

## Korea to Lead Smart TV Market

- Maintaining M/S leadership in global TV market -
  - Promoting NG smart contents intensively -
- Creating high-quality smart TV service landscape -

Korea Communications Commission·Ministry of Knowledge Economy·Minister of Culture, Sports and Tourism will announce government policy initiatives on the development of Smart TV industry in the Economic Policy Coordination Meeting on Apr. 6. 2011

\* LG and Samsung to hold smart TV demonstration prior to the meeting

### < What is smart TV? >

- Smart TV is a TV that enables users not only to watch **terrestrial broadcasting channels** but also to access Internet and enjoy **IT-enabled functions** such as VoD, game, MoIP and apps,
  - It continues to evolve to deliver **smart home features** such as interphone·energy control, maximizing benefits for consumers.
  - \* As analogue TV connected to settop box can deliver smart TV features and TV turnover rate is relatively low, smart TV and settop box are expected to co-exist.

- Unlike conventional TV, smart TV requires not only competitive hardware but also revitalization of TV eco-system encompassing contents·Internet as a key enabler, which has led us to developing the policy strategy,
  - Government announces 3 major policy initiatives including ▲ strengthening smart TV competitiveness, ▲ promoting relevant contents and services, ▲ building infrastructure, committing

itself to government-wide implementation for the development of smart TV industry

Korea has dominated the global TV market thanks to HW competitiveness, however, may lose market leadership, if failing to secure enablers for competition in smart TV sector

\* Apple and Google advancing into smart TV market with comparative platform advantages also pose threats to Korean competitors

⇒ Now is a critical juncture to develop strategies to enhance smart TV competitiveness and promote relevant services in Korea in order to retain leadership in the global TV market

\* Global TV M/S('10) : Samsung (22.3%, No.1), LG(13.5%, No.2)

## < Strategy Highlights >

### **【1. Enhancing smart TV competitiveness】**

Secure next-generation technology enablers in terms of platform and UI which account for the core of smart TV competitiveness

- Upgrade relevant platform for service revitalization such as N-Screen, custom ad, copyright protection and seek to develop seamless digital video communications
- Support development of innovative UI and accessories for improve user convenience, as most viewers are used to lean back approach, requiring convenient UI

Improve service level by encouraging more SMEs to join the

market and standardize necessary UI/accessories, interoperable interfaces between smart TV and various devices such as smart phone and tablet PC to spearhead global smart TV technology trend

As smart TV penetration can take boost from increase in availability of services easy for consumers to use, implement pilot projects targeting public services in civil complaint administration or transport sector and launch open contests to find and support innovative service ideas worth commercialization

Create collaborative eco-system among TV manufacturers, commercial broadcasting service providers, contents producers and telecom carriers to revitalize smart TV services

- o Expand 「Smart TV Forum」 (launched in Sep., '10) to include major broadcasters and contents providers to open window of business collaboration opportunities wider for relevant industries

## **【2. Promoting contents and services】**

First, lay groundwork for development of smart contents industry by developing smart contents promotion strategy and contents eco-system projects

- o Provide intensive support to market-making contents, studying business needs, utilizing Korean Pop contents and launching open contests in partnership with TV manufacturers

- Support high-quality convergence-oriented broadcasting contents and T-commerce-oriented interactive broadcasting program production in preparation for global broadcasting contents competition

Develop platform technologies for smart TV contents and services

- Develop N-screen-based contents production technologies and support next-generation smart TV service development program for creation of Korea-specific Hulu.com service model
- Provide a variety of education opportunities to develop convergence-oriented talent pool equipped with creativity, technological prowess and global competitiveness required by smart environment, operating engineering resource education departments aligned to the needs of industries and providing smart TV technology training programs for broadcasting contents production workforce

As smart TV contents are more likely to be subject to copyright infringement resulting from illegal reproduction, create legitimate commercial distribution market for contents such as movies and strengthen copyright protection

- Implement public online distribution network project to build digital distribution infrastructure for movies as a precursor to creation of legitimate commercial distribution market
- Implement 3-Screens pilot project encompassing PC-mobile-smart

TV to revitalize legitimate download market and secure virtuous growth cycle of film industry

- Implement joint collaboration program involving stakeholders such as copyright holders, distributors and consumers for copyright protection, enforce technical measures to develop anti-contents piracy solutions and benchmark the performance of copyright technologies, strengthen monitoring and administration measures to prevent illegal distribution of contents

### **【3. Building infrastructure】**

Network infrastructure in Korea is one of the best in the world, suitable for penetration of new convergence services in terms of broadband network penetration ratio and fiber optic cable network subscription metrics which is world's No.1

- However, in spite of such infrastructure advantages, increase in high-definition online video contents will further strain the network infrastructure
- Notably, as in the case of North America. where streaming video accounts for the biggest wire network traffic ahead of web browsing or P2P sharing, it is now necessary to continue to upgrade network given potential increase in smart TV penetration

\* Internet video service Netflix accounts for 20.6% of Internet traffic in North America (Sandvine '10, at peak)

- To that end, upgrade the wire network infrastructure, launching giga-class Internet 10 times faster than BcN network by '12 and expanding 100Mbps broadband network to all corners of the nation
- In terms of mobile sector, build next-generation mobile network with LTE launch in the 2nd half of '11 and develop short/long-term frequency allocation plan in preparation for potential increase in mobile traffic

In the meantime, with regard to the sharing of network investment costs to address traffic increase, engage stakeholders fully in consultation process and develop policy direction to reach harmony between investment by carriers and benefits of network usage

In preparation for mid and long-term penetration of smart TV, build institutional framework to ensure development of new convergence services in harmony with conventional broadcasting media

- Notably, examine legal concept and scope of smart TV services, first focusing on online video services similar to TV broadcasting which carries significant social implications
- In addition, prepare self-governing regulation framework for contents in TV app market and cause Korea Communications Standards Commission to enhance contents monitoring activities to

promote clean contents distribution environment

Lastly, overhaul legal framework governing broadcasting/communications /Internet in preparation for increase in penetration of smart technologies, identifying room for improvement in regulatory framework losing touch with reality

Attachment : A copy of smart TV industry development strategy.  
End.

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# **Smart TV Industry Development Strategy**

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**2011. 4. 6**

# TOC

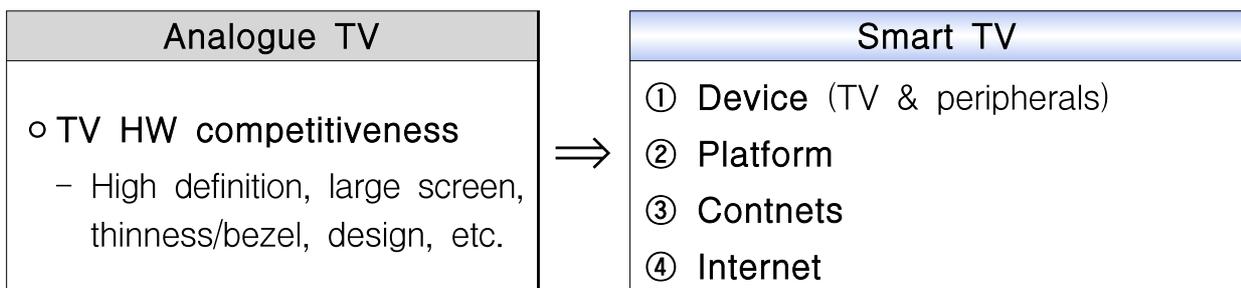
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\* [Appendix] Action Plan for Specific Initiatives

# I Background

## 1 Concept & Features

- Smart TV is a TV that enables users not only to watch terrestrial broadcasting channels but also to access Internet and enjoy IT-enabled functions such as VoD, game, MoIP and apps,
  - It continues to evolve to deliver smart home features such as interphone-energy control, maximizing benefits for consumers
    - \* As analogue TV connected to settop box can deliver smart TV features and TV turnover rate is relatively low, smart TV and settop box are expected to co-exist.
- For operation, smart TV needs not only ① devices (TV & peripherals) ② but also platform including OS\*, ③ contents, and ④ broadband network
  - \* SW engine embedded in TV · settop box to run video · app, etc.
  - Such elements determine smart TV competitiveness in combination



- ① User convenience features such as computing throughput, speed and (User Interface) also count in addition to conventional competitive elements
  - As most viewers are used to lean back approach, it is essential to provide convenient UI

\* Businesses tend to open SDK (Software Development Kit) for interface so that 3rd party developers can develop a variety of interfaces

② Platform functions as business market linking consumers and contents providers and marketability/technological prowess determine participation of contents/app developers

③ Dwindling technology gap between HW manufacturers highlights the importance of contents

- If contents attractive to consumers are in short, a vicious cycle of 「less stimulus for smart TV purchase → drop in TV sales → shrinking market → further drag on contents publication」 is set in motion

\* As heterogeneous platforms among different businesses make it difficult to expect interoperability of contents across platforms, high availability of contents determine the fate of business

④ As HD online video will become norm of the day, network infrastructure to ensure reliable HD video service is also a critical determinant of smart TV competitiveness

□ The greatest feature of smart TV, as is the case with smart phone, is the open application environment (app store) engaging users

\* IPTV is a closed platform limiting user engagement, which is the biggest difference from smart TV. However, as it evolves toward open platform, IPTV is expected to become similar to smart TV

○ Viewers can assess a wide variety of services in broadcasting, education, healthcare, shopping and gaming sectors via apps offered not only by vendors but also by individual developers and consumers

○ In the same manner as smart phone brought a sea of change to mobile

industry, smart TV has the potential to trigger massive change in TV industry and broadcasting service usage landscape

### < Smart TV vs. IPTV >

	Smart TV	IPTV
Key players	Google, Apple, Samsung, LG	KT, SKB, LGU+
Network	Internet (generic NW) * Difficult to ensure QoS	Internet (premium NW) * Securing QoS
Business model	App store, contents usage charge	Monthly subscription charge, content usage charge
Charge	Combination of chargeable · free of charge model	Chargeable
Contents	All contents on the Web	Service provider's contents
Key services & features	<ul style="list-style-type: none"> <li>• No obligation for subscription</li> <li>• Use a variety of apps developed by businesses/individual developers /consumers</li> <li>• Terrestrial service and VoD</li> </ul>	<ul style="list-style-type: none"> <li>• Subscriber-based</li> <li>• Service provider-produced program</li> <li>• Terrestrial service and VoD</li> </ul>

## 2 Needs for policy measures

- Smart TV, rising as an inter-industrial platform, is highly likely to stimulate gigantic changes not only in terms of TV but also across the entire industrial spectrum
  - Large screen, ease of use, and quick booting speed will make smart TV a hub of various services including broadcasting, shopping, education, healthcare at home
  - Given the turnover rate of TV, it may not trigger as rapid market change as smart phone. However, as migration to smart TV is already underway, pre-emptive policy response is required
- Korea has dominated global TV market to date, thanks to HW competitiveness

\* Korea ranks on the top in global TV market share, with Samsung (22.3%) and LG (13.5%) ('10)

- To retain global market leadership in the future, it is necessary to remain competitive not only in HW but also in platform and contents sectors
  - Korea has the potential of leading smart TV sector, given its HW advantages and Korean Pop contents and competitive network infrastructure as well
- \* However, Korea lags behind developed economies in terms of platform technology and contents diversity
- Apple and Google advancing into smart TV market with comparative platform advantages also pose threats to Korean competitors
  - Google seeks to expand ad revenue platform and Apple seeks to diffuse its eco-system (apple device+iTunes+app store) to cover TV in addition to mobile phone and tablet PC

## II Status & Prospect

### 1 Market status & prospect

- (Device) 2011 marks the first year of smart TV in earnest, witnessing intense competition among device suppliers for incumbent advantages
  - \* Samsung Electronics plans to sell 12 million smart TVs, accounting for about 25% of its total flat panel TV sales target (45 million ea.) this year. LG Electronics also aims to ship smart TVs in quantity amounting to more than half of its total TV sales in '11
  - \*\* Global flat panel TV market volume ('10, Display Search) : 208 million ea.('10) → 286 million ea.('14)
  
- (Platform) in the early days of market creation, market-dominating platform provider is not yet in sight and individual market players are building their own eco-systems based on respective platforms
  - In the long run, businesses that build smart TV eco-system based on competitive platform will lead the smart TV market in the future
    - \* In case of smart phone, platform eco-systems of global heavyweights such as iOS of Apple and Android of Google dominate most of the market
  
- (Contents) As in the case of smart phone\*, app market will grow big in smart TV market
  - \* Mobile app market volume (including ad revenue, '11, Gartner) : USD5.2B('10) → USD58B('14)
  - \*\* The US TV app market is expected to grow to USD1.7 billion by '13 (U.S. market researcher, In-Stat)

- (Network) Internet-based video service will be revitalized as a key service and data traffic will increase rapidly with advent of new services
  - Online video demands are rising mostly in North America and Europe
    - \* Netflix (online VoD service available in North America) subscribers exceed 20 million mark
    - \*\* BBC iplayer (Internet video service of BBC) is used by 17% of all UK netizens (May, '10)
  - Network capacity will be further strained in the future, as HD video demands increase with launch of 3D TV and super HD broadcasting service

## **2 Corporate trend & strategy**

- ① HW manufacturers
  - (Samsung·LG) Respond to Google and Apple, utilizing proprietary platform\*
    - \* Samsung and LG have launched smart TV using respective proprietary platforms (including Linux-based OS)
    - Try to retain TV HW leadership, partner with various VoD service providers\* and build app stores to prepare for market evolution
      - \* Ex.) Samsung Electronics partners with global broadcasters, carriers, and video contents providers including Comcast, Time Warner Cable, Hulu, Netflix of the U.S., BBC iPlayer of the U.K., TF1 of France and Maxdome of Germany
  - (Sony) Try to make inroads into the market by partnering with platform provider (Google) to rebuild market share that lags behind those of Samsung · LG

- \* Sony is competitive in terms of devices (world's No.3) and platform (Android OS, Chrome browser), owning already a lot of game/film/music contents

## 2 Platform providers

- (Google) Advance into smart TV market in partnership with Sony, utilizing advantages in terms of Web search, platform and ad revenue model
  - Google TV ('10.10) has not lived up to expectation to date
    - \* Inconvenient user environment (keyboard-like remote controller), limited app usage, etc.
  - Notably, Google failed to offer a convincing revenue model to contents providers, which caused the top 3 terrestrial channels in the U.S. to stop providing contents
- (Apple) Makes advance into smart TV business by utilizing iOS-based excellent proprietary platform (closed type) and competitive mobile app store contents already in place
  - Apple began supporting services for analogue TV, using affordable settop box (USD99)('10.9)
    - \* 2G product was released last year and Apple TV in settop box configuration was released (USD299) in '07
    - \* Apple announced recently that it signed long-term supply agreements with 3 component suppliers ('11), which is deemed by some to indicate that Google is about to jump into smart TV production

## 3 Contents providers

- A new platform, namely smart TV, is expected to expand the contents market, however, few providers are making inroads aggressively, as most providers shy away from initial risks in the market

- Incomplete information on smart TV specification and significant initial investment requirement\*, etc. are deemed to be entry barriers

- \* Smart TV contents need to fulfill requirements associated with large screen and high resolution, which requires higher production costs than smart phone

- Device manufacturers and telecom carriers support smart TV contents production in partnership with contents providers to secure a variety of smart TV contents

- \* Samsung Electronics hosted TV app contest worth USD500,000 in total in the U.S. to secure contents ('10)

- ④ Broadcasting service providers including cable · IPTV operators

- Seek to launch a variety of smart TV services such as app and Web search features in addition to conventional VoD services to improve the quality of conventional chargeable broadcasting channels by upgrading settop box

- \* LG U+ upgraded its settop box to support Web search-TV app services and CJ Hello Vision launched a service (TVing) to enable users to watch premium video such as real time channel on smart devices

- Premium networks already in place will contribute to revitalization of smart TV market in combination with affordable settop boxes

- Commercial broadcasters are expected to diversify business in partnership with TV manufacturers, utilizing their advantages in terms of real time channel and premium network

- \* U.S. commercial broadcasters seek to make their conventional broadcasting services smart in partnership with N-Screen and TV manufacturers, adopting open platform out of concern about dwindling cable TV subscription

## III Pending Challenges

### 1 Improving TV competitiveness

- (TV) Maintain world's best HW competitiveness in terms of display, 3D technology and LED BLU
- (I/O device) As convenience becomes important, it is necessary to develop I/O devices adopting user-friendly UI (User Interface) and stimulate the market
  - Develop innovative UI technologies encompassing motion, voice, image recognition technologies in addition to remote controller upgrade
  - Establish standards to ensure interoperability between various I/O devices and smart TV
- (Smart home) In response to the needs for smart home hub in the future, it is necessary to build a framework for revitalization of energy control and entertainment service market
  - \* Smart TV will evolve into a smart home service (energy control, healthcare, entertainment, etc.) hub serving as home server for interphone and energy control and media server using N-Screen

### 2 Building smart TV eco-system

- One of the features of smart TV market is the competition among platform-based eco-systems rather than within industrial silos of device, contents and network
  - Korean companies lag behind Apple and Google in terms of detailed platform technologies relating to advertisement, app development kit, etc.

- In addition, Korean businesses have yet to aggregate their competitiveness effectively in unit elements such as device, contents, network and service
  - Individual companies seek to secure platform and N-Screen leadership, while uncertain revenue model is hampering cooperation
  - It is necessary to encourage relevant businesses to forge collaborative partnership to promote technology/business innovation relating to smart TV services which are still in initial stage

### **3 Promoting contents dev. platform & creating killer contents**

- (Promoting platform) Government needs to make market in advance for contents providers to make inroads into smart TV market
  - However, high production costs, uncertain marketability and smallness of local contents providers make it difficult to stimulate smart TV contents market
    - \* Korean contents providers are small (87% posting revenue under KRW1 billion) (92% employing less than 10 persons)
  - Implement public sector app<sup>1)</sup> development project to stimulate demand for contents and encourage collaborative growth between large businesses (device/service) and small businesses (contents)
- (Killer contents) It is necessary to build incumbent advantage in the initial smart TV market by developing killer contents aligned with next-generation technologies such as location-based service or motion/voice recognition technologies
  - \* Create killer contents production environment by increasing investment in contents R&D and providing systematic support to cover technology - production - commercialization - global debut

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1) App : It refers to application in short, indicating programs providing services in smart devices such as smart phone, smart TV

## 4 Upgrading NW & overhauling law/institution

- (Network) As wire/wireless traffic is likely to increase, it is necessary to secure frequency resources and continue to invest in wire/wireless communications and cloud service technologies
  
- \* As Korea is the best in terms of penetration of optical Internet, we are in an advantageous position in spreading Smart TV
  - Fiber optic cable NW subscribers per 100 persons (OECD, '10.6) : Korea 17.9 (1st), Japan 14.6 (2nd), Sweden 7.8 (3rd), USA 1.4 (10th), France 0.1 (20th)
  
- (Legal overhaul) Overhaul legal/institutional framework to ensure harmonious growth of real time broadcasting and interactive video services from user and business perspectives
  
- \* Internet video service is usually classified as a supplementary communication service subject to different regulatory framework and depth than TV broadcasting service. However, EU applies lighter contents and advertisement regulations to online VoD services similar to TV broadcasting service
  
- (Copyright protection) As penetration of smart TV is likely to increase illegal distribution of video contents potentially, it is necessary to develop better copyright protection arrangement

## IV Vision & Initiatives

**Vision** ◆ **Build global smart TV leadership**

### Goal

- Maintain world's best M/S in TV market
- Turn smart TV contents into next-generation growth driver
- Promote HD smart TV service environment



Improving smart TV competitiveness	<ul style="list-style-type: none"> <li>① Develop &amp; standardize technologies</li> <li>② Implement pilot projects &amp; build collaborative eco-system</li> </ul>
Developing contents & services	<ul style="list-style-type: none"> <li>③ Promote next generation contents &amp; enhance production landscape</li> <li>④ Upgrade contents distribution &amp; strengthen copyright protection</li> </ul>
Building infrastructure	<ul style="list-style-type: none"> <li>⑤ Upgrade network</li> <li>⑥ Overhaul laws • institutions</li> </ul>

## I Improve smart TV competitiveness

### I - 1

### Technology development & standardization

- (R&D) Secure next-generation source technologies that determine smart TV competitiveness in terms of platform · UI
  - (Platform) Upgrade platform to stimulate various participants in order to revitalize smart TV eco-system and improve its competitiveness
    - Develop platform upgrade technologies to promote services in terms of N-Screen<sup>2)</sup>, customizable advertisement, copyright protection, etc.('11 ~ '14, '11 budget KRW4.8B)
    - Develop video transmission/reception technologies to enable TV and various smart devices to support streaming video
  - (UI · accessories) Support product development for improvement of user convenience
    - Develop source technologies in terms of next generation UI including voice/motion recognition features ('11 ~ '14, '11 KRW2B)
    - Encourage academics/industry/research consortium including SMEs to develop accessories
- (Standardization) Develop technology standards to encourage SMEs to participate in the market more, improve service level and spearhead technology trends in the global smart TV market
  - Standardize interoperable interfaces between smart TV and various UI · accessories and diverse information devices including smart phone-tablet PC

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2) N-Screen : It refers to the technology to provide same videos to various devices such as PCs, mobile phones and TVs, depending on the size of devices.

Standardization	Description
N-screen service	Standardize technologies to enable TV·PC·smart phone to share contents with each other and support inter-operation of specific feature such as inter-operation between phone camera and TV
Home NW interoperability interface	Standardize interface technologies to allow smart TV and electronic appliances to share data and enable smart TV to control electronic appliances
I/O device·accessory interface	Standardize interfaces to enable inter-operation between smart TV and various I/O devices and accessories
Broadcasting service Interface	Expand to include open platform in conventional broadcasting technologies such as IPTV · CATV and standardize interface with smart TV

## 1 - 2

## Pilot projects & collaborative eco-system

- Implement pilot projects to develop easy and convenient-to-use app services for incumbent advantages
- (Public sector) Implement pilot projects to develop and utilize apps to provide public services such as video-enabled civil service, educational contents, etc. (joint project of relevant government agencies)
- \* Government, business and customers to organize consortium and develop services

Domain	Description (ex.)
Education	▪ Foreign language, college entrance examination, recipe learning, Korean/global tourist attraction information service, etc.
Welfare	▪ Telemedicine service to check the health of the senior citizens living alone regularly and enable video consultation with physician
Transport	▪ Real time geo information and transport information services
Civil service	▪ Provide easy-to-use civil services such as SME support and patent application systems

- (Private sector) Host open contests to find promising services and support commercialization in terms of basic system design and prototype development

Domain	Commercialization support in detail (Ex.)
Family-Sync service	<ul style="list-style-type: none"> <li>▪ Home helper service to monitor and help daily life of parents via video</li> <li>▪ Co-browsing service to feature the same browsing screens in parent's home and my home on home shopping and other information service</li> </ul>
Community-Sync service	<ul style="list-style-type: none"> <li>▪ Situation sharing service to upload and share circumstances on the map</li> <li>▪ Shopping information sharing service to inform users of nearby store information and event</li> </ul>

- To revitalize smart TV service, create collaborative eco-system combining manufacturer, commercial broadcaster, contents provider and telecom carrier
- Develop desirable partnership approach and facilitate commercialization in terms of cooperation between TV manufacturer and commercial broadcaster for contents and network availability and revenue sharing between platform provider and contents producer
  - \* Ex.) Samsung Electronics partners with an Australian IPTV operator (Telstra) to embed IPTV-based app in its smart TV, delivering IPTV contents for the first time in the world without reliance on a separate settop box ('11.1)
- Expand 「Smart TV Forum」 (launched in Sep., '10) to include major broadcasters and contents providers to open window of business collaboration opportunities wider for relevant industries

## II Developing contents & services

### II - 1

#### Developing NG contents & enhancing production platform

- (Platform for smart contents industry development) Develop strategic development plan to promote smart contents industry and support creation of self-sustainable eco-system
  - (Smart contents development strategy) Select next-generation contents and develop strategic development plan in the wake of the advent of smart device-technology ('11.6)
    - \* Smart contents development strategy T/F ('11.2 ~ 5) and smart contents association (to be launched '11. 4)
  - (Contents eco-system project) Implement joint-growth project involving large, medium and small businesses to enhance smart TV eco-system competitiveness by converging device, contents and service
    - Encourage contents provider (SME) and device manufacturer-service provider (large business) to form consortium to develop contents, as the government selects and supports promising collaboration initiatives (KRW5B)
    - Provide intensive support to next generation contents sectors involving smart TV, 3D
      - \* (Funding) large business 70%, government 30% or large business 60%, contents provider 20%, government 30%
- (Preferable support for market-making contents) Ensure selection and focus in promoting next generation contents industries on the basis of business needs findings
  - (Needs survey and strategy study) Conduct needs survey to identify contents to be developed and study development direction of smart TV and contents strategy (1st annual half)

- Host next generation contents conference to provide and share latest trends in Korea and elsewhere in the world and information focused on smart contents
- (Utilization of Korean POP contents) Support development of Korean Pop contents\* converging different genres and expand localization services for broadcasting contents such as Korean soap opera
  - \* Ex.) Develop tourism-linked game contents converging Korean Pop contents-tourism-game
- (Production support) Support customized contents production such as interactive game and digital book given characteristics of each device (smart TV, table PC<sup>3)</sup>, etc.)
- Launch open contest for Korean businesses capable of producing and offering interactive game contents and services in partnership with TV manufacturer (fund up to 75% of total project cost)
- (HD broadcasting contents production support) Support HD/convergence broadcasting contents in preparation for global competition in broadcasting contents sector
  - Support production of blockbuster program and new type program such as 3D for export to ensure diversity of high quality broadcasting contents (KRW11B)
  - Support interactive broadcasting program production including multi-angle type enabling viewers to select a screen at choice and T-commerce type allowing them to buy goods while watching a program (KRW4B)
- (Development of next generation contents and service technology) Develop platform technologies for smart TV contents and services and facilitate revitalization of smart TV service

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3) Tablet PC : It refers to touch screen-equipped compact computing device (Ex. iPad, Galaxy Tab, etc.)

- Develop N-Screen-based contents production technology ('11~'13, '11 KRW2.5B) and develop interactive contents\* technology ('10~'12, '11 KRW2B)
  - \* Contents technology that differentiates contents deployment in response to user interaction
- Develop user preference and circumstantial knowledge-based contents-service search technology and interactive enhanced broadcasting service technology for smart TV ('11~'14, '11 KRW3B)
- Implement next generation smart TV service development support program to build Korea-specific Hulu.com\* service model
  - \* World's second biggest Internet video service site ('07 ~ ) next only to YouTube
- (Talent pool development) Provide a variety of education opportunities in partnership with Korean and global education institutions to develop convergence talent pool noted for creativity, technological prowess and global competitiveness required in smart environment
- (Industry needs) Support partner departments\* and provide overseas education opportunities
  - \* Department educating technology talents suitable for the needs of industries (10 universities, 322 persons)
- (In-service broadcasting talents) Provide professional training program and smart TV technology education program for specific discipline of broadcasting contents production resources including PD-script writer-broadcasting engineer
- (Contents creativity resources) Support operation of contents courses in partnership with Korean and global education institutions\*

- \* Support 6 universities (Seoul Nat'l Univ., POSTECH, etc.), ETC master's course in Carnegie Mellon Univ. (15 persons)
- \* Operate 「Smart Media Policy Research Center」 to produce professional talents with master's or doctoral degrees

## Upgrading contents distribution & enhancing copyright protection

- (Creation of distribution market) Upgrade public online distribution network\*(KOME) to create legitimate commercial distribution market for smart TV contents
  - \* Korea Open Movie Exchange : Open movie distribution support system in which contents provider register contents with usage terms and conditions and service provider distributes desired contents with copyright protection arrangement
  - (KOME) Build digital distribution infrastructure of movie contents to stimulate legitimate download market and secure virtuous cycle of movie industry (KRW1.42B)
    - Build distribution infrastructure encompassing PC - mobile - smart TV and implement 3 - Screens<sup>4)</sup> pilot project
- Enhancing copyright protection
  - \* Copyright infringement risk rises, as contents are copied without authorization and disseminated in file format over the Internet in the wake of increase in contents distribution
  - (Creation of environment) Conduct joint cooperation program\* involving all stakeholders including copyright holder, distributors and consumers to promote elimination of illegal contents
    - \* Study and research copyright issues in smart environment, host copyright forum and conferences
  - (Technological measures) As copyright technology is used as an effective and integral means for copyright protection, enhance technological measures significantly, developing technologies as necessary

4) 3-Screens : It refers to the technology to provide same videos to various devices such as PCs, mobile phones and TVs, depending on the size of devices.

- \* Copyright technology commission (legal institution), working-level consultation body, digital copyright standardization forum, digital copyright society, etc.
- Apply illegal distribution prevention technologies such as watermark /forensic mark/finger print to smart TV contents and benchmark performance of copyright technologies
- (Ex-post measure) Enhance monitoring and administrative actions targeting illegal distribution of smart TV contents

## III Implementing infrastructure

### III-1 Upgrading network

- (Wire) Implement Giga Internet as early as possible and expand 100Mbps BcN coverage to all corners of the nation
  - Commercialize Giga Internet ('12) 10 times faster than conventional network and expand it to cover 20% of entire network coverage ('15)
    - \* Build pilot network to cover 2,000 households ('11) and conduct proof of concept on Giga network-based wire/wireless convergence model
- (Mobile) Prepare mid/long-term frequency allocation plan based on reasonable demand forecast in preparation for increase in mobile network traffic
  - \* Penetration of N-Screen as part of smart TV distribution is expected to increase mobile network traffic as well
  - Implement next generation mobile network (LTE<sup>5)</sup>) and utilize spare TV frequency band (White Space)
    - \* Deploy LTE NW from Seoul Metropolitan Area in the 2nd half of '11 and expand the NW coverage by phase in '13 ~ '14
- (Future network leadership) Implement intelligent smart network capable of providing high quality, high throughput convergence services such as 3D, UHDTV<sup>6)</sup>
  - Create high quality smart TV service usage environment for the future by deploying ultra broadband network and developing virtualization technologies to ensure network QoS

5) LTE (Long Term Evolution) : It refers to next generation super fast mobile technology standard

6) UHDTV (Ultra High Definition TV) : It refers to next generation ultra HDTV

- Guarantee portability between heterogeneous networks in line with mobile network diversification
- \* It is necessary to build interfaces among various mobile networks such as WiFi and Femtocell in addition to 3G/4G mobile networks to respond to increase in mobile traffic
- Develop distributed contents network model to transfer massive amount of video data efficiently
- (Review of network neutrality policy strategy) Review network neutrality policy direction in consideration of both network investment by telecom carriers and adoption of innovative services
- \* Guarantee innovation and participation on the Internet as much as possible by ensuring free access while providing investment stimulus to retain quality and reliability of Internet network

- Improve regulations to enhance competitiveness of Korean broadcasting service industry
  - Alleviate restriction on the scope of commercial broadcasting business to ensure scale of economy
  - Improve advertising regulation governing indirect advertisement/sponsor notification to expand advertising market and improve room for contents investment
  
- Enhance legal/institutional framework for smart TV service
  - Review legal concept and scope of smart TV service in line with the potential enforcement of Integrated Broadcasting Act
    - Focus first on online video service run on a commercial basis and similar to TV broadcasting service in terms of social implications
      - \* For now, online/mobile video services are classified as ‘supplementary communications service,’ not subject to broadcasting service regulations
  
- Strengthen efforts to secure clean contents
  - Develop self-governed monitoring system for open app market operation, customized advertisement and contents substance from user perspective
  - Enhance ex-post monitoring activities via Korea Communications Standards Commission
  - Provide smart device experience program and user education via viewer media center
  
- Integrate and overhaul legal frameworks governing broadcasting, communications and Internet from mid to long-term perspective

- Identify and overhaul regulations losing touch with reality and needing improvement to respond to ever-increasing change in smart environment successfully
- Develop mid/long-term overhaul strategy aligned to the needs of All-IP<sup>7)</sup> era such as mutual interface in consideration of wire/wireless network evolution
- Incorporate emerging needs for regulation such as abuse of market power by platform provider or private information protection

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7) All-IP (All Internet Protocol) : It refers to next generation IP technology assigning IP address to not only computer but also all the other information devices

## 【 Appendix 】 Action Plan for Specific Initiatives

### 1. Improving smart TV competitiveness

Initiatives	By	Ownership
▪ Develop core technologies	By initiative due date	MKE·MCST·KCC
▪ Standardization	By initiative due date	MKE(KATS)·KCC
▪ Public sector pilot project	Dec., '11	Stakeholder gov't agencies
▪ Private sector pilot project	Dec., '11	MKE
▪ Create collaborative eco-system of businesses	Dec., '12	MKE·MCST·KCC

### 2. Developing contents & services

Initiatives	By	Ownership
▪ Develop smart contents promotion strategy	Jun., '11	MCST
▪ Contents eco-system project	Dec., '11	MCST
▪ Promote market-making contents	Dec., '11	MCST
▪ Supports HD broadcasting contents production	Dec., '11	KCC
▪ Develop NG contents and service technologies	Dec., '14	KCC·MCST
▪ Develop smart TV resource pool	Dec., '11	KCC·MCST

### 3. Building infrastructure

Initiatives	By	Ownership
▪ Commercialize Giga Internet	Dec., '12	KCC
▪ Prepare frequency allocation plan	Dec., '11	KCC
▪ Review NW neutrality policy	Dec., '11	KCC
▪ Overhaul broadcasting advertisement regulation	Dec., '11	KCC
▪ Enhance regulatory/institutional framework for smart TV service	Dec., '12	KCC