

**FROM ANALOGUE TO DIGITAL TERRESTRIAL TELEVISION:
HOW TO ENSURE UNIVERSAL ACCESS AFTER THE ANALOGUE
SWITCH-OFF?**

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Abstract: When talking about the digital age, the digitisation process of the television landscape catches the eye. Dependent on the specific characteristics (geography, existing infrastructure) of each Member State, the transformation from analogue to digital television in Europe has been initiated from one of the traditional transmission channels (terrestrial, satellite or cable). Digitisation has now reached a crucial phase, i.e. the replacement of the analogue terrestrial system by its digital equivalent. The European Commission has urged all Member States to switchover from analogue to digital terrestrial television by 2012. This analogue switch-off has consequences for both users and providers of television services, particularly for public service broadcasters (PSB).

This paper focuses on the switch-off plans and strategies in Europe and assesses the implications of the digital switch-off, especially with regards to the role of public service media. After a brief literature review on public service broadcasting in the digital era, we focus on one principle that might be at stake when analogue terrestrial television is to be switched-off: the principle of universality. A substantial part of the citizens who watch television by means of an analogue antenna signal, risk to be excluded or neglected after the analogue switch-off. In the light of democratic and social ideals, European governments must be aware of this and must develop suitable alternatives and communication campaigns.

Policy makers are confronted with a duality in the highly competitive digital environment: they must join the digital era by offering additional services via the new digital platforms while on the other hand they are supposed to keep television available for all citizens, including those who watch (analogue) terrestrial television. In this context, the Flemish Government – who scheduled the switchover to digital terrestrial television in 2008 – ordered a study on the profile and needs of analogue television viewers in Flanders. The study, of which the findings are presented in this paper, used a multi-methodological design (a survey supplemented by focus group

interviews) to identify the characteristics, media behaviour and needs and expectations of Flemish analogue antenna viewers.

On the basis of our research, we can conclude firstly that there are three types of analogue antenna viewers: the primary antenna viewer, the secondary antenna viewer at home, and the secondary antenna viewer in a holiday home/second residence. Making a distinction between these three segments clearly has its implications when it comes to communication. Especially the primary antenna viewer has a distinct opinion. Secondly, the results demonstrate that the antenna viewers are badly informed about the upcoming analogue switch-off, which may lead to a negative attitude and may impede a smooth transition. Lastly, antenna viewers are rather conservative viewers: they wish to keep on watching television on the same place, with the same program offer. Moreover, digital terrestrial television is their most preferred alternative.

1) Introduction

When talking about the digital age, the digitisation process of the television landscape catches the eye. Dependent on the specific characteristics (geography, existing infrastructure) of each Member State, the transformation from analogue to digital television in Europe has been initiated from one of the traditional transmission channels (terrestrial, satellite or cable). Digitisation has now reached a crucial phase, i.e. the replacement of the analogue terrestrial system by its digital equivalent. European countries are being prompted to switch over from analogue to digital terrestrial television by 2012. This analogue switch-off has far-reaching consequences for both users and providers of television, particularly for the public broadcasters.

Commercial players in the television landscape could profit from the rise of digital television by providing the public with a more diversified range of content and services, specified for the target groups who are of greatest interest to them (i.e. for advertising purposes, etc.). Public broadcasters cannot simply follow the same strategy. Because of their mission statement and the fact that they are funded with public resources, one of their primary goals (in addition to other goals such as focusing on minorities, diversity, culture, etc.) is to reach everyone in society (universal access in the television landscape). The process of digital switchover puts this principle under pressure. As a part of that, people who only receive television signals via analogue terrestrial transmission risk being excluded if no specific strategies or measures are undertaken. As a consequence, the analogue switch-off of terrestrial television is an important challenge for both public service broadcasters and government. And it should be the concern of both to reflect on necessary initiatives to prepare the switchover.

In this paper three major topics are discussed: First, an assessment is made of the role of government and the public service broadcaster in the digital context, which is complemented with a more generic view on the process of the analogue switch-off; Second, the process of the analogue switch-off in Europe, together with plans and strategies, is described; Finally, we describe the research that has been carried out by order of the Flemish government to obtain a profound understanding of the distinctive profiles of the current users of analogue terrestrial television (and their media use and media behaviour). The results served as input for a broad communication campaign which is ongoing nowadays.

Furthermore, by reflecting on the process of the analogue switch-off by 2012, this paper would also like to stress the importance of policy research in preparation for the analogue switch-off. The research methodology and results may be helpful or inspiring for other Member States in their development of a strategy for achieving a fair analogue switchover and may eventually lead to policy recommendations.

2) Television in the digital era: PSB and universal access

The rise of the information society encroaches deeply on social life, on the way people work and live. Techno-optimists believe that McLuhan's (1962) vision of a 'global village' has become reality: boundaries in time and place no longer exist, and new information and communication technologies (ICT) create many innovative

opportunities. The European Commission clamours for 'an information society for all' (European Commission, 2005b), an information society which is often associated with computers, the World Wide Web and the migration of so-called 'old media' towards the digital era.

The migration of 'traditional television' towards DTV (digital television) offers new possibilities in terms of interactivity and additional services, but simultaneously may entail some potential pitfalls as well (d'Haenens, & Bink, 2001).

2.1) Towards digital television...

European television viewers are confronted with an increased offer of platforms of (pay) television in the last few decades. The traditional television landscape in many countries came under pressure due to the combination of increasing competition, new distribution channels and the digitization process (Dahlgren, 2000), making them evolve from often monopolistic structured television markets to highly competitive television markets. For example, in southern European countries terrestrial or satellite pay television harvested on their 'first mover advantage' for a long time (which was a clear advantage of course since cable roll-out would have been very expensive in these countries). In other countries, for example in the Benelux, cable transmission was always very dominant and, as a consequence, the local cable company had a monopoly on both viewers and content providers (Adda & Ottaviani, 2005). The introduction of satellite television and terrestrial television has thus turned the market upside-down in the Benelux. People nowadays have the opportunity to choose between different delivery platforms, which leads to growing competition.

When talking about delivery platforms, three different broadcast technologies for television signal transmission are traditionally distinguished: terrestrial, cable and satellite (Pagani, 2003; De Grooff, 1999: 7). Terrestrial is the oldest and most commonly used transmission technology. The signal can be captured by means of a simple roof or in-house antenna, but due to spectrum restrictions, only a limited number of channels can be made available. To subscribe to cable television, a connection to a dedicated cable network is necessary. Due to the high capacity and the low level of noise and electromagnetic interference, this technology allows for the distribution of different kinds of information. In the late '80s improvements in satellite technology led to the rise of commercial satellite operators that provide uplink connections to broadcast satellites at a cost that was affordable for a medium-sized television company. For the viewer, subscription to satellite television services requires the investment in a satellite dish and a dedicated receiver, which could create both an economic and a practical problem (Tadayoni, 2006: 106-109).

To migrate from the 'old television medium' to the digital era, digital equivalents were required for each of these 'traditional transmission platforms': digital terrestrial television (DTT/DVB-T), digital cable (DVB-C) and digital satellite (DVB-S) (De Grooff, 1999: 7) were accepted as European transmission standards for the different platforms. In addition to these more 'classical' technologies, television is nowadays also offered by means of a broadband Digital Subscriber Line (DSL) which allows for the (IPTV-) transmission of a digital video signal over a standard telephone line. The current penetration of this technology is still quite low, and only moderate growth is anticipated in the near future (Gawlinski, 2003: 56-67; Adda & Ottaviani, 2005; OBS,

2007). And recently, trials have been set up with digital video broadcast to handheld devices such as cellular phones using DVB-H, a standard proposed for mobile broadcasting.

Television transmission has clearly entered the digital era, entailing both new opportunities as well as pitfalls. The exponentially increased competition and range of services, applications and channels reflect the diversity of opportunities (d'Haenens, 2001: 116). At the same time, in this newly digitised and competitive television arena there are 'downsides' or pitfalls at several levels.

2.2) Towards digital television for everyone

Universality is one of the key principles that have historically and traditionally been attributed to public service media (Coppens, 2005; Hargreaves, 2005: 116; Hastings, 2004: 301). The main idea of universal access is obvious: a public service broadcaster must be accessible to every citizen under the same conditions (Tracey, 1998: 26; Murdoch, 2000: 54). 'Universal access' is in this respect essential to guarantee coverage of as large an audience as possible. Each media user must have equal access to the public broadcaster within a certain geographical territory. No individual may be impeded by financial or geographical obstacles (Tracey, 1998: 26; McQuail, 2000: 157,169; Harrison & Woods, 2001: 48; Coppens & Saeys, 2006: 262). In the course of time, the concept of universality has been broadened towards universality of programmes and public (Coppens, 2005: 9-11). The analogue switch-off brings us to the core of the principle of universality: access to television must be ensured for all citizens at a reasonable cost.

In many countries, analogue terrestrial television transmission has until now always been the cheapest way of watching television (financial obstacles are rather limited) and covering the most of the territory. Of course, the analogue switch-off endangers this in some way, both geographically and financially, since the migration from analogue to digital terrestrial television implies (some) intervention for those who want to continue watching television. Geographically, analogue terrestrial viewers in remote regions (where cable subscription is not possible, although this is rather an exception in Flanders) risk being excluded from television: for some transmission alternatives, their remote location may be seen as too expensive to reach via a digital cable network, or their lower degree of television consumption might make their regions unattractive for service by (digital) terrestrial television. Secondly, analogue terrestrial viewers may also find themselves confronted with a financial barrier or 'switching cost' (d'Haenens & Bink, 2001) for the purchase of a digital terrestrial receiver. Even for people who live in less remote regions, with possible access to cable subscription, the switch-off implies this financial barrier, since they are forced to choose between the purchase in cable or a DTT receiver. In both cases, it seems that the analogue switch-off has implications on the principle of 'universal access without geographical or financial constraints', that cannot be neglected by PSB's or by policy makers. Or as Harrison & Woods (2001: 482) state: a certain watchdog is needed to ensure that every citizen still has access to the channels of the public broadcaster in the digital era.

3) The analogue switch-off: the migration process from analogue to digital terrestrial television

3.1) Digital switchover versus analogue switch-off: concepts and implications

The concepts 'analogue switch-off' and 'digital switchover' are currently high on the agenda of European policy makers because of the 2012 deadline that sets the termination of analogue terrestrial television. Nevertheless, some clarification about the difference between the two concepts is necessary. The European Commission defines 'switch-off' as "*terminating the terrestrial transmission of analogue television*", and 'switchover' as "*the transition from analogue to digital broadcasting of all types of broadcasting*" (EC, 2005a: 3; Iosifidis, 2006: 250).

This digital switchover is seen as a logic consequence of the technological evolution, generating several advantages for citizens and broadcast companies: First, more choice and quality for viewers (more channels, high-definition television, better image, etc.); Second, lower distribution costs and the possibility of transmitting more channels or services at the same cost; Third, greater efficiency in spectrum use (the creation of new services because more data can be transmitted through the same bandwidth); And finally the ability to send data that allows interactivity, personalisation, etc. (d'Haenens & Bink: 2001: 125; Iosifidis, 2007: 7).

The increased efficiency in spectrum use is the most evident implication for the broadcasting sector. The so-called digital dividend (Fontaine & Girieud, 2007: 182-184) urges them to explore new business opportunities (mobile broadband, mobile television, etc.) and forces policy makers to adjust the legislative framework of the 'digitized' television landscape.

In spite of these promising social and economic advantages, however, the digital switchover seems not welcomed by every citizen. Klein et al (2004: 8) demonstrate that a substantial fraction of the citizens show a rather negative attitude towards the digital revolution, depending upon different aspects: first, many people believe that analogue television will be taken away from them and they fear a fierce increase of the cost of watching television. Second, citizens do not seem to understand why the switchover is on the political agenda and they have no faith in the arguments of government. Finally, some citizens really do have a problem with the extra financial investment that will be necessary.

In addition, Iosifidis (2005: 59) and Murdoch (2000: 54) even point out the danger of social exclusion if certain parts of the population are not reached by digital television. Therefore, criteria of availability and affordability have to be taken into account very carefully. So, it should be clear that the government has a specific role to play in this 'migration to a digital' scenario, particularly when it comes to communication and support. Evidently, the government will need accurate insights into the 'analogue viewing audience' in order to ensure the efficiency of communication and support regarding the analogue switch-off.

3.2) Switch-off plans and strategies in Europe

The eEurope 2005 action plan (followed by i2010) stresses the role of digital television in the information society (European Commission, 2000; European Commission, 2005b). Therefore, the national and European regulators have put this issue high on the agenda. In this context, Member States were urged to reveal their national plans concerning the analogue switch-off (date, strategy, commissions, etc.) (Iosifidis, 2007: 8). The Member States can choose their strategy freely, but Europe aims for the end of analogue terrestrial television by 2012.

The plans and timing vary greatly. In some countries (Luxembourg: September 1st, 2006; The Netherlands: December 11th, 2006; Finland: August 31st, 2007; Andorra: September 25th, 2007 and Sweden: October 15th, 2007 – DigiTAG, 2008) the analogue switch-off has already been accomplished, other countries have fixed a date in the near future (UK: 2008-2012; France: 2011; Germany: 2008; Italy: 2012; Spain: April 2010; Flanders: November 2008), while others have not yet decided (Ireland, Portugal). The switch-off dates vary from one country to another depending on the particular characteristics of each national television landscape (Iosifidis, 2007: 8), which condition very much the current penetration of DTV and therefore the capability of each market to reach the deadline of 2012.

We roughly distinguish three types of countries in Europe (Blumler, 1992: 25; d'Haenens & Bink: 135; BIPE, 2002): First, '*cable countries*': where more than 90% of households watch cable television (Belgium, The Netherlands, Luxemburg); Second, '*terrestrial countries*': terrestrial transmission is the dominant delivery platform (UK, France, Italy, Spain, Portugal); And finally '*hybrid countries*': cable and satellite together serve more than half the households (Germany, Ireland, Sweden, Finland, Denmark).

Table 1 gives an overview of the percentage of digital terrestrial television penetration and the years after full launch. The degree of DTT penetration is extremely varied, often dependent on the role of the state and the public service broadcaster in the implementation and further evolution (Storsul & Schanke Sundet, 2006: 248-249). Since 2005, digital terrestrial television has been available everywhere in Flanders. Exact figures on penetration are not available, but experts assess the penetration as less than 1%.

<i>Country</i>	<i>DTT penetration</i>	<i>Years after full launch</i>
UK	39%	8
Sweden	21%	7
Spain	15%	5
Finland	40%	5
Netherlands	4%	3
Germany	17%	3
Italy	19%	3
France	20%	1

Table 1: Roll-out and penetration of DTT (Shulzycki, 2007 in: Iosifidis, 2007:10)

3.3) Digital switch-off in the Low Countries

The presented research deals with the analogue switch-off in Flanders¹, the northern part of Belgium. Being typical 'cable countries', the television landscapes of Flanders and the Netherlands have several parallels. Both regions adopted a dual broadcasting system in approximately the same period (Flanders in 1989 and The Netherlands in 1991) (Bardoel *et al*, 2000: 88; Otten, 2005: 41). Research also shows that the mean viewing time in both regions is comparable. They also have equally dominant cable penetration (>95%) (Beleidsbrief Omschakeling Ethertelevisie, 2006), implying that the analogue switch-off only has implications for a minority of television viewers. Regarding this switch-off, The Netherlands and Flanders can be seen as precursors.

The Netherlands

In 2002, The Netherlands installed a 'Switch-off Commission', to investigate how the transition from analogue to digital terrestrial television might take place. The commission concluded that the transition would be relatively easy compared to other countries given the limited number of households dependent on analogue terrestrial transmission. The research bureau GfK Intomart was consulted to map out the number of households that still make use of analogue terrestrial television.

GfK Intomart concluded that the number of such households was decreasing swiftly in the period preceding the analogue switch-off. In the beginning of 2005, 222,000 households were watching television by means of analogue terrestrial television (519,000 in 2002). More than half the households did so at home, while a substantial group watched analogue terrestrial television outside the 'home boundaries' (caravan, holiday home). 51% mentioned that connection to the cable was not possible, while 20% stated that for them cable or satellite television was too expensive as an alternative (GfK, 2006).

The actual transition from analogue terrestrial television to digital terrestrial television happened in the night of December 10 to December 11 2006. The date of analogue switch-off had been postponed for a few weeks because the Dutch Government wanted to organise a large-scale information campaign, and a parliamentary discussion arose about the choice of free-to-air channels. Different ads, articles, radio commercials and a centralised website (www.signaalopdigitaal.nl) informed the Dutch citizen about the upcoming changes. The public broadcaster also sent out 'ticker tapes'².

The different parties involved reached a consensus concerning the free-to-air channels: all channels that could be received in an analogue way were offered to the customer without smartcard and without encryption. Nozema Services is the largest nationwide (commercial) terrestrial broadcaster in The Netherlands. They offer 25 TV Channels and 16 radio channels (Iosifidis, 2007).

¹ Media, and consequently also the switch-off, comes under Flemish Community authority. For more detailed information about the Belgian and Flemish media landscape, see Coppens (2003: 148-152).

² Ticker tapes are a kind of banner that can be sent out via the analogue television signal. This strategy made it possible to convey the government's message only to that group of viewers that was watching terrestrial broadcasts.

As mentioned above, The Netherlands have accomplished their analogue switch-off in 2006. The Dutch government made only a limited contribution to the overall process, by informing citizens via regional newspapers and the centralised website. The other information campaigns and a part of the creation of awareness were managed by KPN, the Dutch provider of telecommunications, which was also responsible for the provision of DVB-T (via Digitenne). As mentioned, the public broadcaster sent out 'ticker tapes' on three different channels: 'Nederland 1, 2 and 3'.

Despite the limited number of citizens 'affected' by this transition, the analogue switch-off caused relatively more commotion than expected. Specifically, it was the viewer watching television via analogue terrestrial broadcast on a second television set at home, while using cable at the prime viewing location, who raised his voice in complaint. The 'occasional nomadic viewer' also became aware of the imminent new situation. Due to the short preparation period preceding the analogue switch-off, they felt they had been taken by surprise and left out in the cold. The analogue switch-off in The Netherlands happened quite abruptly, without extensive transitional measures.

Flanders

Just as in The Netherlands, the Flemish government wants to make the switch from analogue to digital terrestrial television well before the 2012 deadline. The actual switch-off will take place in November 2008 (Bourgeois, 2008). The Flemish government recognized that this transition demands a certain degree of 'strategic' guidance, and desired to take measures in the beginning of 2008.

Unfortunately, there is not much in-depth knowledge of the typical profiles of the Flemish terrestrial viewer that could be used as a starting point for this guidance. This group of viewers is something like an 'ignored' minority on which not much information has been collected. For this reason, the Flemish Government commissioned the Research Group for Media & ICT (MICT) to study and learn more about the analogue terrestrial television viewer.

4) Case study: analogue terrestrial television viewers in Flanders

4.1) Research questions

Having the Dutch experience at the back of its mind (fast transition, not enough information about the analogue terrestrial television viewer) and given the planned switch-off in Flanders is approaching fast, the Flemish government and the public broadcaster VRT both wanted to gain a greater insight into the profile of the analogue terrestrial television viewer.

With cable penetration of 97% (Coppens, 2003), this analogue terrestrial television viewer is a tiny minority³: because they are not registered anywhere, there are no reliable figures available to distinguish between non-viewers and antenna viewers⁴. Several questions arise: what is their profile, what are their reasons for watching

³ To illustrate this: recruitment bureaus make it possible to select respondents by different characteristics, but none of them held any information on viewing via antenna.

⁴ About 99% of Flemish households are considered to be 'television households'. As cable subscription accounts for nearly 96% of all households, the difference between 'non-viewers' and 'antenna viewers' becomes very difficult to calculate.

analogue terrestrial television, what is their attitude towards television, what do they think about possible alternatives, etc? Yet this information is crucial to successful social acceptance of the analogue switch-off. It would make it easier to develop information, action and awareness campaigns for this small, but very specific target group. It would be useful in working out possible transitional measures (for example, financial and practical support to switch from analogue antenna viewing to an alternative signal source), and it would provide useful information on the most suitable timing and strategy for the analogue switch-off.

In consultation with the Flemish government, three main research questions were dealt with:

1. Who are the 'analogue terrestrial television viewers'? What characterizes them? What are their motivations for watching tv via antenna?
2. Which knowledge, questions and attitudes do they have about the analogue switch-off?
3. What are their television-viewing expectations after the analogue switch-off? What is – according to them – the role of the government and the public broadcaster in this landscape in transition?

4.2) Methodology

The central goal of the study⁵ was to map out the analogue television viewers in Flanders and study them in terms of their attitudes towards television viewing, the analogue switch-off, the future of television, etc. A first big challenge, however, was detecting members of this small and unknown group of people. Given the fact that there are not many data available on them, it was not possible to simply consult a database to address the target population. The following paragraphs describe briefly how the recruitment was organized, and explain the applied methodology.

Recruitment and approach

The Flemish government only has estimates of the number of households watching analogue terrestrial television in Flanders, but there was a lack of more information that would be valuable in detecting and targeting them. The available studies state that about 60,000 households (about 2.5% of Flemish households, Bourgeois, 2006) are exclusively analogue terrestrial television viewers, a very small group in comparison with the cable subscribers. In addition to this, between 80,000 and 180,000 households are assumed to combine multiple distribution platforms: watching via antenna gives them the opportunity to watch television in a second location at home, in a holiday home, or in a second residence (students, foreign workers) (Bourgeois, 2006). More detailed information about the geographical location or profiles of these groups of television viewers was not available however, which hampered their recruitment.

In The Netherlands, the research bureau GfK Intomart was faced with similar problems. They started their research with a survey of a representative sample (N=2009) for the total population in The Netherlands, resulting in the detection of only 21 'analogue terrestrial' households.

⁵ The study did not aim to estimate the exact number of 'analogue terrestrial households' since the Flemish Government already had such estimates.

In preparation for the research presented, we first of all consulted the CIM PMPA-studies (which are considered the most reliable and extensive analysis of media possession and media use in Flanders/Belgium [CIM, 2007]), were first of all consulted. which are considered the most reliable and extensive analysis of media possession and media use in Flanders/Belgium (CIM, 2007 Based on a sample of 10,451 respondents (from all over Belgium) and after filtering the respondents for Flanders (N=5.971), we were able to select 84 analogue terrestrial television viewers.

A first analysis and profiling of these 84 respondents has been done, but this was not enough to provide a solid and reliable basis to answer the research questions or for strategic decision-making. A broader study was necessary, forcing us to look out for more 'creative' ways of detecting analogue terrestrial television viewers and recruiting them for a more thorough study.

Commercial recruitment bureaus were of no help, since none of them was able to recruit on such a variable as 'antenna viewing'. Finally different recruitment techniques were combined in order to obtain an as large as possible sample of analogue antenna viewers: First, an article (with announcement) in two Flemish newspapers (De Standaard and Gazet van Antwerpen⁶); Second, an interview on the switch-off issue on a national radio programme, in which analogue terrestrial viewers were invited to identify themselves and take part in the study (Wilde Geruchten, Radio 1, PSB); Third, snowball sampling methods, starting from the identified analogue terrestrial viewers; Fourth, an announcement at Ghent University, Department of Communication Sciences; And finally 'the search for (roof) antennas' by wandering through certain neighbourhoods. Each of the detected viewers who was willing to participate in the research was invited to fill in their profile on a website which was created especially for this research (www.antennekijkers.be). Respondents who did not have an internet connection were contacted by telephone or face-to-face. The goal was to collect as many 'antenna viewers' as possible, being aware of the fact that this could also include respondents who watched television by antenna, yet fully digital.

Integration of quantitative and qualitative research

In the light of the research goals, a combined quantitative and qualitative research design was set up.

The first part of the study consisted of a quantitative survey to assess – on an as broad a scale as possible – the attitudes of antenna viewers towards television, switch-off and watching analogue terrestrial television, to examine their knowledge of the switch-off and to gain an insight into how they look at the future of television by asking their opinion about the possible alternatives for watching television after the analogue switch-off.

Considering the limitations of quantitative research for in-depth investigation, this survey was combined with qualitative research (focus group interviews with those people who were willing to participate in both types of research). This type of research allowed to get more precise answers to 'why-questions'. The respondents for the focus group interviews were selected on the basis of their answers in the

⁶ De Standaard is regarded as a quality newspaper, while Gazet van Antwerpen is regarded as more popular.

quantitative survey, which enabled us to reveal different segments of antenna viewers, each with their own particular reasons.

4.3) Main results

4.3.1. Profiling the antenna viewers

Different segments of antenna viewers

The quantitative survey resulted in 521 antenna viewers, not all the same in nature. Some of them use the terrestrial broadcast as the sole signal source in their main residence, while others limit the use of the antenna signal to watching television in a caravan or in a holiday home. Based on the questions about distribution platform(s), terrestrial viewers were divided into four distinctive segments. After all, there might be a difference in attitude or behaviour between them.

- Group 1: the primary antenna viewer (respondents having no cable or satellite at home, which obliges them to watch television by means of antenna. They have no other options available at home);
- Group 2: The secondary antenna viewer at home (these respondents do possess cable or satellite at home, but they also watch television via the antenna, for example, in the bedroom, in the kitchen, etc.);
- Group 3: The secondary antenna viewer in a holiday home/second residence (these respondents watch analogue terrestrial television exclusively outside of their home);
- Group 4: The digital antenna viewer.

GROUP	Number	N	Percentage
Primary antenna viewer	1	370	71.0
Secondary antenna viewer at home	2	36	6.9
Secondary antenna viewer in a holiday home/second residence	3	28	5.4
Digital antenna viewer	4	87	16.7
<i>Total</i>		<i>521</i>	<i>100</i>

Table 1: segmentation of antenna viewers

Given the specific nature of the fourth group of antenna viewers (digital terrestrial television), this paper does not further elaborate on them. The other segments are the most important groups within the scope of the study object (the analogue switch-off). As a result, the following results are applicable to a sample of 434 respondents.

Television-viewing behaviour

Obviously, the primary antenna viewers in our sample only watch television by means of antenna, and does this between one and two hours a day. The secondary antenna viewers spent more of their time in front of the television set. But these groups (2 and 3) reserve their analogue terrestrial television viewing for shorter periods, while cable or satellite television is preferred for longer periods.

The channel preferences of the primary antenna viewers are obvious, since they can only receive a limited selection of terrestrial channels, transmitted by the Flemish public broadcaster. They rarely watch other channels, and only when they are staying with friends or family.

Furthermore, the groups' preferences regarding television programmes were studied. Clearly in first place among antenna viewers are news and current affairs, followed by human interest programmes and serials. Soaps and reality television are not very popular. Watching movies on television differs greatly between primary antenna viewers and secondary antenna viewers: the last group does so more often. As mentioned above and as revealed by the qualitative focus group interviews, the primary antenna viewers 'compensate' for this by watching movies on DVD.

Attitudes towards television

To map out their attitude towards television, the respondents were presented with some statements. Table 2 shows the mean scores on each statement, measured on a five-point scale, divided by group.

	Group 1	Group 2	Group 3	
Watching television is expensive for what it has to offer	3.37	3.11	3.29	
I find it important to be able to receive foreign channels	2.90	3.94	3.32	
I find that there are not many interesting television programmes	3.70	3.14	3.14	
Television has a bad influence	2.76	2.53	2.54	
The government must provide a free basic range of television	4.15	4.31	4.18	
Watching television is a waste of time	2.78	2.28	2.29	
Television has a bad influence on social behaviour	3.07	2.89	2.89	
Watching too much television is not good for children	3.62	3.58	3.39	
Digital television, regardless of the provider, seems interesting	2.86	3.47	2.93	
Television keeps me informed of current affairs	3.57	4.08	3.93	
Watching television is relaxing	3.88	3.94	4.00	
Television is a manipulative medium	3.76	3.78	3.57	
I discuss what's on television with others	3.09	3.25	3.39	
Television is necessary to be part of social life	2.34	2.56	2.79	
I don't like watching television	2.35	1.97	2.14	
1 – 2	2 – 2.8	2.8 – 3.2	3.2 - 4	4 – 5
I do not agree at all	I do not agree	Neutral	I agree	I fully agree

Table 2: mean scores on attitude statements towards television

The three groups stress the fact that government must provide a free basic range of television. They all like watching television. It is quite relaxing for them, but it is considered in the first place as an 'information medium' (especially members of group 2).

Despite this overall positive attitude, most antenna viewers do have their reservations regarding television as a medium. Most are rather anxious about the manipulative nature of the medium and its negative influence on children. The group of primary antenna viewers in particular seems to have a rather critical attitude towards

television. They also complain about the lack of interesting programmes, and they certainly do not perceive television as a necessity for their engagement in social life.

To summarise, the Flemish antenna viewers in our sample are only moderately enthusiastic about television. They all value it as news medium, but at the same time are quite reserved, for different reasons. The most critical group is the group of primary antenna viewers. Lastly, for the first and the third group watching television via antenna also seems to be determined in some cases by a resource allocation decision: watching cable television is too expensive in relation to what it has to offer.

Watching television via the antenna

The satisfaction of antenna viewers with signal quality and programme range is also measured, on a scale ranging from 0 to 10. The Flemish antenna viewers in our sample do not seem to be 'high demanding' viewers. Despite reception being more susceptible to weather conditions and a more limited range of programmes, they do not have outspoken complaints. In general, it can be noticed that all the antenna viewers are quite satisfied with the quality of reception. The primary antenna viewer shows a higher degree of satisfaction than the other two groups, when it comes to the programme range.

When asked to sum up the (dis)advantages of watching analogue terrestrial television, the advantage most often mentioned is the 'conscious viewing pattern'. The primary antenna viewers in particular stress that they want to protect themselves and their household members (e.g. children) from the oversupply of television channels and television programmes, and the waste of time which could result. The main disadvantage is temporary reception problems. For example, snow and fog can easily disturb reception. A second disadvantage is the limited choice of programmes available, but – again – most respondents put this in perspective.

4.3.2. Awareness of and attitude towards the analogue switch-off

Awareness of the analogue switch-off

The knowledge about the analogue switch-off at the moment of the investigation is rather limited. A lot of antenna viewers know they have to search for an alternative after the switch-off and they seem to believe that they will have to pay more for watching television. Some antenna viewers take the view that this process has something to do with technological progress (better image quality, digital reception), but a lot of them still have questions about 'what' and 'how' and 'why'. This uncertainty has its consequences: the antenna viewers have the feeling that they are being forced into a technological revolution they actually do not want and there do exist false assumptions (for instance that people who watch via analogue cable also have to switch to digital cable). The feeling to be forced into the digital era is also noticed by other European studies (Klein et al, 2004:13). The antenna viewers complain about a lack of information, although the government has (when the research was carried out) not yet officially started to communicate on the reasons for this transition, and the public broadcast service considers digital terrestrial transmission still to be in a 'preliminary' stage.

Attitudes towards the analogue switch-off

Uncertainty and the lack of information about what will happen could lead to a rather negative attitude. In order to examine these attitudes more into detail, the respondents were confronted with the following statements.

	Group 1	Group 2	Group 3	
The government must provide – even after the analogue switch-off – a free basic range of programmes	4.61	4.47	4.37	
It is unfair that I will no longer be able to watch television by means of the analogue antenna	4.10	4.14	3.74	
All the other alternatives are impossible for me for financial reasons	2.34	2.31	3.04	
I don't wish to invest any money in the other alternatives	3.76	3.17	3.44	
The analogue switch-off is no problem for me, I'll just switch to another way of watching television	2.48	2.75	2.41	
If I can't watch anymore via the antenna, I'll just stop watching television	2.72	2.36	2.85	
Analogue terrestrial television is outdated	2.17	2.31	2.19	
1 – 2	2 – 2.8	2.8 – 3.2	3.2 - 4	4 - 5
I do not agree at all	I do not agree	Neutral	I agree	I fully agree

Table 3: attitudes towards the analogue switch-off

The opinion of the three groups of antenna viewers is clear-cut when it comes to the government's role in this migration process: they fully agree that the government must provide a free basic range of programmes. They also feel somewhat unfairly treated, since they will no longer be able to watch analogue terrestrial television without adding a decoder to the equipment they currently use. The secondary antenna viewers in a holiday home/second residence are more moderately in their judgment. The mean scores indicate that all antenna viewers in our sample seem to be able to buy an alternative (except for the students as part of group 3), but at the same time, they are not really willing to do so. Finally, the antenna viewers rather agree with the fact that the analogue switch-off is a problem for them, because they still want to keep on watching television. They seem to rely on government and the public service broadcaster for more information and guidance.

Which kind of information do they need?

The majority of antenna viewers in our sample wishes to receive more information about the alternatives, their possibilities and the cost implications. They also wonder whether they will be able to receive the digital signal via antenna and whether the reception quality will be good enough.

In general, the studied antenna viewers need to know more about 'why', 'how' and 'when'. As mentioned earlier, this uncertainty could cause a rather negative attitude towards the analogue switch-off. The respondents in the qualitative research, however, are of the opinion that financial incentives would not be necessary for the majority of the antenna viewers, except for socially weaker groups in society.

4.3.3 What are the expectations after the analogue switch-off?

Knowledge of the possible alternatives

The research data immediately revealed a certain uncertainty about the advantages or disadvantages of the possible 'post-switch' alternatives. Due to a lack of information, the antenna viewers seem to be not adequately informed about typical aspects of the different alternatives when it comes to purchasing infrastructure equipment, installation procedures, the terms and formulas of subscription, and the programme and channel range.

Evaluating different scenarios

In the last step in the study, the antenna viewers were confronted with a complete description of the possible alternatives for watching television after the analogue switch-off, and the implications in terms of equipment, installation procedures, types of subscription, and programme and channel range. After being informed about the possible alternatives, the respondents were asked to rate each of them with a score between 0 and 10, indicating their level of interest.

			Group 1	Group 2	Group 3
Scenario 1: Digital terrestrial television			8.22	6.67	7.44
Scenario 2: Analogue cable			1.92	1.86	3.07
Scenario 3: Digital cable			1.33	1.31	2.41
Scenario 4: Digital satellite			2.37	3.94	4.15
Scenario 5: IP-TV			2.03	1.89	1.11
Scenario 6: I stop watching television			3.14	2.94	3.52
0 – 2	2 – 4.5	4.5 – 5.5	5.5 – 8	8 - 10	
No interest at all	Not interested	Neutral	Interested	Very interested	

Table 4: evaluation of possible scenarios – after the analogue switch-off

The results seem to be very explicit: the antenna viewers in our sample clearly prefer digital terrestrial television as the alternative after the swith-off. The other alternatives (analogue cable, digital cable, digital satellite, IP-TV, and stop watching television) do not seem to interest them. Some small differences, however, can be noticed: in general digital satellite gets the highest score and the secondary antenna viewers in a holiday home/second residence have a slightly higher score (of interest) than the other groups when it comes to certain scenarios.

5) Conclusion & discussion

The European Commission urged the Member States to finish the analogue terrestrial switch-off by the end of 2012. There are wide variations between countries about the possible date of migration, but some are clearly trendsetters. The Netherlands was one of the first countries to switch-off and Flanders will follow that example in November 2008. The reason for this early switch-off is quite logical: both regions have a very high cable penetration, so the number of people who are affected by the upcoming migration process from analogue to digital terrestrial television signals is quite limited. Nevertheless, government authorities together with

the public service broadcaster should take their responsibilities in order to guarantee a smooth transition. Therefore, they need strategic insights into the motivations of people for watching television via antenna and their expectations towards the future. This understanding is a precondition to deal with the analogue switch-off in a strategic way, particularly with regard to guaranteeing 'universal access' of public channels to the citizens.

The idea of 'universal access' could – given the analogue switch-off – indeed be endangered. A substantial proportion of the citizens who currently watch television by means of an analogue antenna signal, could fear exclusion or could be neglected after the analogue switch-off. In the light of democratic and social ideals, the government and public broadcasters must therefore be aware of this problem and must set up an information and communication campaign in order to inform about the analogue switch-off and the possible alternatives afterwards.

On the basis of quantitative and qualitative research, three types of analogue antenna viewers can be distinguished: the primary antenna viewers (respondents having no cable or satellite at home), the secondary antenna viewers at home (these respondents do possess cable or satellite at home, but they also watch television via the antenna), and the secondary antenna viewers in a holiday home/second residence. Each of the groups has specific demands concerning the migration from analogue to digital terrestrial television.

Based on the research presented, government has to bear some details in mind: First, a substantial majority of the present primary antenna viewers are technically and financially able to subscribe to cable television, but prefer not to do so; Second, the analogue antenna viewers wish to continue watching television at the present location, and expect to have the same free programme choice after the analogue switch-off; Third, some of the secondary viewers do not (yet) identify themselves with the community that will be affected by the analogue switch-off, so they might be taken by surprise when the transition takes place; And finally, less affluent and less technically skilled viewers might expect financial and/or practical support as part of the switchover process. In this perspective, we might not neglect the households who watch television by antenna because of a lack of financial resources. Moreover, they will probably hesitate to step forward in an open survey to 'express' themselves as antenna viewers.

The results of the research served as basic knowledge for setting up a communication and support strategy for the analogue switch-off. From the beginning of 2008 this communication campaign was set up by government, together with a PR company. In two waves and via different channels (television, newspapers, radio spots and an informative website: <http://www.wegmetsneeuwopjetv.be>) television viewers are provided with information about the analogue switch-off and the reasons behind this migration process. In addition, a clear overview of the possible alternatives is presented, with a focus on digital terrestrial television as an alternative. The campaign is launched long before the actual switch-off in order to stimulate antenna viewers to migrate earlier than the final countdown. In the second wave ticker tapes will alert antenna viewers via their television that the analogue switch-off is approaching.

This research was conducted to guide the Flemish government and public service broadcaster in the transition to the analogue switch-off, helping them to develop a well-balanced communication plan and strategy. Of course, the strategies can differ greatly between countries. However, some of the results may be valid or may be of aid 'beyond boundaries'. This study particularly demonstrates that the user has its own agenda, i.e. not adopting or not accepting every innovative technology or strategy which is pushed forward from a top-down perspective. With regard to policy strategies, a user-driven approach seems to be necessary in the transition to the digital era.

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