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Abstract

In this article, I discuss the lessons from the South Korea's digital switchover, considering its development in the process and the remaining challenges. South Korea completed the digital switchover on 31st December 2012 but the analogue cable conversion to digital cable has not yet been completed for some 10 million households. Furthermore, mere 2.6% of all the households eligible for the government support benefitted from the support scheme. Although Korea embarked on its journey towards digital television relatively early, its progress has been slow and the outcome was only a partial success. I examine the national politics leading up to pilot programs for eliminating analogue television signals in two phases: Wuljin, Kangjin and Danyang during September and November 2010, followed by Jeju in June 2011. Based on these experiences and the diagnosis of the current situation after the switchover, I conclude that the South Korea's digital switchover is a partial success and there is continued need for a centralized hub collaborating between the government, the broadcasters, and the television manufacturers to communicate more effectively and to increase public awareness to overcome the remaining challenges.

Keywords: South Korea, digital switchover, digital television, digital divide

The digital switchover of television has become a global trend and South Korea (hereafter Korea) is no exception. The first country to switch off analogue terrestrial television was the Netherlands (in 2006) and it was relatively simple because terrestrial reception has long been of minor importance to the Dutch, with 92 percent of 6.7 million households already subscribing to cable (Starks 2007: 174). Their digital terrestrial service *Digitenne*, launched 2003, was free and covered 98 percent of the country (Starks 2007: 174). Most countries which have met early dates for analogue switch-off have had advanced levels of DTV penetration (with the exception of the UK). For example, Finland and Sweden had in 2007-8 DTV penetration of above 50 percent (Iosifidis 2011: 9-10). The UK, with the highest DTV adoption in Europe, started to switch off analogue signals on a region-by-region basis, and has completed the process in 2012 (www.digitaluk.co.uk). The switchover to digital television has also been accomplished in Japan in July 2011 (Kumabe 2012) and the switchover in China is scheduled for 2015. Market conditions and other factors affecting the switchover in these countries are diverse but the following points can be drawn: the countries that have successfully gone through the switchover process had either relatively small markets with high subscription rates to cable and satellite, or they already had advanced levels of DTV penetration, or they had both.

After the digital switchover nationwide on the 31st of December 2012, some 10 million households of analogue cable service subscribers are not yet converted. In addition, the Korean government still maintains an analogue system for TV transmissions across the border as the convertor boxes needed to view Korea's digital TV on an analogue set are not available in North Korea (Yonhap News 25th December 2012; Interview with Son 2013). Although Korea embarked on a journey towards digital switchover relatively early, this article explains how its progress has been slowed by political challenges which led to the decision to terminate analogue broadcasting all at once, rather than region by region.

From the Korean government's perspective, the objective of switchover was to keep abreast of changing television and telecommunications technology and to achieve greater spectrum efficiency by ending analogue terrestrial transmission. The motives for the switchover have been, however, more than a consumer focus on 'better TV'. A free spectrum can be sold to users (usually entirely commercial) for services, such as mobile data. Another motive has been to respond to business demands for network communication capabilities beyond television.

There have been many critiques of digital switchover. The most pressing one is that the policies for digital television are largely determined by markets and political contexts (Iosifidis 2011) rather than the benefit of ordinary viewers. For consumers, digital reception imposes an additional cost to acquire the equipment needed to access digital signals (Colapinto and Papandrea 2007: 40). For some, the additional cost may not be justified by the improved picture quality and other technical attributes of digital television. Consequently, in the absence of significant additional benefits, those consumers will tend to delay their investment in digital receiving equipment until their existing analogue equipment needs updating or replacing (Colapinto and Papadrea 2007: 40). Since there is no compatibility between analogue TV, as there was historically between black and white TV and colour TV, digital TV brings uncertainty as a disruptive technology that brings changes in existing order (Galperin 2002). Another concern is the environmental damage caused by digital switchovers. Korea's neighbour, Japan, witnessed a dramatic increase in illegal disposal of analogue television sets in the years leading up to the complete switch-off, from 67,838 sets nationwide in 2007 to 81,427 sets in 2009 (Sankei News 7th July 2011). Further critiques of switchover point to the dominance of telecommunication giants already in the marketplace and the elimination of public broadcasters who do not have access to digital distribution technology (Interview with Hardy 2011). The use of technology will boost consumerism over any other

forms of interactivity (Interview with Hardy 2011). While acknowledging these critiques, this article focuses on the early stages leading to the Korean switchover and a diagnosis of problems which accompanied two pilot programs for early switchover. Those problems persisted during the switchover process and still remain unsolved as witnessed in the case of analogue cable conversion to digital cable.

The last decade witnessed an increase in research about digital switchover. Brown and Picard (2005) and Iosifidis (2005, 2006, 2011) considered the topic in the European context and Cave and Nakamura (2006) compared experiences in the Americas, Europe and Japan. Further comparative studies include Galperin (2004) (between America and Britain) and Garcia Leiva, Starks and Tambini (2006) (between Europe, the United States and Japan). However, Korea has rarely been explored with the exception of Jung's (2010a) study of the legal background and the policy issues in the switchover. This study aims to fill this lacuna. To do this, I consult government documents, consultation papers, academic publications as well as reports by the Korea Communications Commission (hereafter KCC), DTV Korea, and the Korea Radio Promotion Association (hereafter RAPA). I also conducted in-depth interviews with two KCC and DTV Korea staff between December 2010 and January 2013. Based on these, I discuss the recent development of digital switchover, identify the challenges, and propose the implementation of more effective communication strategy and the introduction of free digital television, KoreaView, in order to complete the switchover of cable services.

Background and development

Since the 1980s, the US has pressured Korea to liberalize its markets in the name of globalization, including various media sectors. Many citizens, fed up with long years of state

media control, supported media marketization in the 1990s (Shim 2008: 15). The deregulation and opening up of the Korean media industry has been gradual but consistent. For example, it took six years (1998-2004) for the government to allow the importation of Japanese popular culture, for example, reversing a decades-old ban since its liberation from Japanese colonial rule in 1945 (Lee, D.H. 2008: 157).

In 1991, the Seoul Broadcasting System (SBS) became the first commercial broadcaster Korea, ending an oligopoly of two public broadcasters, the Korea Broadcasting System (KBS) and the Munhwa Broadcasting Corporation (MBC). This marked the end of dual funding scheme that combined licence fees and advertising revenue as part of the Korean public service broadcasting since the introduction of television in the late 1950s. Cable television services started in March 1995 and satellite channels were added in 2002 (Shim 2008: 23). In December 2010, the KCC abolished the traditional cross-ownership restrictions and deregulated the media marketplace by allowing the major newspapers' entry to broadcasting (Kim,T.H. 2010). Whilst the KCC contends that deregulation is crucial for the growth of the media industry, critics have raised concerns that liberalization compromised ownership diversity and that the increased competition will lead to a 'media bloodbath' (Kim, T.H. 2010).

The transition to digital TV is expected to impact the television industry in various ways. The process is expensive and takes time. The KCC reports that the total cost for digital switchover (including HD programme production and digital transmission facilities) for the major broadcasters (KBS, MBC and SBS) alone is expected to be around £1.5 billion by 2012 (Kang 2008: 16). In 2007, only half of the regional TV stations have completed the digitisation process (KCC 2008: 15). Cable TV operators are also expected to spend some £2.2 billion by 2012 (Sung 2009). The cable industry is concerned that analogue cable subscribers need to be converted and that cable TV operators need to collaborate with

terrestrial broadcasters to provide higher quality programmes via the digital cable set-top boxes. Satellite digital platform, SkyLife, started in March 2002 (Cho 2004) and it has now over 3 million subscribers, half of which are HD subscribers (YTN 24th March 2011).

Digital switchover initiatives in Korea began in the late 1990s (KCC and DTV Korea 2010: 8). Since the government's announcement on the move to all-digital transmission, its decision to adopt America's ATSC system has been controversial. It was not made explicit as to why this system was preferred (RAPA 2008: 27). The Korean Ministry of Information and Communication was reluctant to respond to the calls for the field test to compare the American system and the European system (DVB-T/COFDM) (RAPA 2008: 26). The strong resistance from the terrestrial broadcasters was based on the lack of platform interoperability of ATSC. At the time, North Korea was rumored to be adopting the European PAL system which it shared with adjacent China (Interview with Choi 2010). Broadcasters saw the European system as technically superior and a more economically viable option in the long run (in case of unification between North and South). In opting for the American system over an industry-centred voice, the government evaded a process of 'rational-legal authority' (Hallin and Mancini 2004: 55). Although a committee set up a field test in January 2004 in response to complaints from the industry, viewers and academics regarding ATSC's performance (Kang 2008: 26), the committee lasted only 5 months before agreeing ATSC would remain.

To make up for the lack of ATSC's platform interoperability, the government approved DMB as a hybrid form of mobile broadcast television on mobile telephones designed by Digital Audio Broadcasting (DAB) (Starks 2007: 180). Korea emerged in mid-2005 a global test market for DMB (Shin 2006: 1145). This solution recognized the existing market and socio-cultural conditions in Korea where there is a high penetration of mobile telephony and social media usage. This experience illuminates the beginnings of a power struggle between the

government and the broadcasters. The government has been reluctant to give a prominent role to broadcasters and the whole process lack a centralise hub for decision making. This would be indicative of later problems in the digital switchover.

Indeed as stated by Starks (2007: 200), no country has embarked on full digital switchover without first launching digital terrestrial TV and no country has launched digital terrestrial TV without also intending to switch off analogue terrestrial services. Following the government's Digital TV Action Plan, digital terrestrial television (DTT) broadcasting began in October 2001. First available in the metropolitan area, DTT service expanded gradually its reach region-by-region over the next five years (KCC and DTV Korea 2010: 8). A key to this plan obliged the existing terrestrial broadcasters to simulcast their analogue service in digital HDTV for five years, provided that at the end of 2006, DTT would reach 95 percent of the population. This was an optimistic target, considering that the survey in November 2005 showed that a mere 12.8 percent had adopted DTT (RAPA, 2008: 29). DTT use has been on the rise (58.7 percent in 2010) (KCC 2010: 3) but is not yet sufficient. All Korean terrestrial broadcasters were still simulcasting in 2012.

The government then announced the Digital Switchover Action Plan in March 2008, the same year as the establishment of the KCC under the office of the President. The KCC marked the consolidation of the former Korean Broadcasting Commission (KBC) and the Ministry of Information and Communication (MIC). It is the governmental organization responsible for both policy-making and regulation in broadcasting and communications. The KCC has spearheaded an ambitious attempt by the government to deregulate the Korean media marketplace (Kim 2010). Critics have rightly been concerned about the KCC's political independence. Of its five permanent Commissioners, two are appointed by the President. The other three are recommended through the National Assembly, one by the President's party and the other two by opposition parties (www.kcc.go.kr). KCC Chairman Si-Jung Choi

resigned in early 2012 over allegations he bribed senior government officials (Yonhap News 27th January 2012).

DTV Korea launched in October 2008 and the government announced details around early switch-offs in June 2009. By April 2010, these details were finalised and the target date for a complete switchover was set. This could be seen as a political decision with the switch-off immediately following the Presidential election in December 2012. As Garcia Leiva and Starks (2010: 789) elaborate on the U.S. experience, this is the time frame when newly elected politicians could still blame their predecessors for the policy decision. Wuljin, Kangjin, Danyang and Jeju were selected to test a complete switch-off for two reasons. First, these towns had small populations, and thus were suitable for the pilot. Second, due to these towns' remote locations, they have had bad television reception historically; the KCC thought the improvement in transmission and reception facilities would solve this problem.

Despite fierce competition in the Korean media market, the government contended that the digital switchover will serve the public interest in the sense that there would be more choices and better quality free-to-view programmings for the public. This path merges an increasingly deregulated and Americanized Korean media market with the goals of public service broadcasting, similar to the European model. At the same time, the Korean case is best described as a top-down, government driven policy process. As the following discussions of the pilot studies will reveal, the lack of communications and public engagement has seriously delayed this process.

Switch-off lessons from Wuljin, Kangjin and Danyang

The budget for the 2010 pilot was ₩900 million (£5.14 million), or approximately ₩1600,000 (£91) per household and ₩70,000 (£40) per person (Shin, 2010a: 34). Table 1 indicates that the levels of DTV adoption and public awareness and understanding of the digital switchover were both relatively low.

Table 1. Details of a pilot analogue switch-off in Wuljin, Kangjin and Danyang

	Wuljin	Kangjin	Danyang
Population	52,573	40,804	33,990
Number of households	23,261	18,414	14,706
Households receiving income support*	2,753 (11.8%)	1,781 (9.7%)	1,317 (9.7%)
Households receiving benefits (just above those receiving income support)*	3,803 (16.3%)	9,518 (51.7%)	921 (6.8%)
Aged 65 or over	11,998 (22.8%)	10,760 (26.4%)	6,877 (21.6%)
Disabled	4,208 (18.1%)	3,563 (19.3%)	2,800 (20.5%)
Pay-TV subscriber households	16,837 (72.4%)	13,973 (75.9%)	11,568 (84.8%)
Households with only terrestrial TV (estimate)	6,404 (27.6%)	4,423 (24.1%)	3,106 (15.2%)
Households exempt from TV licence fees	9,238 (39.7%)	1,522 (8.3%)	5,916 (40.2%)
Average number of TV per household	1.39	1.30	1.44
DTV take-up (%)	17.1	11.3	18
Awareness and	27.2	21.9	36

understanding of digital switchover (%)			
Analogue switch-off date	1 st September 2010	6 th October 2010	3 rd November 2010

Sources: The Korea National Statistical Office (November 2009), DTV Korea Survey (3rd October 2009 – 13th November 2009)

*Households in these two categories are eligible to benefit from the Help Scheme by the government with a choice of one free DtoA converter or monetary support of approximately £55 per household.

An average of 2.6 percent of all households had not yet converted even after the switch-off (Jung 2010c). Most of the non-converted households were either elderly or low-income households. The latter group was eligible for a free converter box or monetary support (approximately £ 55). This group accounted for 61.4 percent of Kangjin’s population, 28.1 percent of Wuljin’s population and 16.5 percent of Danyang’s population. However, merely 21, 28, and 8 households respectively actually benefitted from the plan (Jung 2010c). Despite the considerable proportion of the population in need of technical support, support centres opened only in early 2010 with limited human staffing. Technical support and communication were two problematic issues (Jung 2010; Namgung 2010; Kim 2010). At least 80.2 percent of all callers before and immediately after the switch-off date needed help installing and using the digital equipment (KCC 2010: 2). Some people sought advice via a telephone helpline but most callers required a personal visit by technicians. Second, there was a lack of communication to the local residents about the switchover. A survey shows that one-third of the residents in the three towns did not know that their towns were ‘selected’ for early switch-off (Shin 2010b). More importantly, few of the potential recipients were aware of available government assistance (Shin 2010b: 39). There were some positive outcomes in the process. First, the level of public awareness and understanding rose to encompass average

82 percent of the population by the end of 2010 (Jung 2010c). Second, six additional digital transmission networks have been established in the region (Shin 2010a: 35). However, public complaints so far have outweighed positive experiences with digital television.

Switch-off lessons from Jeju

Overall, critics called the Jeju case a ‘catastrophic disaster’ (song 2011). The KCC selected Jeju, an island south-east of the Korean mainland, with a total population of 577,187 (224,713 households) as the first self-governing province for a complete switch-off on June 29, 2011 (www.jeju.or.kr). A survey in September 2010 showed that 35.4 percent of the residents adopted digital television but only 9.1 percent of the elderly households (65 or over) did (KCC and RAPA 2011: vi). According to this survey, 90 percent of the local population subscribed either cable or satellite channels; the rest relied solely on analogue terrestrial television. Conducted only 9 months before the complete switch-off date, the survey stated a mere 7.7 percent of Jeju residents knew about the switchover (KCC and RAPA 2011: vii). Low levels of public awareness called for more vigorous communications. For two months after the switch-off date, several million telephone callers asked for technical support (Song 2011). Some 4,000 households were without any terrestrial television (MBC News 17th August 2011). Public complaints continued as the technical operations to install and repair converter boxes took as long as two weeks. A total of 14,000 households received the digital converter boxes from the KCC but the DTV Korea reported that 18.8 percent of the recipients did not know how to use them even two months after the switch-off date (Kim 2011). One local media outlet claimed that Jeju served as a guinea pig (Yoon 2011). The KCC in this case was inefficient in dealing with the delivery, the installation and the repair of the free converter boxes and their concomitant technical support. The KCC outsourced these services to a few small-scale, local companies, which had limited human resources. The KCC

blamed an insufficient budget for this problem (Kim 2011), leading to an increase in the annual budget for the project (Lee 2011).

The Future of DTV in Korea: Challenges and recommendations

The outcomes in the pilot cities have stemmed from deeper problems in Korean communications. The division of labour and responsibilities between the entities leading the switchover – the KCC, the RAPA, and DTV Korea – was not clearly managed. Operationally, the RAPA was responsible for practical matters, such as technical support, and DTV Korea was responsible for promotion. Yet switchover funding for these entities was neither sufficient nor safeguarded (Yoon and Lee 2010). For example, the KCC proposed the installation of 16 Digital Switchover Support Centres nationwide, but it is not clear who would run those centres or with what resources or funding. So far the RAPA, which is under the KCC's control, operated the customer call centres, but a survey shows their services have not been satisfactory (Jung 2010b). Dissemination of public information was also poor in the Korean case; neither the KCC, RAPA, nor DTV Korea has provided daily updates on their websites. None of the broadcasters had a lead role in communicating about the digital switchover. The experiences in Wuljin, Kangjin, Danyang, and Jeju showed that DTV Korea failed in its responsibility to communicate with the public, but at the time, its budget was a mere £ 1.4 million, or only 7 percent of the KCC's annual budget (KCC 2010: 21). Despite a 3 percent increase in the DTV Korea's budget in 2011, many critics have argued that a greater budget increase is needed for more effective communication campaigns (Jung 2010b; Shin 2010: 43; Yoon and Lee 2010).

The main challenge to the complete digital switchover in South Korea today is analogue cable conversion to digital cable for some 1000 million households (Yoon, H.S. 15th March 2013). The provision of consumer information and support has been poor. Government

communications were not effectively targeted. It turned out that mere 2.6% of all the households eligible for the government support benefitted from the support scheme (Yonhap News 28th February 2013). Out of 1,734,000 households who were eligible for the government support, only 457,602 households (2.6 percent) had benefitted from the support scheme. Those who needed the most help were also most difficult to reach, reproducing a 'digital divide' (Interview with Choi 2010). This shows that while digital television can offer many opportunities to some, it also presents a challenge to others, particularly the elderly and the disabled (c.f. Evans and Petre 2005: 1003, 1006). The so-called 'digital divide' and its consequences are a threat to those citizens who, for one reason or another, are not participants in electronically mediated networks (Mansell 2002: 407) and therefore face-to-face communication is crucial.

Based on the lessons from the pilot towns and the nationwide switchover, three recommendations are in order. First, there should be more targeted communication with the elderly, the disabled and low-income households among analogue cable subscribers. The most effective communication activity in the pilot towns was face-to-face conversations in promotion booths located in the town centres (KCC 2010: 4). Public information is a critical element of switchover planning and implementation because it involves a type of cultural transition beyond simple adaptation. People with less social-technical resources are bound to have more difficulties to go through this transition. Human resources for face-to-face interaction as well as the use of informal and personal networks could contribute to increased public awareness in a network-oriented society like Korea.

Second, more vigorous advertising could increase public awareness and digital adoption among unconverted households. There is currently no campaign targeting these households.

Advertising carried on cable channels would be most effective and cable services providers and TV manufacturers need to share the advertising costs in exchange for including their product information, a measure that was undertaken in the UK (Ofcom 2006).

Third, the introduction of a free-to-view digital platform would increase the level of digital adoption. Subscribers to analogue cable services could opt out of pay TV services and instead, digital TV services would be available with relatively inexpensive, one-off payment or even free of charge if the viewers are eligible for the government support. In 2010, the KBS proposed the launch of KoreaView, to target the 9.6 million non-subscribers to multi-channel pay TV services (KBS 2010). Based on the UK's Freeview, KoreaView aimed to provide a multi-channel, digital broadcasting service via a cheap set-top box (£27) to those who receive only five terrestrial channels. The KBS piloted KoreaView in 500 urban households in 2010, and has subsequently run a larger pilot for households with 8 channels in 2011 (KBS 2010). The next phase was to increase the number of channels up to 21, in collaboration with other terrestrial broadcasters by 2012, but to this day the government has not yet decided how to use the extra spectrum. As of January 2013, the KCC has not approved the KBS's plan (Interview with Son 2013).

Although the KBS is committed to pay for the operational costs and other broadcasters are willing to collaborate in terms of sharing their contents, the introduction of the KoreaView will also raise a number of issues around digital terrestrial transmission pricing, broadcasters' digital transmission costs, and broadcasters' new service production costs. Since potential multiplex licenses have grown, the pay TV sector has not welcomed KoreaView. Nevertheless, the KoreaView needs a serious consideration for the digital transmission. Given and Norris (2010: 52) and Iosifidis (2005: 57) found that Freeview in the UK played a significant role in enhancing consumer interests in digital television services and thus made it possible to switch

off analogue services. If Korea would have free-to-view digital terrestrial broadcasting services, unconverted cable subscribers would be likely to adopt this option.

One fundamental test of switchover feasibility is an answer to the simple question: why should consumers wish to buy digital receivers? According to Starks (2007: 199), the consumer motive for buying a new digital receiver could be (a) directly related to the equipment, for example, improved picture and sound quality, greater portability/mobility, widescreen, or easier navigation and recording; or (b) primarily a function of the new services DTV provides, whether new channels or interactive services. These motives are relevant to the Koreans as they face a greater diversity in terms of available programs and services such as HD programs and Smart TV options. As of December 2010, approximately 82 percent of all TV programs on the Korean terrestrial channels were in HD (KCC 2010: 3). KoreaView would extend the channels and services that Starks suggests in order to motivate DTV adoption.

Conclusion

The transition to digital television in Korea has proven slower than expected. Although the country completed the switchover on the 31st of December 2012, some 10 million households of analogue cable service subscribers are not yet converted. Examining the European experiences, Iosifidis (2011: 4) argues that a free-to-view model, in which public broadcasters have a leading role, ensures that the transition to digital television is citizen-friendly, and that the universality principle is maintained in the digital age. In this context, KBS' KoreaView might facilitate similar outcomes in Korea. The collaboration between the public policy and the market is fundamentally important in switchover process.

“Governments and regulators cannot easily switch off analogue terrestrial broadcasting without existing terrestrial broadcasters to digital television – and that migration is too risky for the broadcasters unless there is public policy support. Neither broadcasters nor the receiver industry will switch out of the analogue market fully without some announcement from government of a firm and reliable switchover timetable which will be enforced. Consumers will only accept the policy without rebelling if they understand the reasons for it, if the consumer proposition offers real benefits (one measure of which is voluntary take-up), if the element of compulsion is relatively low, and if help is provided to those who will find switching most difficult”(Starks 2007: 218).

Starks describes digital switchover as a kind of mutual risk reduction scheme which is not capitalist, not socialist, not a formal public-private sector partnership, nor a joint venture. Instead, it is more like a dance, in which the dancers may make up the steps as they go along, and they know and respect their positions in relation to one another. Looking at the process and trade-offs between competitor services in Korea, it is worth reflecting on decisions that will sustain either a viable public service broadcasting model or an expansion of commercial services with a shrunken public service broadcasting sector.

The challenges identified in this article demonstrate that all four major players in Korea need to continue collaborating in this ‘dance’ rather than ignoring the unconverted population. Digital divide was clearly evident in the process, considering the fact that only 2.6 percent of the total households eligible for the government support have actually benefitted from the support scheme. Perhaps by following some of the recommendations identified here, it will no longer be a partial success.

Notes

1. All non-English sources used here are author translations.
2. Although the term digital switchover includes the switch-off for analogue radio, in Korea, it is set later than TV and there is no firm target date yet. This study focuses on terrestrial broadcasting.

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