TV

Policy Issues for Vitalizing Smart TV Industry

Myung Hyun Yoon Dae Jin Kim

Digital TV is evolving from a simple watching device and an internet TV to a connected TV and recently a smart TV, and smart TV is receiving attention as a new main device of industry eco-system after smart phone. The smart TV needs 4 key components such as smart TV device, platform with OS, contents and service, and infrastructure including wideband network. Additionally, the smart TV requires cooperative eco system between different service players. Services of smart TV such as multi-screen service, personal customized intelligent service, augmented broadcast service, advertisement service, social service are expected to be hybrid, customized, augmented realistic, personal, and information producible. In this paper, after reviewing smart TV industry promotion policies of Korean government, important policy issues will be discussed. Creation of new smart TV service and contents, balancing of asymmetric growth of smart TV industry, echo system for vitalizing smart TV industry, network neutrality policy and increasing network quality, standardization of smart TV technology will be discussed as important policy issues.

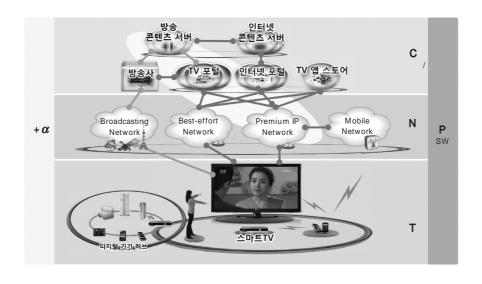
Keywords: Smart TV policy issue, Smart TV service, Smart TV industry

I. TV 2009 3Gs TV, TV, HD 가 가 IP TV. TV TV, :2012.03.21 :2012.03.06, : TR12-018, :2012.02.22 가

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TV
                                                             LED TV, 3DTV
                                                        TV
                                                                  TV가
                            가
                                                                           가
                                                 TV가
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  TV
                       . 가
                                   가
                                                                 (Social)
                                                         가
       가
                      40
                  700
         \mathsf{TV}
                           2010 5 20
                   I/O
\mathsf{TV}
                                                                  가
             TV
                                               \mathsf{TV}
                                                                 TV
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[1]
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                   , LG
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                  TV
                    OS
                                                     TV
                                                          TV
       TV OS
, SNS
                     PC
TV .
           TV
                            \mathsf{TV}
                                           TV
                                                                           Ш
             UI
                                           TV
                                                                   IV
     \mathsf{TV}
       , .가 .
                          가
                              (Prosumer)
                                           II.
                                                     TV
      TV 2010
                                           1. TV
                       TV/
                                              2010
                                                                                \mathsf{TV}
  2010
, 3D UI
TV
                     IP TV,
                              2011
                                                            TV
   Remote UI
                                                         가가
                        UΙ
                                                      (UI/UX)
  2011 4 6
                                           PC
                                                                               TV
                                                  TV [2].
         [2].
                        TV
                  TV
                                              가 TV
                                                                            TV
                               가
                                              [1]. TV
' (integrated)', TV
' (interactive)' TV
                  TV
                               가
                   \mathsf{TV}
                                                      [3].
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TV



 TV

[4],[5]

1. CPTN

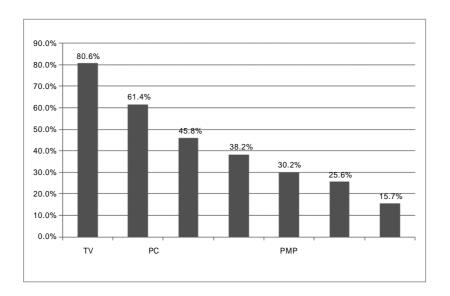
TV EPG),), IPTV, TV, OTT(Over-The-Top)), SNS(**IPTV** TV ΤV TV [4]. (Lean-Back) TV ΤV (Lean-Forward) 가 OTT (C), SW TV (P), TV (T), (N) 가 C-P-T-N TV 2 [4][5]. PC, TV 가 TV/ . SW TV TV STB [6]. /IPTV/ TV 6가 , I/O [6]. 2. RUI,



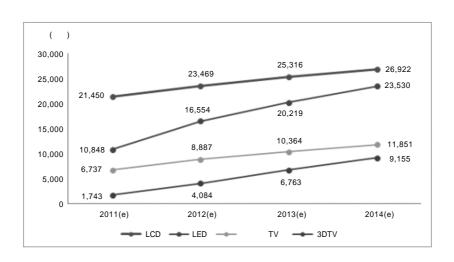
2. TV [6]

1.	TV	[6]			
		2013	2014	2015	2016
			1		1
		TV			
				TV	

	HTML5		TV	,		
, I/O			T'	V		
,			PVR \	/OD		가
TV		•	가			
			F	C		
. TV		DTV	가		3	
					TV	가 가
TV						
				TV		
			가			가 가
3.	[6]		TV			가
					. iSuppli	2010 TV
TV			17	7.2%		TV가 2013
		. VOD	TV	3	1	33.3%



3. (: OVUM, KT , (2010.06))



4. TV (: DisplaySearch, 2011.01)

(iSuppli, 2010.10), 1 CES(Consumer Electronic Show) 2010 DisplaySearch ΙT TV 2011 6,737 2014 1 가 TV 가 2010 5 TV 1,851 TV ' TV . KT 2010 TV 226 TV TV 29 12.8% 2013 가 131 TV 50.0% 2010 5 I/O (KT 2010.10). TV "TV 가 TV 2010 가

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" TV
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          TV
                    ' TV
                                                                TV '
          (TV meets web, Web meets TV) '
   TV
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                                                   \mathsf{TV}
                                                                         99
            TV
                        4가
                                           가
            , SNS,
                                TV
                                           가 1/4
                          TV
                                            TV
                                                         Netflix가
   TV가
                                         Flick
                                                          YouTube
                      (mash-up) 4가
                                                          TV
          Adobe(Chrome
                            Flash
                                                                TV
                          TV
               ( TV가
                                                          TV
                                         TV
 ),
                            TV
               ), (
                                             가 2011
                                                             가
                           CPU
                                                      TV
ATOM
                                                TV
                                                                TV가
 OTT
                                                       TV
          (Netflix
                  Dish Networks(
          ),
                                                 TV
                                                                        가
                  BestBuy(
      ),
 TV
          )가
          TV
                                               \mathsf{TV}
                                                               LG
TV
                                                                           ΙT
TV
       PC
                                  TV
                                                  TV가
          YouTube
                                                                      \mathsf{TV}
                                                         QoS가
                                                                가
       TV
                                         TV가
                                                                         TV
         TV가
                                                      가
                                                       IPTV
CP
                                                                가
                                                        TV가
        ABC, CBS, NBC 3
                           2010 10
                 TV
  TV '
                                                        TV
                                                               \mathsf{TV}
   TV
                  가
                                                       TV
                                                                      TV
                 Hulu
                               가
   TV가
                                            TV
                                                  ' 2010 9
           Fox
                 2010 11
                              TV
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                                                                        \mathsf{TV}
                        가
                              \mathsf{TV}
                                                   2011 1 CES 2011
           가
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CEO CES
                                                SK
                                                                IPTV
2011
                                \mathsf{TV}
                         TV
                                                                          TV
                                \mathsf{TV}
                                                LGU+
                                                         2010 11 '
                                                     TV
                                                                            가
                                                                                        7 '
    HD
         3D
                                                       . LGU+
                                                                       7
                                                                               IPTV
                                    TV
                                  TV 가
                                                                             (time-to-market)
                              TV
                             2010 3
  \mathsf{TV}
                                                CP
                                                                     TV
TV
                                  TV
                                                                 , OSMD(One-Source Multi-
                        , 가
                                                 Device)
                                                                                       \mathsf{TV}
                  TV
                                                                          가
                     가
                      TV
                                                             )
                                   2011
                                                                             TV가
    600
                                          5
         500
                                                 4.
                                                               [7]
   LG
                     TV
                             3DTV
                            TV
                                                                               DTV
                           LG
                                       CES
                                                                             ATSC 2.0,
2011
                            ' NetCast 2.0'
                                                HbbTV,
                                                             \mathsf{OHTV}
                                                                           Hybrid TV
                  TV
                                                                            MPEG W3C
                 (GUI)
                                                      \mathsf{TV}
' Home Dashboard'
                          GUI
                                                         ATSC
                                                      (Backward Compatibility)
                                                          ATSC 2.0
                                                                            2012
                 . 2011 6 23
    2011 '
                       TV
                                                                        NWIP(New Work Item
                                                Proposal)
                                                                                    . ATSC
                           (Smart Share)
                                                2.0
   IPTV
                                  TV
                                                                        가
                                 SK
             . IPTV
                            ΚT
        2010
                      IPTV '
                                                   ATSC 2.0
                                                                             TSG(Technology
                 IPTV
                       CP가
                                                and Standard Group)-6
                                                                                 TV
                 IPTV
                                , VOD
                                                   Specialist Group S13-1(NRT 2.0) S13-
TV
                                (CUG),
                                                2(TDO ATSC 2.0
                                                                               )가
                                                                               NRT
                                                   ATSC-NRT
   KT 2010 12
                                        \mathsf{TV}
        ' TV
                                                     가
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Staze		UI	71	EDO " " D l. V		VOD ", " Advanced
S13-2		가	가	,		C;" larget ";"
TDO(Triggered 1	S13-2		ATSC 2.0	" TCommerce "		. 71 2040
Double Content Conte		Т	DO(Triggered		TTA	7F 2010
ATSC	Downloadable Ob		20 (111gg010a	•		
NRT	Declarative Content	t				
7† TDO7† TV Voting TDO 7† TV ATSC 2.0 HbbTV 7† 7† 7† 7DO7† TV ATSC 2.0 HbbTV 7† S13-2 ATSC 2.0 ATSC 7† 7V Streaming over HTTP) 7† 7† 7 TSG PT(Planning Team) ATSC 3 PT7† TV W3C(World Wide Web) PT-3 IETV(Internet Enhanced TV) HbbTV Hybrid Broadcast Broadband TV PT-3 (S13-2) HbbTV OHTV HbbTV Hybrid Broadcast Broadband TV 2010 6 ETSI TV PC (Linear Broadcasting and Interactivity), TV 7† (Catch-up), Web (VoD) (Linear Broadcasting and Interactivity), TV 7† (Catch-up), Web (VoD) TV , LG TV TV 2009 OHTV(Open Hybrid TV) OHTV 4 7† DTV 2011 4 4 7† DTV 2011 4 7					ATSC	
7! TDO7! TV Voting TDO 7! TV Streaming over HTTP) 7! TV Streaming over HTTP) 7! TV VoD(Video On Demand), (Live Media Streaming) ATSC 7! TSG PT(Planning Team) ATSC 3 PT7! TV W3C(World Wide Web) PT-3 IETV(Internet Enhanced TV) HTML4(XHTML 1.0) HTML5 HTML4 XML 7! TV PC TV		7L				ATSC 2.0
1	가		O가 TV		HbbTV	•
Streaming over HTTP				71100 210		
S13-2		TV				
ATSC 7		1.700.00		Streaming ove	r HTTP)	가
ATSC 7 (Live Media Streaming) TSG PT(Planning Team)	S13-2	ATSC 2.0		VoD(Vidoo Or	Domand)	
TSG PT(Planning Team) ATSC 3 PT7† TV W3C(World Wide Web) PT-3 IETV(Internet Enhanced TV) PT-3 ATSC 7† HTML5 HTML4 ATSC 7† ATSC 7† TV PC PT-3 (S13-2) HbbTV OHTV HbbTV Hybrid Broadcast Broadband TV 2010 6 ETSI TV PC 2010 6 ETSI TV PC 1 TV TV TV TV TV TV TV TV TV TV	ATSC .	7	' -			
ATSC 3 PT7+ TV				(Livo inicala C	troaiiiig)	
PT-3 IETV(Internet Enhanced TV)			_			
PT-3 ATSC 7 HTML5 HTML4 XML 7 HTML4 XML 7 HbbTV Hybrid Broadcast Broadband TV			7	W3C(World		
Name				LITMLE		
(S13-2)	. PI	1-3 ATSC	71			
(S13-2)		. PT-3		· ·	(IVI L	71
TV	(S13-2)		V			
TV						
PC		Hybrid Broad	cast Broadband			
7t	IV					
TV PC TV TV TV TV TV TV TV T						
HbbTV					,	PC
TV 7 7 (Catch-up), Web , (VoD) III. TV TV 7 , (Catch-up), Web , (VoD) III. TV TV 2009 OHTV(Open Hybrid TV) 4 7 DTV 2009 6 TV		TSI				
7 (Linear Broadcasting and Interactivity), TV 가 (Catch-up), Web , (VoD) III. TV				7	가 .	
(Linear Broadcasting and Interactivity), TV 7! (Catch-up), Web , (VoD) III. TV TV , LG TV TV TV 1 2009 OHTV(Open Hybrid TV) 4 7! DTV 6 TV . 2011 4 2.0	IV					
TV 7						71
(Catch-up), Web , (VoD) III. TV TV , LG TV TV 2009 OHTV(Open Hybrid TV) OHTV	(Linear B	roadcasting an	d Interactivity),			
TV , , , , , , , , , , , , , , , , , , ,		,		***	 > /	
TV , LG TV TV . TV . TV	(Catch-up), V	Web ,	(VoD)	Ш.	IV	
, LG TV TV 2009 OHTV(Open Hybrid TV) . OHTV , 2011 4 2.0 6 TV			, ,			TV
. TV 2009 OHTV(Open Hybrid TV) . OHTV , , , 2011 4 2.0 6 TV		,		. LG	TV	1 V
TV 2009 OHTV(Open Hybrid TV) . OHTV				,		
Hybrid TV) . OHTV				,		
4 가 DTV , , 2011 4 2.0 6 TV			, ,			
2.0 6 TV	mybria iV)					2011 <i>1</i>
	2.0	4 /	ı Div	6	,	
		(4	LG,)			

가

	TV 가						
:	TV , 1 TV TV						
TV	1. 2.						
	3. 4.						
	5. 6						

5. TV [2]

5 가 2. TV TV 가 1. [9,10] TV , TV TV TV , UI 가 TV (Lean- Back) UI TV TV . 2012 2 2 TV UI РС 가 TV 가 TV 2012 PC- TV 3-2011 TV TV 가 TV

2. TV					
	• N-	TV			
	•	•			
	TV CPNT	TV			
UI	•		TV	UI/UX	
	• N-				
	•	가			
	•	TV			
	•				
	•				
	•				

가 가 3. [8,11] 가 1 IV. TV TV 1. 가 가 TV P2P TV TV 2012 BcN 10 가 가 100Mbps TV 2011 TV LTE 가 TV 가 TV 가 TV 가 가 TV DTV 가 TV [6]. 가 TV TV , TV 가

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가
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   TV
                                                 (local)
         \mathsf{TV}
                                                                                         \mathsf{TV}
                                                                                 TV
                                                                                가
2.
                                                                                         TV
                TV
1
                                         \mathsf{TV}
                                                                                                           \mathsf{TV}
3DTV
                           \mathsf{TV}
                                                  \mathsf{DTV}
                가
1, 2
                                                                                                       TV
                                             \mathsf{TV}
                                               TV가
가 (32
                            , 40
               가 799
                                       가 999
                                                                                                                 IPTV
                                                                                           TV
                       \mathsf{TV}
   \mathsf{TV}
                                                                                                                 [14].
     가
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                                                                                                                            \mathsf{TV}
                                   PC
                                                                                                                              가
                                     .
DTV
                    \mathsf{TV}
                                                                                                                   \mathsf{TV}
                                     가
   1, 2
   \mathsf{TV}
                       TV
                                                                           4.
                                                                                         \mathsf{TV}
                                                         가
                                            \mathsf{TV}
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   TV
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3.
                          [6,12,13]
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             \mathsf{TV}
                              \mathsf{TV}
                                        , OS
                      가
                                                                                                       가
                                                                               2012
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                    가
                                                            가
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가
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                                                            9
                                                               [6].
                    2011
                                26
             , 2011 12
                            26
                                                                      TV
                                                                                             \mathsf{TV}
                      가
                                              2012
   1 1
                               가
        (5),
                  5
                                                                    TV
                                                          QoS가
                                                                                                  \mathsf{TV}
                                                                                        QoS가
                               가
                                                                   (Best Effort Network)
                              가
                                                                                                      \mathsf{TV}
                                                                                         \mathsf{TV}
                                                                              I/O
                                                                                  \mathsf{TV}
    가
                                                                                     TV
                                                                                                     \mathsf{TV}
                                                                                         가
                                                         V.
                                       2012 2
                                                                                        TV <sup>'</sup> 가
                           2010 183,000PB
2015 7
                   가
                                    HD, 3D,
                      2014
                                                                         TV
50%
                   2020
                                                                                            ΤV
                                  [13].
[11].
                             \mathsf{TV}
                                                                    \mathsf{TV}
                                                                                                    TV,
5.
                                                                   가
                                                                                                          가
                          \mathsf{TV}
                                                                                   \mathsf{TV}
 TV
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TV TV 2011.3.

[8] ," TV ,"2011 , , 2011.5.

[9] ," TV ,"2011 , ,2011.5.

[10] ," TV ,"

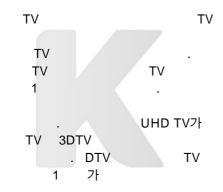
TTA Journal, No. 135, 201.1. 5/6.

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[13] ," Smart TV Eco System, "*Smart TV Global Summit 2011*, 2011. 11. 22.

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[]

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[2] , , , , , , , , TV , , "2011. 4. 6.

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[4] , , , , " TV ," , " , 16 1 , 2011.3.

[5] ," Beyond TV ,"2011 TV ,2011.6.2.

[6] 3 ," TV ," ,

, 2011. 6.

 $[7] \hspace{1cm} , \hspace{1cm} , \hspace{1cm} , \hspace{1cm} , \hspace{1cm} \text{"Smart TV} \\ , \hspace{1cm} , \hspace{1cm} 16 \hspace{1cm} 1 \hspace{1cm} , \hspace{1cm}$



(Myung Hyun Yoon)

1982:

1984: KAIST

1994: Iowa State University

1994 ~ 2001: 2001 ~ 2009:

2009~ : KEIT / 가 PD : , 가 ,

: , , , , , , , E-mail: mhyoon@keit.re.kr

Tel: +82-42-715-2120 Fax: +82-42-715-2149



(Dae Jin Kim)

1984. 2: 1986. 2:

1991. 8:

1991. 7~1996. 12: LG

2009. 3~2011. 2: / 가

TV/ PD

1997. 1 ~ :

:

E-mail: djinkim@chonnam.ac.kr

Tel: +82-62-530-1756 Fax: +82-62-530-1759



