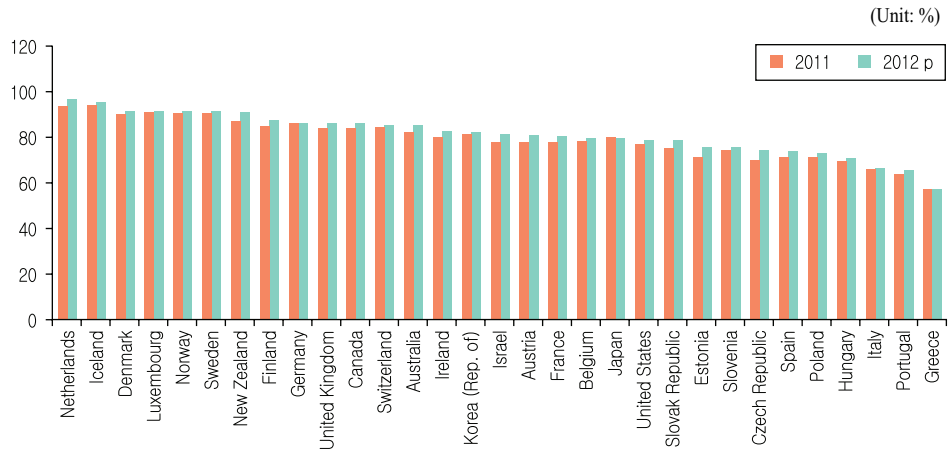
Figure 2.3 Fixed Broadband Subscriptions per 100 Inhabitants by Technology, December 2012



Source: OECD broadband statistics, oecd.org/sti/ict/broadband.

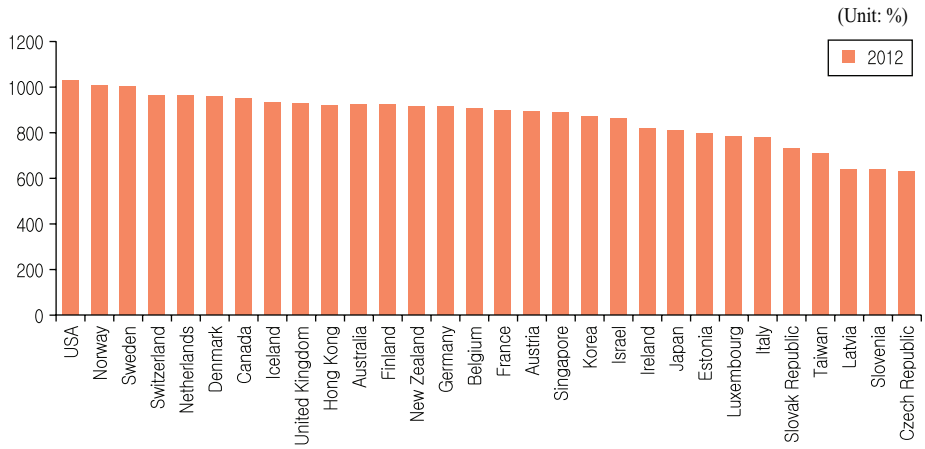
Korea ranked 15th among OECD countries in the percentage of households with a computer at 82.3%. In 2010, Korea was placed in the middle range, ranking 19th among OECD countries with 879 computers per 1000 people.

Figure 2.4 Percentage of Households with a Computer



Source: ITU database (2013)

Figure 2.5 Number of Computers per 1000 People

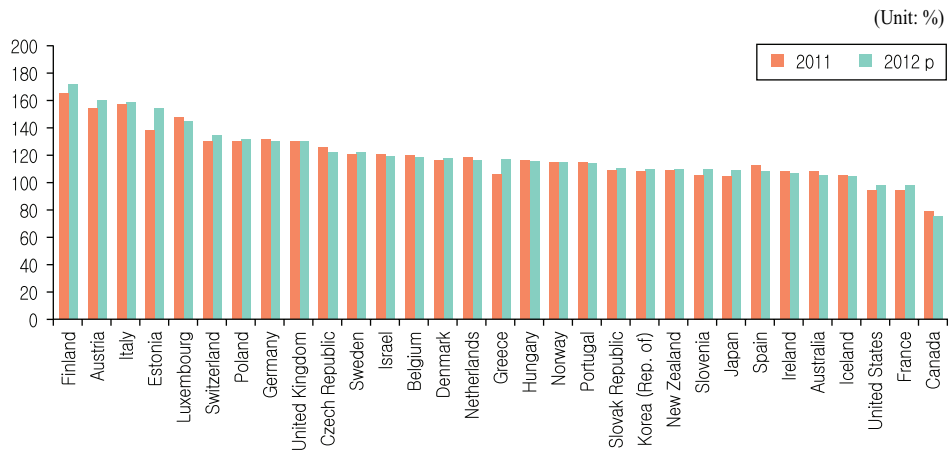


Source: Computer Industry Almanac / IMD database

1.1.2. Wireless Communications

The mobile phone market is at the maturity stage in terms of the number of subscribers with the penetration rate exceeding 100% in most OECD countries except the United States, France and Canada. Although Korea ranked 21st among OECD countries in terms of the number of mobile telephone subscriptions per 100 inhabitants, the number had steadily increased from 108.5 in 2011 to 110.4 in 2012 with the growing number of those who use two phones including phones for business purposes in tandem with the expansion of mobile offices.

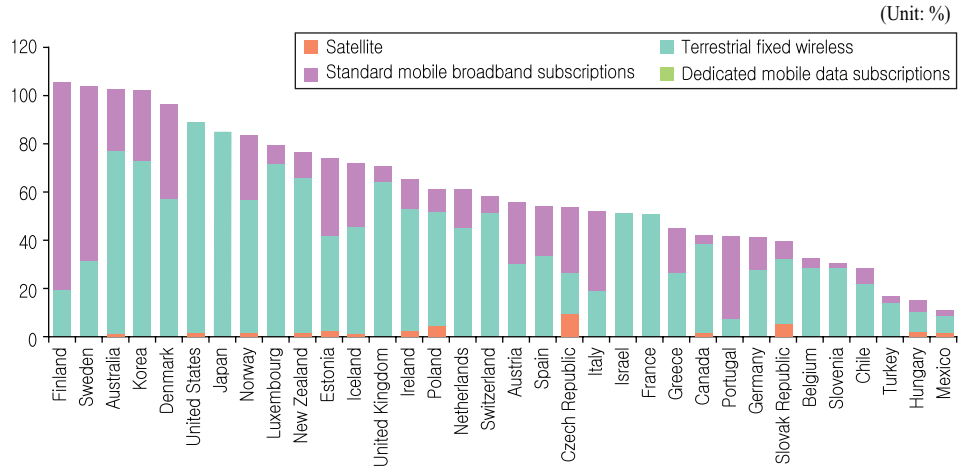
Figure 2.6 Mobile-cellular Telephone Subscriptions per 100 Inhabitants



Source: ITU database (2013)

The OECD average of wireless broadband subscriptions grew rapidly from 30.7% in 2009 to 56.6% in June 2012. As of June 2012, Korea ranked 4th globally with 104.3 wireless broadband subscriptions per 100 inhabitants.

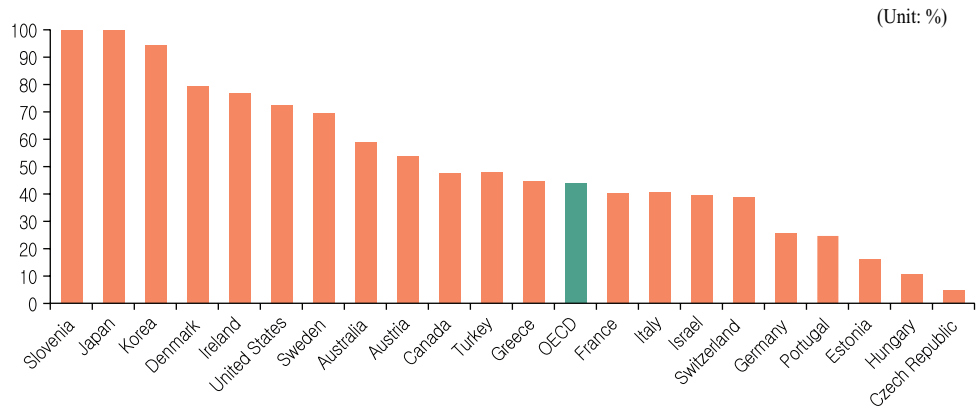
Figure 2.7 Wireless Broadband Subscriptions per 100 Inhabitants by Technology, December 2012



Source: OECD broadband statistics, oecd.org/sti/ict/broadband.

With the growing penetration of wireless broadband in recent years, 3G mobile communications services have also been on the upward path. In 2011, the OECD average of 3G subscribers as a percentage of total subscriptions stood at 44.1%. Korea ranked third at 94.9% behind Slovenia and Japan, both of whom recorded 100%.

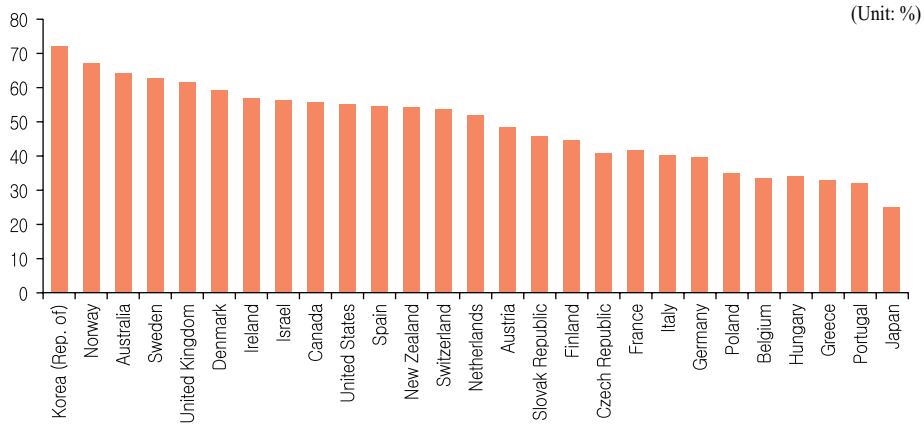
Figure 2.8 3G Subscribers as a Percentage of Total Subscriptions, 2011



Source: OECD (2013)

The prevalence of smartphones is a sign of the rapid growth in the number of wireless broadband users. Globally, smartphones are spreading fast, while Korea is particularly strong in smartphone penetration, boasting the world's highest rate of 73% as of the first quarter of 2013.

Figure 2.9 Smartphone Penetration, 2013 1Q

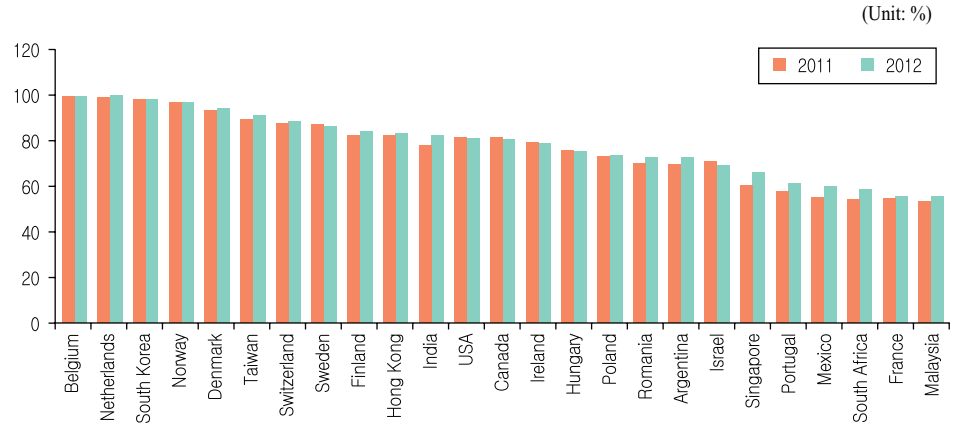


Source: Google(2013). "Our Mobile Planet",
http://www.thinkwithgoogle.com/mobileplanet/en/downloads/.

1.2. Broadcasting Infrastructure and Uptake

In household penetration of pay TV, Korea ranked third at 98% behind Belgium and the Netherlands in 2012. This means that the majority of Korean households uses broadcasting services that encompass terrestrial, cable and satellite channels.

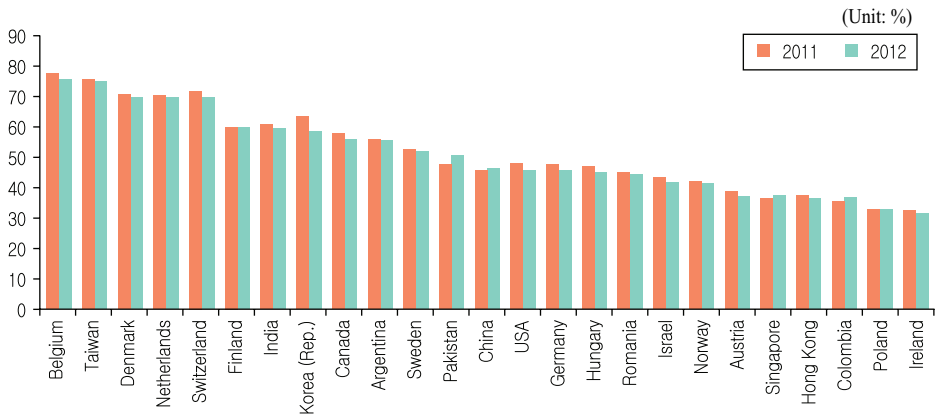
Figure 2.10 Household Penetration of Subscription TV



Source: PWC (2013)

In household penetration of cable TV, one of the most representative pay broadcasting services, only Belgium and Taiwan showed over 70% penetration in 2012. Korea retained its 8th place in this category. Its household penetration of cable TV declined from 63% in 2011 to 58% in 2012 as a result of the growth of IPTV and other media platforms.

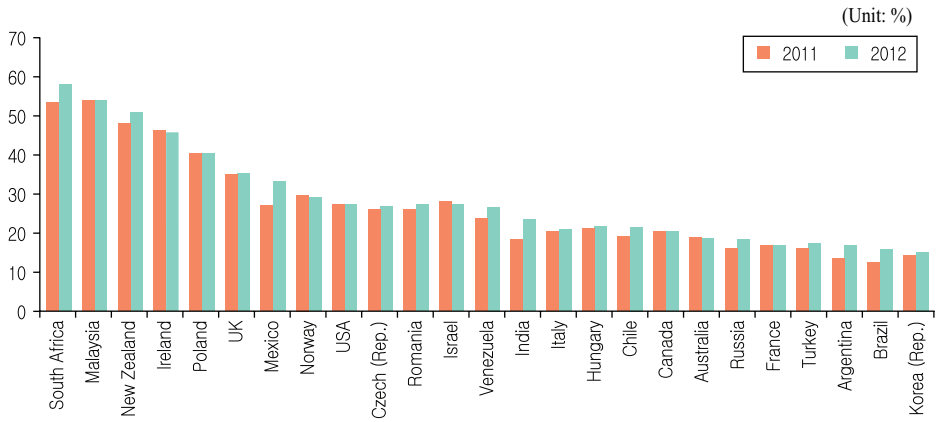
Figure 2.11 Household Penetration of Cable TV



Source: PWC (2013)

In satellite TV, South Africa, Malaysia and New Zealand registered over 50% penetration in 2012. The satellite penetration rate was relatively low in Korea at 15% compared with other media platforms.

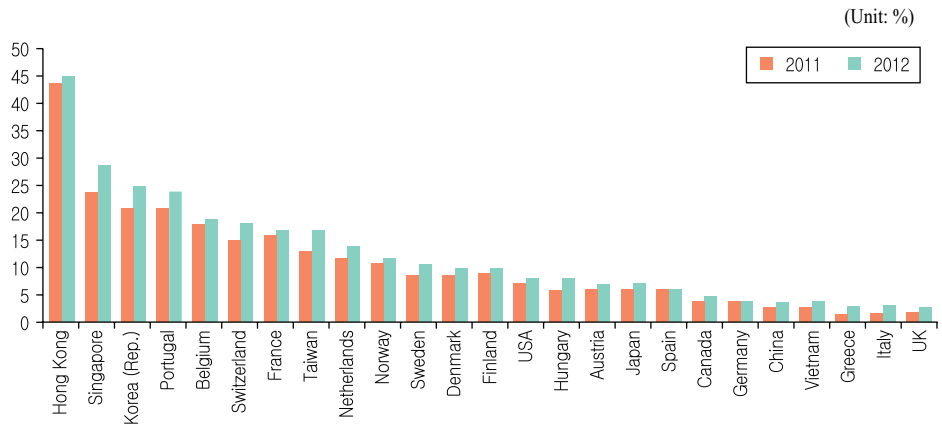
Figure 2.12 Household Penetration of Satellite TV



Source: PWC (2013)

With regard to the future environment for broadcasting services, household penetration of IPTV, which is a widely known convergence service between broadcasting and communications, reached over 10% only in 13 countries in 2012, but the penetration rate is steadily growing in this new industry. Korea ranked 3rd globally in this category with the penetration rate rapidly growing from 21% in 2011 to 25% in 2012.

Figure 2.13 Household Penetration of IPTV



Source: PWC (2013)

2. Analysis of Global Competitiveness in Major ICT Indexes

2.1. ICT Development Index - ITU

The ICT Development Index is an index published by the United Nations International Telecommunication Union (ITU) that ranks 155 countries in terms of the level of ICT access, ICT use and ICT skills. The ITU released the Digital Opportunity Index and ICT Opportunity Index until 2007 and integrated the two indexes into a single index, the ICT Development Index (IDI), in 2009.

The IDI is divided into three sub-indexes - ICT access, ICT use and ICT skills - comprising 11 indicators used to assess ICT competitiveness. These three sub-indexes are given 40%, 40% and 20% weight respectively, and indicators within each sub-index are given the same weight.

Table 2.1 ICT Development Index: Indicators and Weights (2013)

Category	Indicators	(%)	Weight
ICT Access	1. Fixed-telephone subscriptions per 100 inhabitants	20	40%
	2. Mobile-cellular telephone subscriptions per 100 inhabitants	20	
	3. International Internet bandwidth (bit/s) per Internet user	20	
	4. Percentage of households with a computer	20	
	5. Percentage of households with Internet access	20	
ICT Use	6. Percentage of individuals using the Internet	33	40%
	7. Fixed (wired) -broadband subscriptions per 100 inhabitants	33	
	8. Wireless-broadband subscriptions per 100 inhabitants	33	
ICT Skills	9. Adult literacy rate	33	20%
	10. Secondary gross enrolment ratio	33	
	11. Tertiary gross enrolment ratio	33	

Source: ITU (2013)

Korea remained a top performer in ICT use and ICT skills in the 2013 ICT Development Index. Korea ranked first among 157 countries in 2012 with a value of 8.6, a slight increase from a year earlier.

Table 2.2 Korea's Rankings in ICT Development Index

Country	Rank 2011	IDI 2011	Rank 2012	IDI 2012
Korea (Rep.)	1	8.5	1	8.6
Sweden	2	8.4	2	8.5
Iceland	4	8.1	3	8.4
Denmark	3	8.2	4	8.4
Finland	5	8.0	5	8.2
Norway	6	8.0	6	8.1
Netherlands	7	7.9	7	8.0
United Kingdom	11	7.6	8	8.0
Luxembourg	9	7.8	9	7.9
Hong Kong, China	10	7.7	10	7.9

Source: ITU (2013)

In access sub-index, Korea fell one place from a year earlier, ranking 11th due to a drop by four notches in "Mobile-cellular telephone subscriptions per 100 inhabitants" despite a rise in "Fixed-telephone subscriptions per 100 inhabitants" and "International Internet bandwidth per Internet user." In use sub-index, Korea moved down one place to 2nd due to a moderate decline in all sub-indexes of ICT use. In skills sub-index, Korea regained the No. 1 spot for the second year in a row thanks to its consistent performance in "Adult literacy rate" and "Tertiary gross enrolment ratio."

Table 2.3 Korea's Rankings in ICT Development Sub-Indexes

Country	ICT Access		ICT Use		ICT Skills	
	Rank 2012	IDI 2012	Rank 2012	IDI 2012	Rank 2012	IDI 2012
Korea (Rep.)	11	8.28	2	8.22	1	9.86
Sweden	7	8.37	1	8.25	15	9.00
Iceland	3	8.77	7	7.50	10	9.24
Denmark	12	8.18	3	8.15	13	9.08
Finland	20	7.66	5	8.05	2	9.80
Norway	17	7.72	4	8.05	12	9.10
Netherlands	9	8.28	9	7.32	22	8.80
UK	6	8.46	12	7.19	33	8.62
Luxembourg	2	8.93	10	7.29	71	7.23
Hong Kong, China	1	9.18	16	6.62	51	7.98

Source: ITU (2013)

2.2. Technological Infrastructure Competitiveness - IMD World Competitiveness

Every year the International Institute for Management Development (IMD) assesses the competitiveness of countries based on economic and non-economic criteria in its IMD World Competitiveness Yearbook (WCY). For the year 2013, the WCY provided the extensive coverage of 60 economies, all key players in the world market.

The IMD assesses each country's competitiveness using four factors: economic performance, government efficiency, business efficiency and infrastructure. Technological infrastructure is a sub-factor of infrastructure and is comprised of 23 indicators. The four factors are assigned 25% weight equally and sub-factors under infrastructure are also weighted equally at 5%.

Korea advanced three places in technological Infrastructure from 14th in 2012 to 11th in 2013. Specifically, Korea jumped 12 places year on year to 8th in investment in telecommunications as a percentage of GDP, 15 places to 20th in information technology skills and 25 places to 23rd in qualified engineers. On the other hand,

Korea fell mostly in non-measurable indicators: It lost 15 places to 38th in cyber security, 8 places to 12th in communications technology and another 8 places to 12th in connectivity

Table 2.4 Korea's Rankings in Technology Infrastructure Indicators

Indicators	Rank 2012	Rank 2013	Change
Investment in telecommunications (%)	20	8	12
Fixed telephone lines (per 1000 inhabitants)	4	5	-1
Fixed telephone tariffs (per 3 minutes)	18	15	3
Mobile telephone subscribers (per 1000 inhabitants)	40	42	-2
Mobile telephone costs (per minute)	30	33	-3
Communications technology	4	12	-8
Connectivity	4	12	-8
Computers in use	11	11	0
Computers per capita	19	19	0
Internet users (per 1000 inhabitants)	15	15	0
Fixed broadband tariffs	27	34	-7
Broadband subscribers (per 1000 inhabitants)	5	5	0
Internet bandwidth speed	42	47	-5
Information technology skills	35	20	15
Qualified engineers	48	23	25
Technological cooperation	37	37	0
Public and private sector ventures	20	17	3
Development and application of technology	37	32	5
Funding for technological development	33	37	-4
Technological regulation	37	38	-1
High-tech exports (US$)	7	6	1
High-tech exports (%)	6	7	-1
Cyber security	23	38	-15
Overall Ranking	14	11	3

Source: IMD (2013)

2.3. WEF Global Competitiveness Index - Technological Readiness

Every year the World Economic Forum (WEF) publishes the Global Competitiveness Report, which ranks each country's competitiveness. Since 2006, the WEF has used the Global Competitiveness Index instead of the Growth Competitiveness Index.

The 2013 Report features 148 countries, whose competitive landscape is assessed across 12 pillars of competitiveness organized into three sub-indexes covering 112 indicators. The three sub-indexes are basic requirements (institutions, infrastructure, macroeconomic stability, health and primary education), efficiency enhancers (higher education and training, goods market efficiency, labor market efficiency, financial market sophistication, technological readiness) and innovation and sophistication factors (business sophistication, innovation). The weights attributed to individual pillars of each sub-index are as follows: 25% for each basic requirements sub-index, 17% for each efficiency enhancers sub-index and 50% for each innovation and sophistication factors sub-index.

In the rankings of technological readiness under the efficiency enhancers sub-index, Korea fell four places year on year to 22nd despite Korea's improved performance in two indicators. It remained among the top players in the number of active fixed telephone lines per 100 population, advancing by two notches year on year to 2nd place. Korea also moved up by seven places year on year to 60th position in international Internet bandwidth per Internet user. However, Korea fell in most indicators. It experienced a biggest fall in firm-level technology absorption, losing 10 places to 21st year on year. In other indicators, Korea moved down from 26th to 27th in availability of latest technologies; from 83rd to 84th in FDI and technology transfer; from 11th to 15th in the percentage of individuals using the Internet; from 2nd to 4th in mobile broadband subscriptions per 100 population; and from 65th to 70th in the number of mobile telephone subscriptions per 100 population.

Table 2.5 Korea's Rankings in WEF Global Competitiveness index - Technological Readiness

Indicators	2012		2013	
Rank/Score	Rank	Score	Rank	Score
Technological Readiness	18	5.7	22	5.6
Availability of latest technologies	26	6.1	27	5.9
Firm-level technology absorption	11	6	21	5.7
FDI and technology transfer	83	4.5	84	4.5
Percentage of individuals using the Internet	11	83.8	15	84.1
Fixed broadband Internet subscriptions per 100 population	5	36.9	5	37.6
International Internet bandwidth (kb/s) per Internet user	67	17.2	60	26
Mobile broadband subscriptions per 100 population	2	105.1	4	106
Number of mobile telephone subscriptions per 100 population	65	108.5	70	110.4
Number of active fixed telephone lines per 100 population	4	60.9	2	61.9
Overall	18	5.70	22	5.57

Source: WEF (2013)

Part Ⅲ

Current State of Internet TV Media Market and Its Implications

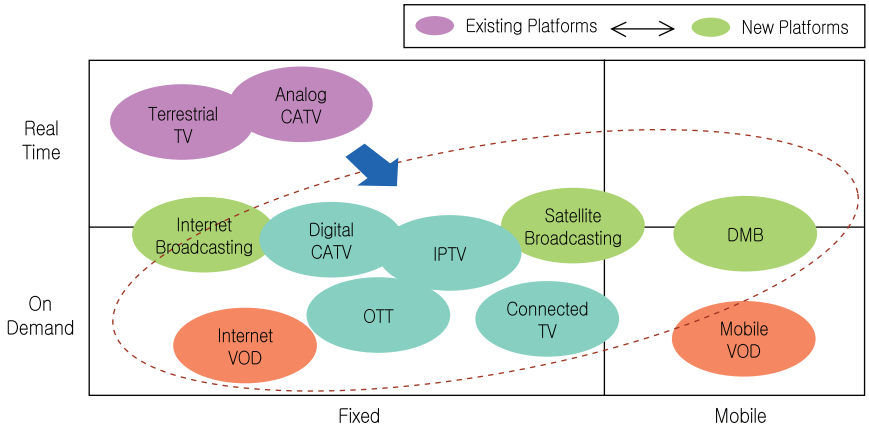
1. Changes in TV Media Environment

1.1. Emergence of Various Platforms and Evolving Competitive Landscape

Terrestrial broadcasters and cable TV providers, which remained as dominant platforms in the media market, have been steadily losing their influence in recent years due to the emergence of a variety of Internet-based platforms such as IPTV, smart TV and OTT services. While the conventional terrestrial and analogue cable TV offered real-time services only, the emerging platforms are increasingly replacing existing platforms by overcoming time and space constraints through interactive services including video on demand (VOD) and mobile services.

The emergence of these alternative platforms and corresponding devices is leading to heightened competition between existing and new platform providers, and as a result, dominance of new platforms has emerged as an important factor in the competitive TV media market.

Figure 3.1 Competitive TV Media Platform Landscape



Source: AggAll (2013)

1.2. Evolving Content Distribution Environment

The advent of diverse platforms has brought a big change to the media/content distribution market. In addition to broadcasting service providers such as terrestrial broadcasters and cable TV providers, telecommunications service providers, device manufacturers, Internet service providers and OTT service providers are all rushing to the content distribution business, thereby intensifying competition. Growing demand for content following digital conversion, the advent of multi-channel/multi-media, and the expansion of content distribution via online and mobile means present both opportunities and new challenges to traditional broadcasting service providers and pay TV service providers in the context of the diversification of revenue sources.

1.3. Evolving Patterns in Content Usage

The diversification of platforms and changes in the content distribution environment have also significantly changed the way consumers use media/content. The emergence of a variety of Internet-enabled devices and the expansion of a multi-device environment where users own multiple devices have allowed users to access media/content on a variety of devices from anywhere at anytime. As a result, the concept of programming rights has been eroded amid the growing amount of personalized and mobile content. This, in turn, is transforming the supplier-centered market into a consumer-centered one. On the media consumption front, interactivity is increasingly emphasized due to the growing consumer participation and sharing facilitated by convergence between broadcasting and social media services as well as active consumer involvement in content. With regard to media viewing patterns, social TV activities where content search and SNS activities take place concurrently are also on the rise.

2. Overview of Internet TV Media

2.1. Definition of Internet TV Media

Traditionally, media industries have been classified into broadcast media (radio, TV), print media (newspapers, magazines, publications), movies and music. With the growing digitalization of content, increased convergence in the broadcasting and communication industries, and the consolidation of wired and wireless, the traditional boundaries between the media industry and the communications industry are collapsing. As a result, it has become difficult to reflect the reality using the traditional classification. In recent years, the media and content industries have increasingly been classified based on the way content is provided or the platform is used. Under this kind of classification, existing TV broadcasting service providers as well as wired and wireless telecommunications service providers possessing their own platforms, device manufacturers and OTT service providers can be grouped into media/content businesses. In this light, Internet TV media can be understood as generally referring to broadcasting and video content services that provide various forms of content through a wide range of distribution methods and devices over the wired and wireless Internet.

2.2. Classification of Internet TV Media

The existing value chain of the broadcasting industry is divided into three phases, namely production, distribution and content consumption (way out). Unlike the broadcasting industry, the existing value chain of the communications industry has four phases: content, platform, network and terminal. The convergence between broadcasting and communication industries makes it difficult to explain the TV media industry, which is a converged industry of broadcasting and communications, by either using the existing value chain of the broadcasting industry or that of the communications industry. Taking into account of such convergence, three functional elements - production, distribution and consumption - can be used to classify main players of TV media into 1) content providers, 2) broadcasting service providers, 3) telecommunications service providers, 4) software (S/W) enablers, 5) device manufacturers and 6) OTT service providers.

Table 3.1 Main Players in Each Category of Internet TV Media

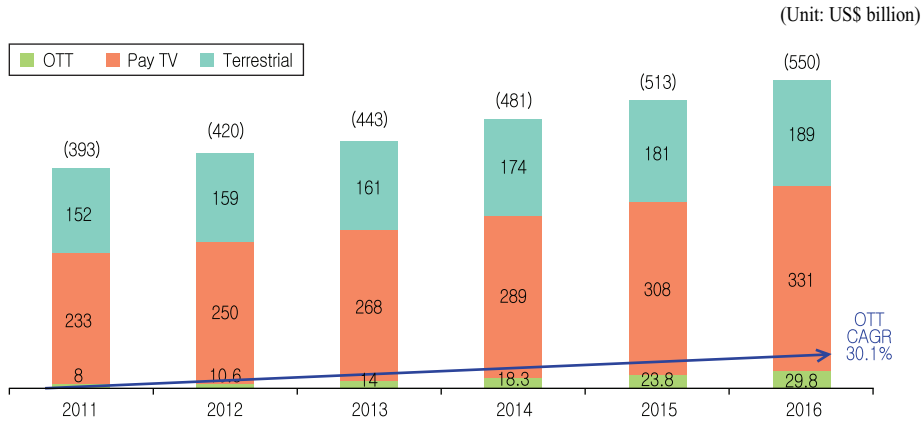
	Description
Content providers	· Producers of TV media content
	· Terrestrial broadcasters, media service providers, including Hollywood studios such as Disney and Time Warner, independent production companies and individuals (UGC)
	· Program providers (PP), provided that they produce their own content
Broadcasting service providers	· Providers of broadcasting services
	· Terrestrial service providers, pay TV (cable TV, satellite TV) providers
	· DMB service providers
Telecommunications service providers	· Providers of broadcasting services using communications networks
	· Providers of IPTV service, a representative broadcasting and communication convergence service
S/W enablers	· IT technology providers whose main business involves a number of software products, including operating systems (OS)
	· Software-oriented IT companies such as Google and Microsoft, hardware companies with a focus on OS such as Apple, IT service providers such as Amazon, and main portals such as Daum
Device manufacturers (Connected TV providers)	· TV set makers such as Samsung Electronics, LG Electronics and Sony
	· Providers of video content, Internet services or applications for TV viewing through TVs or widely used Internet networks
	· Manufacturers of all-in-one type set-top boxes with OS embedded in TV sets
OTT service providers	· Providers of TV programs or video content such as movies in VOD form or real-time channel services over widely used wired and wireless Internet networks
	· OTT services were initially provided by the service providers specializing in OTT services such as Netflix and Hulu. In recent years, all types of service providers, including terrestrial broadcasters, pay TV service providers, S/W enablers and device vendors wishing to enter the TV media business provide services in OTT form.
	· This study limits OTT service providers to early market entrants specializing in OTT services. OTT services of other companies will be covered in the N-Screen strategy section.

Source: AggAll (2013)

2.3. Internet TV Media Market Size

According to PWC, which provides global market forecasts, the global video media service market is projected to grow at 6.9% CAGR from US$ 393 billion in 2011 to US$ 555 billion in 2016. During the same period, OTT service growth will be the biggest at 30.1% CAGR with the market share rising from 2% in 2011 to 5.4% in 2016. The OTT market growth, in particular, is likely to be driven by the increasing share of advertisement, which will overtake subscription fees and content sales revenues. By region, North America makes up a lion's share at 40% of the global pay TV market and 75% of the global OTT market as of 2012.

Figure 3.2 Growth in the Global Video Media Service Market



Source: Global Entertainment and Media Outlook 2012~2015, PWC

3. Domestic and Global Internet TV Media Companies

3.1. Global Situation

3.1.1. Telecommunications Service Providers

Global telecommunications service providers concentrate on IPTV services of their own brands bundled with mobile services on their networks. These companies are intent on building multi-platforms using their own set-top boxes as well as in collaboration with vendors of game consoles including Xbox 360 and connected TVs. They are also active in offering bundled services and differentiated UIs, as well as securing content in order to attract subscribers.

Table 3.2 Major Global Telecommunications Service Providers

Company	Country	Service Name	Major Milestones
Verizon	US	FiOS TV	· Launched FTTP-based IPTV service, FiOS TV, in September 2005 · Offers mobile TV service through FiOS Mobile app · Focuses on interactive service using connections to SNS and TV widget features
AT&T	US	U-verse TV	· Launched FTTN-based IPTV service, U-verse TV, in June 2006 · Launched U-verse Mobile service in August 2009 · Pursues a 3-screen strategy, taking advantage of its strength in mobile business
Orange	France	Orange TV	· Began IPTV service, Orange TV (formerly MaLigne TV), in March 2003 · Uses its own set-top box, LiveBox, to offer simple UI. · Focuses on 3D TV and content, including self-produced 3D programs
NTT Plala	Japan	Hikari TV	· Launched 'Hikari TV' in June 2005 by consolidating three services, '4th MEDIA', 'OCN Theater' and 'On demand TV', previously offered by the subsidiaries of NTT Communications · The first IPTV company to provide 3D professional baseball games in July 2010

Source: AggAll (2013)

■ **Verizon**

Verizon has been offering its own FTTP-based IPTV service known as FiOS TV since September 2005. FiOS TV supports over 590 digital channels and over 160 HD channels. The service also enables users to connect to Facebook and Twitter through TV widgets, while offering a remote DVR feature via the Web and smartphones. In addition to supporting tablets and mobile devices through its FiOS Mobile app, Verizon is working to strengthen its multi-platform strategy by giving access to its VOD service Flex View to multiple platforms. Once VOD content is purchased, it can be viewed from a variety of devices such as PCs, laptops, tablets and smartphones signed in by users through the Flex View. Verizon is also participating in "TV Everywhere", a cross-platform VOD project initiated by cable TV providers Comcast and Time Warner, and signed partnership agreements with LG Electronics and Samsung Electronics for cooperation in smart TV content (2012). The company has also teamed up with Microsoft to utilize the game console Xbox 360 as its set-top box, as part of the strategy to expand its multi-platform.

■ **AT&T**

AT&T has been offering its own FTTP-based IPTV service called U-verse TV since June 2006. U-verse TV provides over 440 digital channels and over 150 HD channels. From the beginning of the service, AT&T emphasized the importance of content quality and UI, and has been focusing on offering differentiated content viewing experience and improved quality. Its features including "Total Home DVR" that is capable of recording up to four channels simultaneously, "Multiview Channel Browsing" that lets users view four channels all at one time on one screen, and "U-bar" with the capability to display stock listings, weather and traffic information are receiving a favorable response from its subscribers. Although AT&T's fixed line IPTV coverage is relatively weak, its mobile communications network provides nationwide coverage. Using this advantage, the company launched U-verse Mobile in August 2009 and has since been increasing connections between the service and other mobile telecom services. AT&T is building a strategy around multiple devices in collaboration with Microsoft, which is pursuing a 3-screen strategy, providing U-verse TV on Xbox 360 since October 2010 and offering U-verse Live TV app for Windows Phone 8 devices by default.

■ **Orange**

Orange (France Telecom) launched its IPTV service "MaLigne TV" in March 2003 and changed the service name to Orange TV (TV d'Orange) in 2005 as part of corporate brand reshaping efforts. As Orange has a robust mobile communications unit, it is active in delivering multi-screen TV services. Following its launch of 3D service in

2011, Orange began to offer 3D VOD service over the Web in November 2011 and then 3D N-Screen service in February 2012. The company has also been active in securing 3D content since 2011, which includes in-house produced 3D programs. On the back of its LiveBox, Orange has the largest number of IPTV and VoIP subscribers in Europe. As of July 2013, LiveBox provides innovative, yet simple UI, by offering bundled services involving home DSL modems, Wi-Fi routers, IPTV set-top boxes and VoIP gateways from a single device.

■ **NTT Plala**

NTT Plala of Japan has been offering Hikari TV, an IPTV service, to subscribers of optical broadband networks of NTT East and NTT West since March 2008. The service enables users to enjoy a rich amount of high quality video content as well as simple recording and remote recording just by connecting optical cables to TV sets without the need to install an antenna. The service is not only available for home users, but it also offers tariffs for mobile devices such as iOS or Android smartphones and tablet PCs. In July 2010, Hikari TV launched a new service that allows home users watch professional baseball games using 3D TV glasses and also began to offer some of its VOD services in 3D in late July.

3.1.2. Broadcasting Service Providers

Terrestrial broadcasters are putting forward their own OTT services and hybrid broadcasting platforms in order to overcome their weakened market position due to the growing number of platforms. European companies, particularly BBC, are coping with the aggressive moves of paid broadcasting companies by enhancing its own OTT services or by teaming up with other terrestrial broadcasters. Paid broadcasting companies, including BskyB, are also pushing for multi-platform strategies in order to improve their competitiveness in a market that is increasingly becoming mobile.

Table 3.3 Major Global Broadcasting Service Providers

Company	Country	Service Name	Major Milestones
BBC	UK	iPlayer	· An OTT service launched in December 2007 · Shifted to pay service following the launch of an app for iPad in July 2011
	UK	YouView	· A hybrid broadcasting platform combining terrestrial service and IP service (OTT + IPTV) · Strategy taken by the alliance of terrestrial broadcasters to respond to market dominance by pay TV
ZDF	Germany	HbbTV	· Europe's first Pan-European IPTV platform launched in October 2010 · A hybrid broadcasting platform that enables reception of programs of other platforms such as DTT, DTH and OTT, in addition to IPTV
Comcast	US	Xfinity TV	· Launched online streaming service Fancast Xfinity TV in December 2009 · In addition to support for VOD via a mobile app, up to 35 channels have been supported in real-time by 'Xfinity TV Go' app since October 2013.

Source: AggAll (2013)

■ BBC

BBC of the UK launched an OTT service "iPlayer" in December 2007 to increase distribution channels for its programs. All channels run by BBC are delivered to a multitude of devices with TV programs aired by BBC streamed or downloaded, while radio programs delivered live. Originally provided free of charge, the service switched to a pay service with the launch of an iPad app in July 2011 for 6.99 euros per month and 49.99 euros per year. The BBC iPlayer app was released for iOS mobile devices in February 2011 and the iPlayer app for Android devices was debuted in September 2013. As of October 2013, the number of downloads of the app exceeded 20 million.

■ YouView

YouView is a joint venture set up by four terrestrial broadcasters - BBC, ITV, Channel 4 and Channel 5 - broadband providers, including BT and TalkTalk, and one broadcast transmission facility provider Arqiva. A hybrid broadcasting platform project combining terrestrial and IP, YouView service began in late July 2012 with most content provided free of charge. The service provides digital programs from 100 terrestrial channels and over 2.2 million VODs from BBC, ITV, Channel 4 and Channel 5, and catch-up TV service that lets users access to programs that have already been aired on TV for a week after they are made available online. YouView mostly targets 13 to 15 million households in the UK that have not signed up for pay TV services. Subscribers surpassed 400,000 households in June 2013. In July 2013, YouView announced a plan to extend its

service to smartphones, tablets and connected TVs in addition to its dedicated set-top box. At present, it supports Android OS apps only. Going forward, YouView also plans to reinforce its IPTV and OTT business in collaboration with its partners.

■ **ZDF**

Germany's state-run TV station ZDF began HbbTV, a Pan-European integrated IPTV platform, in October 2010. Started as a consortium of regional broadcasters in Europe, solution providers and manufacturers in August 2009, HbbTV was recognized as a hybrid broadcasting technology standard by the European Broadcasting Union (EBU) in September 2009. A hybrid broadcasting platform refers to an IPTV platform that combines existing IPTV features with the broadcasting reception features of other platforms such as terrestrial digital (DTT), satellite (DTH) and the Web TV (OTT). To use HbbTV service, a connected TV or subscription to broadband services is needed. Most aired programs are delivered through VOD or streaming. The content, except for those only for German-speaking regions, can also be accessed from Korea.

■ **Comcast**

The US cable TV provider Comcast launched the cable TV's first online streaming service called Fancast Xfinity TV in December 2009. In early 2011, Comcast reshaped its cable TV service and retail service brands into Xfinity, thus initiating an unified service brand encompassing TV, Internet and VoIP. Comcast launched an app for the iPhone and iPad in November 2010 and focused on implementing its "TV Everywhere" strategy during the second half of 2011 to enable users to view VODs as well as live TV programs on their iPad and Android tablets. As the company gained the Federal Communications Commission (FCC)'s approval for its merger with NBC Universal in January 2011, it is likely to emerge as a strong media company possessing both a video content production unit and distribution unit. The company began to deliver 35 channels to mobile devices in real-time via its Xfinity TV Go app in October 2013.

3.1.3. Device Manufacturers

Manufacturers of TV sets with access to Internet TV are also struggling to build their own ecosystem by providing video content and Internet services over widely used Internet networks along with apps for TV. Falling behind Samsung Electronics and LG Electronics in the global PDP and LCD TV competition after a long-standing domination over the global TV set market, Sony is aiming to regain momentum in the connected TV market.

■ **Sony**

Drawing on its accumulated TV manufacturing technology, Sony has recently launched a connected TV embedded with Google's Android OS and Intel Atom processor CE4100 chip. Sony was the first in the industry to launch Sony Internet TV that applied the first generation Google TV in 2010, but soon discontinued the production. It brought the second generation Google TV set-top box at US$ 199 to the market in summer of 2012 and launched a Blue-ray disc player NSZ-GP9 model containing Google TV features in autumn of the same year.

On the platform front, Sony integrated its Sony Playstation Network (PSN) into Sony Entertainment Network (SEN) in February 2012. The PSN is a platform that allows users enjoy network games on game console PS series, portable game console PSP and the like. SEN is a platform used to provide Sony's entertainment content including music and movies. By consolidating the two platforms, Sony is bringing together its TV brand, BRAVIA, Sony smartphones, game consoles and game networks into one package. If the compatibility between BRAVIA TV and Sony mobile devices such as Sony smartphones and game consoles is enhanced as intended by Sony, the company will be able to regain its competitive edge in the home entertainment-based service market. Sony's consolidation strategy can be understood as the company's effort to adapt to the rapidly changing market landscape by transforming itself from a hardware company to a software and service-oriented company.

Figure 3.3 Sony Entertainment Network (SEN)

Source: Sony (2013)

3.1.4. Software (S/W) Enablers

Prominent software enablers are Apple, Google and Microsoft. Apple and Google are employing a strategy to use iTunes and Google Play as their respective integrated content platforms. On the other hand, Microsoft is targeting the home entertainment hub market rather than the simple game console market with the launch of Xbox One in November 2013, a new version of the Xbox 360 game console.

Table 3.4 Major Global S/W Enablers

Company	Type	Major Milestones
Apple	S/W Enabler	· Launched Apple TV. Pursues a strategy to provide access to all content from all types of its devices through the iTunes platform · AirPlay and iCloud are key components of Apple's N-Screen service deployment
Google	S/W Enabler	· Launched the second generation Google TV in 2012 after the failure of the first generation Google TV · Set-top boxes come in two types: detachable type and all-in-one type (embedded with Google TV) · Implemented an integrated content delivery platform Google Play in March 2012
Microsoft	S/W Enabler	· Home entertainment strategy that ties Xbox 360 game console to Xbox Live · Launched Xbox One in set-top box form in November 2013, eight years after it launched Xbox 360

Source: AggAll (2013)

■ Apple

Apple's N-Screen strategy is aimed at giving free access to content purchased on Apple devices such as the iPod, iPhone, iPad and Apple TV through iTunes launched in 2001. Having built its media platform, iTunes, Apple has become more competitive in securing content. As the company also has its own devices, both the cloud approach and inter-device synchronization approach can be applied to its services. Capitalizing on iCloud, Apple aims to expand its market influence to the home entertainment market by creating a strong content and software ecosystem connected to all types of Apple devices.

The debut of Apple TV, in particular, has contributed to completing Apple's N-Screen strategy for delivering video content to all Apple devices. Apple already launched Apple TV in set-top box form in 2007 and 2009, but failed to gain attention due to the expensive price tag (US$299), inconvenience in usage, and the lack of content. In response, Apple partnered up with the US terrestrial broadcasters ABC and Fox as well as other content providers including YouTube, Netflix, KMB tv and NBA.com in September 2010 and soon launched Apple TV again. Up to the third generation, Apple TV has been released in the form of a set-top box. The next model is expected to come in the form of TV tentatively called "iTV". Through iTV, Apple plans to change the idea of TV from "a device with which to watch TV shows" to "a computer in the living room."

Figure 3.4 Apple TV

Source: Apple

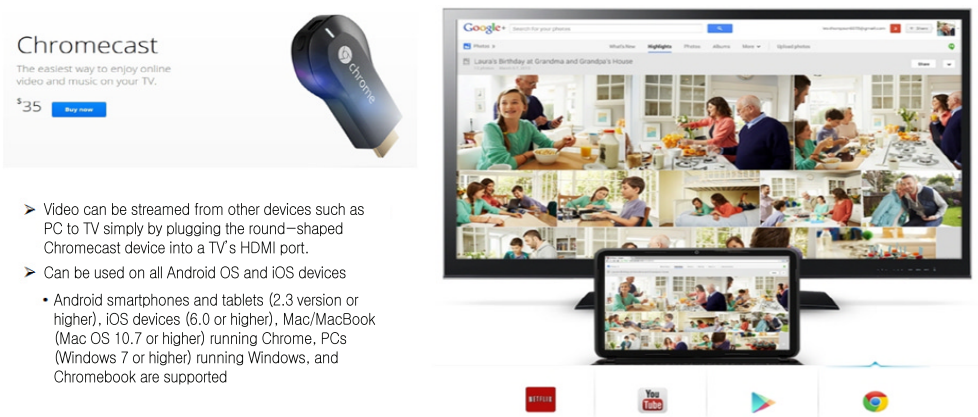
■ **Google**

After Google experienced mediocre sales from its first-generation Google TV launched in 2001, it is now focusing on making enhancements to Google TV including simplification of interfaces, improvement of content search feature and the start of YouTube service dedicated to Google TV. It is also expanding partnership with global TV set makers such as Samsung Electronics, LG Electronics and Sony.

Google is utilizing its integrated content delivery platform Google Play launched in March 2012 in building an integrated hub for digital content. Google integrated the existing Android Market, Google Music, Google Books and Google Movies into Google Play, and is currently working to launch Google 2.0 service in alliance with premium content providers in the broadcasting and movie industry. Such a strategy is intended to diversify sources of revenue and consequently improve its revenue structure. In the past, much of Google's revenue came from advertising, but the company is now striving to create additional revenues by selling TV programs and movie content. The strategy also aims to keep Apple and Amazon in check in the video service market.

In July 2013, Google unveiled Chromecast that provides real-time access to cloud content over the Internet. Like a USB memory stick, Chromecast can be plugged directly into the HDMI port of TV sets through which video content that could be accessed from PCs, laptops, tablets and smartphones is accessible from the TV through Wi-Fi connection. The most distinct characteristic of Chromecast is that content is stored in cloud. With OTT service providers such as Netflix rushing to support 'cast' features of Chromecast, mutual growth of OTT and Chromecast is expected.

Figure 3.5 Google's Chromecast



Source: Reconstructed from Google and AggAll (2013)

■ Microsoft

Microsoft has been building a device-based content ecosystem mostly by using its Xbox 360, which serves as both a game console and an OTT platform, and tying Xbox Live services to the platform. Xbox 360 is at the center of Microsoft's home entertainment strategy, which is aimed at providing access to games, music, movies and TV content. Xbox 360, with its high penetration rate, contributes to attracting Xbox Live users, thus gaining momentum as a streaming media set-top box. In addition to IPTV services such as FiOS TV and Xfinity TV, Microsoft is also signing a number of partnership agreements with content providers including Netflix, Hulu Plus and HBO GO. With the launch of Windows 8, Microsoft plans to expand alliance in mobile OS and search engines in addition to smartphones and PCs.

In eight years since Xbox 360 made its appearance, Microsoft unveiled a new product called Xbox One in November 2013, announcing to join the home entertainment market. Meaning "All-in-One Set-top-box", Xbox One employs a set-top box design instead of a game console. Microsoft's plan is to provide all possible TV features through Xbox One. Xbox One can be also connected to other devices such as smartphones and tablet PCs over the Internet. Capitalizing on Xbox Live used by 48 million gamers and Skype used by over 600 million people around the world, Microsoft plans to position Xbox One as a TV-linked entertainment device but not as a game console.

Figure 3.6 Xbox One of Microsoft

Xbox One (middle), voice/motion recognition device kinect (top), controller (bottom)

Source: Microsoft (2013)

3.1.5. Internet/OTT (Over-the-Top) Service Providers

■ **Amazon**

Starting with online sales of print media, online distributor Amazon has expanded its business scope to e-books, music, content as well as content delivery devices. Amazon provides Amazon Instant Video, a service charged per content, and Prime Instant Video, a premium content service for Amazon's prime members only. Backed by the success of Kindle, Amazon Prime has seen a rapid increase in the number of users, who want to enjoy this OTT service. Amazon utilizes Kindle as a strategic model to increase revenues from its media and content business rather than from product sales. In other words, Kindle is more or less a means with which to build a system for the distribution of a vast amount of media/content within the platform built by Amazon. In November 2013, Amazon announced a partnership with local bookstores to begin selling Kindle e-book content and device, which is part of the company's strategy to solidify its dominance with increased sales online as well as offline.

Amazon is trying to keep Google in check with its "Amazon Appstore for Android", while building a content ecosystem centered around Amazon at the same time. To complement its relatively insufficient video content, the company has partnered with several video content providers including CBS, NBC Universal, Sony and Warner

Brothers in order to secure premium content. In 2011, Amazon acquired a European video streaming company LoveFilm to make forays into the European content market.

■ **YouTube**

YouTube, which is the world's largest video-sharing website owned by Google, is struggling to turn itself from a provider of UGC-based video content to a premium channel provider by increasing the share of original content. YouTube allows any Internet user to upload or stream video on YouTube and its revenues come from advertisements streamed before playing a video. Content on YouTube is mostly comprised of entertainment, UGC and music videos, most of which are short videos.

Google wants to break these content limitations of YouTube and is thus adding long video content in partnerships with original content providers. Google's effort to secure original content free from copyright issues is also expected to boost ad sales of YouTube.

■ **Netflix**

A well-known OTT service provider, Netflix, began its service in 2007. It offers access to unlimited movies and TV shows from a variety of devices for US$ 7.99 per month. A number of videos are delivered via a dedicated set-top box, game consoles, Blue-ray players and Apple TV set-top box, or Netflix-connected TVs. In addition to TV, mobile devices such as PCs, smartphones and tablet PCs are also supported. Of set-top boxes used to access Netflix, game consoles account for as much as 50%. Samsung Electronics, LG Electronics and Vizio provide connected TV models for Netflix.

Netflix is working to expand its presence beyond the United States into the European and South American markets. With a focus on developed countries rather than emerging markets, the company entered the European market in the fourth quarter of 2012. Netflix receives content from terrestrial broadcasters and film producers for resale, and has recently begun to directly produce content and exclusively distribute it in order to improve its competitiveness.

■ Hulu

As an OTT service jointly established by NBC Universal, ABC Disney, News Corp. (Fox) and others in March 2007, Hulu started its service in October 2007. Two types of services - Hulu, a free ad-based service accessible from PCs only, and Hulu Plus, a subscription service similar to Netflix - are offered with the latter accessed from PCs, TVs, tablet PCs and smartphones for US$ 7.99 per month. On Apple TV, users can make subscriptions, access service and make payments on iTunes.

Hulu's content comes from over 350 major entertainment companies including Fox, NBC Universal, the Walt Disney Company, MGM, ABC, News Corporation and Viacom as well as manufacturers and distributors. In 2011, it began producing "Hulu Original Series" to be delivered from its own platform as well as securing exclusive rights to other shows through "Hulu Exclusive". As Hulu is an ad-based free service, a new advertisement model called "Ad Swap", which enables users to swap out of an ad they are watching for the one they prefer, was introduced.

Table 3.5 Comparison of Service Models of Major OTT Services

Category	YouTube	Netflix	Hulu
Service Base	Ad + subscriber base	Subscriber base	Ad + Subscriber base
Service Charge	**US$** 0.99 per month	**US$** 7.99 per month	**US$** 7.99 per month
Content Provided	UGC, short videos, music videos, entertainment	Movies, TV programs	Movies, TV programs
Content Enhancement Strategy	Launch of original content and pay service	Production of content, exclusive deals for other content	Production of content, exclusive deals for other content
SNS Used	Google+, Facebook, etc.	Facebook	MSN, AOL
Compatible Devices	STBs, connected TVs, PCs, game consoles, tablets, smartphones, etc.		

Source: KISA (2013)

3.2. Domestic Situation

3.2.1. Telecommunications Service Providers

In Korea, KT's Olleh TV, SKBB's B tv and LG U+'s U+TV offer IPTV services. Domestic telecommunications service providers retransmit terrestrial content or source content from PPs and also provide a wide array of VOD services. Like terrestrial broadcasters and cable TV providers, IPTV service providers are launching OTT services as part of their N-Screen strategies.

Table 3.6 Major Domestic Telecommunications Service Providers

Company	Service Name	Major Milestones
KT	Olleh TV	· A leading teleco providing Olleh TV skylife, Olleh TV live and Olleh TV mobile · Introduced open HTML5, with a focus on securing content · Established a solid position in the integrated content market and prepares to become a global media distribution group
SKBB	B tv	· Focuses on facilitating smart and interactive B tv service · Launched an Android 4.2 set-top box and IPTV 'B tv Smart' in 2013 · Plans to focus on content differentiation and rolling-out cloud IPTV service
LG U+	U+TV	· Launched U+TV G connected to Google TV in October 2012, in addition to its own IPTV U+TV · Introduced a premium rate plan for U+TV G in 2013 · Focuses on securing competitiveness in the content and app markets in collaboration with Google

Source: AggAll (2013)

■ KT

KT's IPTV service Olleh TV broadly consists of Olleh TV skylife and Olleh TV live, which are capable of supporting up to 198 channels and 140,000 VODs. KT also offers Olleh TV mobile, which gives free access to VODs and live channels from smartphones and tablets in addition to Olleh tv smart for Olleh TV subscribers, which enables users to utilize their home TV as a connected TV device through the HTML-based Web smart set-top box.

Korea's largest IPTV service provider KT plans to secure rich content utilizing its open HTML5. It is also employing an "Open IPRV" strategy aimed at opening platform resources it owns to everyone. Building an Open Market Place is another goal of KT to enable users to freely upload or download as well as share or trade content. Also, based on the "u cloud" service targeted at individuals, KT plans to offer connections between mobile devices, the Internet and TV in order to strengthen its hold in the integrated content market.

■ **SKBB**

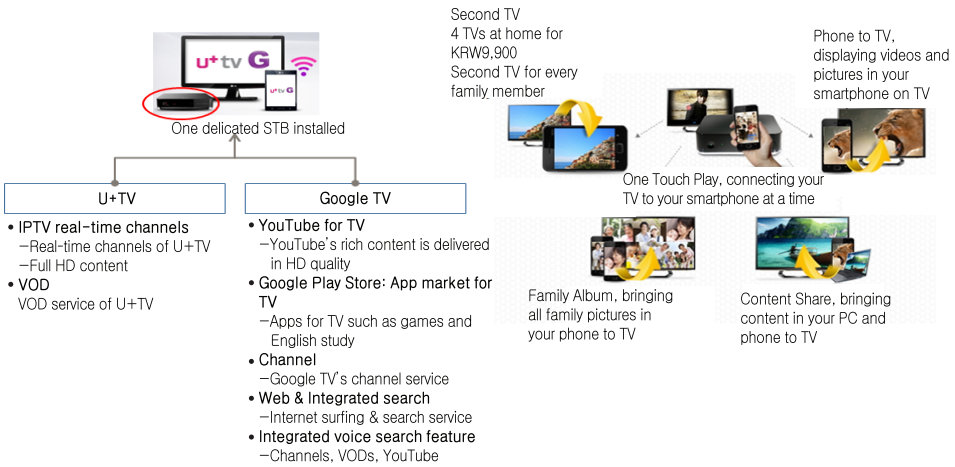
With the launch of B tv Mobile in July 2012, SKBB has been concentrating on making smart and interactive IPTV service out of its B tv. In 2013, SKBB launched an Android 4.2 IPTV set-top box and service called "B tv Smart". B tv Smart is the company's flagship IPTV product with the capability of supporting 147 channels, 85,000 VODs, voice search, TV apps (YouTube/Chrome) and Web search.

SKBB owns exclusive rights to distribute such famous animation content as Pororo, RoboCar Poli and Larva, while focusing on content differentiation by providing the fastest updates of terrestrial programs. It also plans to offer additional cloud-based IPTV services so that high-specification games that are currently accessed from game consoles or PCs can also be accessible from existing set-top boxes. As cloud-based IPTV services use SK Planet's set-top box virtualization technology and high performance servers, they provide faster and more convenient UI implementation than set-top boxes as well as allow access to various application content from TVs, which used to be only possible from tablets or PCs in the past.

■ **LG U+**

On top of its IPTV service U+TV, LG U+ has been providing U+TV G tying IPTV and Google TV since October 2012. U+TV G gives access to 126 premium channels as well as Google services for 9,900 won per month. The company added more premium channels in November 2013 and began to offer two rate plans: U+TV G 14 for 14,000 won and U+TV G 25 for 24,900 won. It was the first time that Google launched Google TV in partnership with a telecom company, and through this partnership, LG U+, Korea's No. 3 telecom company, was able to improve its competitiveness in the content and app markets, while Google had an opportunity to procure premium content from a local IPTV provider.

Figure 3.7 U+TV G Service and Major Features



Source: Reconstructed from LG U+ and AggAll (2013)

3.2.2. Broadcasting Service Providers

Domestic broadcasting companies are embracing N-Screen strategies with their own OTT services. While global companies pay attention to large-scale global platforms, domestic companies focus on making connections to multi-screens and mobile devices. Examples of these services are POOQ led by SBS and MBC, and K-player of KBS. These services, however, carry two terrestrial platforms, thus making it difficult to achieve large-scale service deployment. Of these services, Tving run by a cable TV company is faring well.

Table 3.7 Major Domestic Broadcasting Service Providers

Company	Service Name	Major Milestones
MBC, SBS et al.	POOQ	· An N-Screen service from an alliance of four terrestrial broadcasters: MBC, SBS, KBS and EBS
		· Became a pay service in September 2012. Supports live viewing as well as replay
KBS	K-player	· A content player exclusively provided by KBS
		· Supports live program viewing and replay of KBS 1, KBS 2, certain premium channels and radio channels (KBS1, KBS2, KBS Drama, KBS Prime, KBS Joy, KBS World, etc.)
CJ Hellovision	Tving	· Started as an online video service through the GOM-TV platform.
		· Created a website for Tving service in March 2011
		· Robust subscription base on the back of content quantity, quality and exclusive content

Source: AggAll (2013)

■ **POOQ**

In response to the advent of new broadcasting services, domestic terrestrial broadcasters have been developing N-Screen strategies with their own OTT services. Four domestic terrestrial broadcasters - MBC, SBS, KBS and EBS - unveiled a joint OTT service platform called POOQ in September 2011 through Content Alliance Platform Inc. POOQ delivers content from the four broadcasters as well as content from terrestrial cable TV companies and satellite TV program providers to PCs, tablets and smartphones instead of TVs. The service became a pay service in September 2012. With the expansion of service scope, POOQ began to provide real-time terrestrial program service to mobile IPTV in early October 2013. Terrestrial broadcasters were in competition with mobile IPTV services of telecommunications service providers in the mobile TV market, but with KT beginning to offer real-time terrestrial programs on Olleh Mobile TV, SKBB and LG U+ decided to follow suit and plan to support real-time terrestrial programs in collaboration with POOQ beginning in 2014.

■ **Tving**

Korea's largest SO company CJ Hellovision launched Tving, an OTT service platform, as part of its N-Screen strategy. Taking the lead in multi-screen service business in Korea with paid subscribers, Tving is making an attempt to connect a wide range of content to various devices. CJ Hellovision, which initially provided PC-based online video service via the GOM TV platform, built a website for Tving in March 2011 where it offers pay content created by terrestrial broadcasters and its cable subsidiary CJ E&M as well as some 130 channels and 20,000 movie and drama VODs.

Content can be accessed from a variety of devices including PCs, tablets and smartphones, and services connected to SNS and shopping channels are also available. Tving's attempt has significance in that it provides a pay business model for "TV Everywhere" service, thus overcoming the limitations inherent in free Internet services.

3.2.3. Device Manufacturers

Samsung Electronics and LG Electronics, which are No. 1 and No. 2 TV makers in the world respectively, currently carry out their global TV media business in the global market. Drawing on their failed experience in building an ecosystem for smartphones, domestic device manufacturers aim to gain the upper hand both in OS and ecosystem for the TV media market.

Table 3.8 Major Domestic Device Manufacturers

Company	Major Milestones
Samsung Electronics	· Intent on reinforcing TV app platforms based on its competitiveness in almost all devices
	· Aims to lead the 'Smart Home' market where device networking (M2M), such as connection between smart TV and other home electronic devices, is supported
LG Electronics	· Increases its influence in the connected TV market through the launch of U+TV G and Google TV in collaboration with Google
	· Focuses on 3D smart TV
	· Acquired Enyo, an open source project of HP, in February 2013 in order to enhance smart TV capabilities. Focuses on UX

Source: AggAll (2013)

■ Samsung Electronics

Building on its growth in the mobile device and TV markets, Samsung Electronics aims to lead the next-generation TV market with its smart TV models. Since it took the initiative in TV sets with the introduction of the first smart TV, the company has been working to strengthen its competitiveness as a platform provider through its smart TV platform, Samsung Smart Hub. To improve its content competitiveness, Samsung is also expanding collaboration in OTT services and distribution platforms in the global market, which includes a partnership with Amazon in smart TV content.

In January 2013, Samsung Electronics unveiled a new smart TV hub. The Smart Hub is a platform for Samsung's smart TVs and is designed to offer more intuitive manipulation of TV. It consists of five screens to allow users to enjoy real-time TV viewing, VODs, apps and the Internet on one screen in five different categories from the existing form of app. These five categories are "On TV" for real-time viewing, VOD content-based "Movie & TV Show", "Apps" providing access to a variety of apps, "Social" for sharing SNS content, and "Photo, Video & Music" for individuals' use of

content. A motion recognition feature supports the "Flipping function", which allows users to browse through the five screens with motion control.

Samsung Electronics aims to lead the smart home market with its smart TV models that enable connections to various types of Samsung-produced home appliances through device networking (M2M). Looking forward, it aims to launch All-IP services encompassing smart healthcare and N-Screen service with the capability of inter-device auto synchronization.

■ **LG Electronics**

LG Electronics is enhancing partnership with Google in order to have a bigger influence on the global smart TV market. It launched Google TV in Korea, Germany and France in October 2012 from which it offers content from Google and other services that employe LG technologies. The U+TV G, whose set-top box is produced by LG Electronics, contains not only Google-specific features such as Play Store, YouTube and keyword search but also in-house developed "One Touch Play", "Second TV" and "Phone to TV" features.

LG Electronics is also concentrating on UI and UX development for better 3D viewing experience and user convenience on 3D smart TV. In February 2013, the company acquired a Web OS and a Web-based app development framework Enyo from HP in order to reinforce its smart TV capabilities. Enyo is HP's open source project and LG Electronics plans to release a TV running the Web OS, which supports simple and optimized UX, in 2014.

3.2.4. Internet/OTT (Over-the-Top) Service Providers

■ **Daum**

Daum provides OTT service to PCs and smartphones through its "Daum tvPot", and is also entering the OTT and connected TV business via TV sets with its own set-top box. A beta version of Daum Pot Player was distributed in May 2008 and an official version hit the market in July 2010. Daum Pot Player provides media player features for replaying video and music as well as VOD service and personal broadcasting features in live version.

■ **Others**

In Korea, it is difficult for OTT service providers to find niche markets by themselves. Gom TV, a Gom Player-based OTT service, provides 200,000 pieces of content including movies, cable TV programs and dramas at relatively high prices compared to video services offered by terrestrial broadcasters, paid broadcasters and telecommunications service providers.

Pandora TV provides programs from about 50 PPs in real-time including Everyon TV it launched in the second half of 2011 in conjunction with Hyundai HCN. The service is significant in that it is a partnership between a paid broadcaster and an Internet video service provider, but it also faces challenges in terms of content securing and billing methods. With Korea's paid broadcasting market led by cable TV and IPTV companies and with terrestrial broadcasters, paid broadcasters and telecommunications service providers developing their respective content distribution platforms and clouds, the independent growth of OTT services will not be easy.

4. Implications

■ **Heightened competition for platform leadership - competition and collaboration on multiple fronts**

The Internet TV media market is projected to see further growth due to the growing penetration of smartphones, tablet PCs and connected TVs as well as the fast growth of the LTE market. As a number of OTT service providers, global IT companies, TV set makers, IPTV providers, cable TV providers and terrestrial broadcasters enter into the platform and content distribution markets, competition to build and lead a content distribution ecosystem is likely to intensify. Accordingly, companies are expected to compete or team up with each other based on their respective strong business areas to respond to the evolving market landscape.

■ **Changing consumer behaviors - growing importance of UI and UX**

The increase in extended services amid the expanding multi-device environment is making services linking TV to mobile devices increasingly common. Therefore, the ability to provide services with wired and wireless connections in a more convenient and optimized manner will become the key to the success of connected services. Moreover, in viewing experience, the growing number of interactive TVs and social platform-based services is forecast to make UI and UX an essential element in the success of these services.

■ **Growing importance of content - content differentiation and development of exclusive content**

With the growth of the Internet TV media market, giant content providers are increasingly moving to directly provide content to consumers taking advantage of their content dominance and bypass network providers. In line with this trend, making exclusive deals for content distribution or independently producing original content to secure content competitiveness will becomce one of important issues. At the same time, alliances between companies to proactively secure content from partner companies are also expected to increase as a way to gain the upper hand in content sourcing.

■ **Evolving business models - development of new value-added services and business models**

The Internet TV media market is searching for new business models through convergence between cloud service bundled with N-Screen service, OTT, SNS and e-commerce. There will also be increasing efforts to create a hybrid revenue model combining the advertisement revenue model with the conventional subscription fee-based model.

Conclusion

In 2013, the ICT market in Korea performed well in both production and exports on a modest recovery in the global economy despite the won's appreciation caused by a number of reasons including the yen's depreciation since the launch of Abenomics, a downturn in the Chinese economy and a slump in emerging markets, all of which may act as a drag on the domestic economy. This growth trend is likely to continue into 2014. However, if the economic growth of China and other emerging countries poses an increasing threat to the domestic manufacturing sector, it will be difficult for Korea's ICT industry, with its heavy reliance on hardware, to grow. In this regard, it will be essential to nurture convergence industries so that hardware can be used in a variety of industrial sectors in conjunction with software in order to improve productivity. At the same time, the software and fixed-mobile content industries need be actively fostered as new growth engines for the future.

According to global competitiveness indexes relating to ICTs released in 2013 by various institutions, Korea's overall competitiveness remained at similar levels to the previous year despite a number of setbacks. Specifically, Korea maintained its top place in the ICT Development Index with top-level performances in ICT use and ICT skills and managed to advance by three notches to 11th place in technological infrastructure of the IMD World Competitiveness rankings. Only in the WEF Technological Readiness Index, Korea's ranking was four places lower than it was in the previous year at 22nd. Overall, Korea remained a good performer in a number of quantitative ICT infrastructure indicators and proved highly competitive in exports of high-tech products. However, Korea was found to be particularly weak in indicators relating to technology regulations, uptake, funding and cyber security. These include funding for technological development, technological regulations, availability of latest technologies, FDI and technology transfer, and cyber security. To address these weaknesses, it will be essential to increase government funds for technology development and nurture small and medium-sized venture companies that have competitiveness in new technologies. Regulations and barriers to foreign investment need to be eased in order to promote investment in technology development. In addition, there is a need to raise awareness on cyber security and establish a comprehensive cyber security system.

With Web platforms and convergence between broadcasting and communications services increasing around the world, Internet-based TV media outlets are rapidly growing. To further promote Internet TV media, various promotion measures need to be taken. As the Internet TV market is joined by many players, competition to secure a platform leadership has become very heated and some companies are expanding partnerships to secure content. With content differentiation increasingly considered as a key factor for success, it is urgent for the government to formulate various measures to promote and nurture the content industry. Also, in view of the growing importance of UI/UX, there is a need to promote UI/UX technology development and solicit ideas through business or government support. Finally, as the Internet TV media market provides an enabling environment for multi-channel N-Screen services, it will be essential to make efforts to explore business models and new profit models that are based upon these services.

References

〈**International**〉

AV Watch (Jan. 2012). “ソニーが會見 Google TV や新 LED などを披露 サービスで繋がる’を前面に”, Jan. 10, 2012.

CNET (Apr. 2012). “Sony Entertainment Network: 2012 smart TV hands-on”, Apr. 6, 2012.

_____ (Oct. 2013). “Hulu Plus joins the Google Chromecast crew”, Oct. 2, 2013.

Forbes (May 2013). “Xbox One Announced: What To Make Of Microsoft’s New Video Game Console”, May 21, 2013.

Gartner (2013). “Forecast: Desk-Based PCs, Notebooks, Ultramobiles and Tablets, Worldwide, 2010~2017”.

_____ (Sep. 2013). “Market Databook, 3Q13 Update”.

_____ (Sep. 2013). “Forecast: Devices by Operating System and User Type, Worldwide, 2010-2017, 3Q13 Update”.

_____ (Sep. 2013). “Forecast: Mobile phone, Worldwide, 2010~2017, 3Q13 Update”.

_____ (Sep. 2013). “Market Statistics: Commodity Memory Fab Capacity Status, Worldwide, 2H13”.

_____ (Sep. 2013). “Forecast: Memory, Worldwide, 2010~2017, 3Q13 Update”.

_____ (2011). “Benchmarking IT Industry Competitiveness 2011”.

Google (2013). “Our Mobile Planet”, http://www.thinkwithgoogle.com/mobileplanet/en/downloads/.

IMD (2013). *The IMD World Competitiveness Yearbook 2013.*

IMD database

ITU (2013). *Measuring the Information Society 2013.*

ITU database

OECD (2013). *OECD Communications Outlook 2013.*

OECD Broadband statistics, oecd.org/sti/ict/broadband

PC Magazine (Nov. 2013). “Amazon Offers Kindles, Cut of E-Book Sales to Indie Bookstores”, Nov. 6, 2013.

PewResearchCenter (Oct. 2013). “Online Video 2013”, Oct. 10, 2013.

PWC (2013). *Global Entertainment and Media Outlook 2013-2017.*

WEF (2013). *The Global Competitiveness Report 2013~2014.*

〈**Domestic**〉

Business Watch (Nov. 2013). "Sony set to inject 'young blood' for revival", Nov. 18, 2013.

Cheil Worldwide (2013). *Advertisement Yearbook 2013*.

Choi Seong-beom (Feb. 25, 2013). *Media Management*, Communication Books.

ChosunBiz (Nov. 2013). "Enjoy movies and music on TV while having a conference and playing a game··· We will make TV a computer in the living room", Nov. 22, 2013.

Chu Jae-wuk et al. (Nov. 2013). "2014 ICT Market Outlook", *KISDI*, broadcasting and communications policy research 13-Promotion-013.

DIGIECO (May 2013). "Global video market changes", May 28, 2013.

_____(Sep. 2013). "Rise of OTT and Changes in the Video Service Market", Sep. 27, 2013.

ET News (Nov. 2013). "Samsung and LG to build ecosystem for smart TV compatible with multi-screens and smart homes", Nov. 7, 2013.

IDC Korea (Nov. 20, 2012). "Korea's IT service market projected to grow at 3.6% this year".

_____ (Mar. 6, 2013). "Domestic firms set to reduce IT investments this year. Investment growth projected to be 0.5%".

KOMPASS (May 2012). "Global OTT Market", May 14, 2012.

Korea Association for ICT Promotion (KAIT) (2013). "Monthly Reports of 2013 ICT Statistics".

Korea Broadcast Advertising Corporation (Jun. 2013). "Advertisement Market Forecasts Survey Report: Advertisement Market Outlook for July 2013".

Korea Cable Television and Telecommunications Association, monthly subscription data.

Korea Creative Content Agency (2013). "2013 ROK Game White Paper".

_____ (Jan. 2012). "Media Content Providers and Challenges in the Smart Environment", Jan. 30, 2012.

Korea Communications Agency (Apr. 2012). "Key Players of Smart TV Apps and Obstacles to Market Stimulation", *Broadcast radio journal*, Apr. Serial Number 48, Apr. 2012.

Korea Information Society Development Institute (2013). "Assessment of the Competitive Landscape in the Telecommunications Market 2013", *KISDI*, policy research 12-03, Nov. 2013.

_____ (Sep. 2012). "Real-time Broadcast OTT Service in the United States", *Broadcasting and communications policy*, Vol. 24 No. 16 (Serial Number 538), Sep. 1, 2012.

_____ (Aug. 2012). "OTT Service Expansion and Analysis of Business Cases", B*roadcasting and communications policy*, Vol. 24 No. 15 (Serial Number 537), Aug. 16, 2012.

Korea Internet Security Agency (2013). "2013 Korea Internet White Paper", Sep. 23, 2013.

_____(Nov. 2013). "The OTT Market in the United States", Nov. 4, 2013.

Korea Development Institute (KDI). "KDI Economic Outlook for 2H of 2013".

Media IT (May 2013). "Strategic businesses such as SKB, IPTV and B2B set to be intensively fostered", May 31, 2013.

Ministry of Science. ICT and Future Planning (Nov. 12, 2013). "ICT exports in October exceed US$16 billion, posting a record high on monthly basis," press release.

_____ "Monthly Statistics for Wireless Data Traffic," monthly editions.

_____ "Fixed-Mobile Communications Services Statistics," monthly editions.

Ministry of Commerce, Industry and Energy (2013). "2013 Exports/Imports Fact Sheet," press release.

National IT Industry Promotion Agency (NIPA) (Oct. 2013). Exports/Imports Database for Major Items.

The Korean Society of Broadcast Engineers (Mar. 2011). *Broadcast engineering bulletin*, Vol. 16 No. 1, "Understanding of OTT Service and Outlook", Mar. 2011.

ZDNet Korea (Feb. 2013). "Intel, ignored from the TV industry, makes TV on its own", Feb. 13, 2013.

_____(Nov. 2013). "pooq, service error every weekend?", Nov. 8, 2013.

Economic Statistics - Bank of Korea, http://ecos.bok.or.kr/.

Google Chromecast, http://www.google.com/intl/en/chrome/devices/chromecast.

IR data from KT, KT Skylife, SK Broadband, SK Telecom and LGU+.

IR data from Samsung Electronics, LG Electronics and SK Hynix.

IR data from Samsung SDS, LG CNS and SK C&C.

Korea Digital Media Industry Association, http://www.kodima.or.kr.

LG U+, http://uplushome.com.

National Statistics Portal - Statistics Korea, http://kosis.kr/.

Olleh, http://www.olleh.com.

POOQ, http://www.pooq.co.kr.

Sony Store, http://store.sony.com.

Sony Entertainment Network, http://www.sonyentertainmentnetwork.com.

SKBB, http://www.skbroadband.com.

Xbox One, http://www.xbox.com.

YouView, http://www.youview.com.

About
The Korea Information Society Development Institute

The Korea Information Society Development Institute Korea (KISDI) was established in January 1985 as the only professional research organization specialized in policy studies regarding the information and communications sector. KISDI has conducted extensive research on the trend of the IT industry and the transformation of the traditional economic structure in line with the emerging information society. KISDI also carried out studies on a regulatory framework for fair competition in the telecommunications service market. Along with the development of the information and communications sector in Korea, KISDI has contributed to the overall competitiveness of the nation by providing vision and policy direction to the government in gearing up for the knowledge-based society.

For More Information, Please Contact

Choi Gae-Iyong, Ph. D. in Economics/choigi@kisdi.re.kr

Yuri Park, Ph.D. in Economics/yrpark@kisdi.re.kr

Jaeuk Ju, Ph. D. in Economics/jujaeuk@kisdi.re.kr

Kyoungsun Lee, Ph. D. in Business Management

Buyeon Jung/byjung@kisdi.re.kr