

The evolution of the citizen's behaviour towards the process of transition to the DTT in the Region of Murcia (2006 - 2009)

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Abstract

The Region of Murcia experiments June 30, 2009, the first phase of transition to the DTT in 18 municipalities. The second stage, which includes the rest of populations, produces April, 2010. The research group DIGITALAC initiates in June, 2006 a longitudinal study that, like barometer, comes measuring annually the degree of awareness, perception and penetration of the DTT in the Region of Murcia, taking into account that which the citizen is one of the principal agents of the unfolding of the DTT.

The Region of Murcia presents certain singularities as for television that they are determining the citizen's behaviour towards this new technology and influencing, definitively, on the process of adjustment the homes into DTT in the Region.

The principal aim of this article is, on one hand, identifying the factors that are determining the way and pace of the migration to the DTT in the Region of Murcia and its consequences and, on other hand, analyzing the evolution of the citizen's knowledge and perception of the DTT in the last five years (June, 2006 to April, 2009).

To reach this goal, the information of the studies conducted by the research group DIGITALAC in the Region of Murcia in the interval of time 2006-2009 used. Although the methodology has been completed along the different editions of the studies, since it is a work in progress, all the studies use the same methodological instrument: the opinion survey. The opinion survey was designed using normal methodology from quantitative, distributive projects: a polyetapic representative sample was selected from the universal study object (population of the Region of Murcia -1.200.000 inhabitants-) made up of samples by sex, age and geography; the questionnaire was designed, the survey carried out and the data displayed. The number of selected individuals was 1.111 which supposes working with a sample mistake of $\pm 3\%$.

The works developed in this line of research are helping to orientate the policies of the regional Administration, materialized in the Plan de encendido digital 2008-2010. Plan para la implantación de la televisión digital terrestre en la Región de Murcia, designed by the Secretariat of Audiovisual and Digital Contents of the Council of Presidency.

Keywords: terrestrial television switch-off; citizen's behaviour; TV access; information; knowledge; perception.

1. The citizen within the framework of the European Union DTTV transition policies

The switchover process to digital broadcasting in Europe has become an opportunity for the European institutions to unify the standards on the transmission of TV signals and also to benefit the whole audiovisual industry of the region. In this sense, both the European Parliament and the Council approved in 1995 the Directive that considered "appropriate measures to promote the accelerated development of

advanced television services... using fully digital transmission systems...¹. It was conceived to develop and promote specifications "...before the introduction to the market of services linked to digital television"². In order to achieve these goals, both institutions urged the Member States to include the contents of this Directive in their own legal systems.

Some years later, in May 2002, due to the passivity of some countries to implement Digital Terrestrial Television, the European Commission warned these countries that had fallen behind. Within the framework of the Action Plan e-Europe 2005, they were invited to announce during 2003 the dates of the switch-off of analogue television broadcasting³ and to create transparency on the transition process⁴. Some months later, the European Parliament updated this issue and the Member States were required to "give maximum priority in their local agenda to the development of digital television"⁵.

Despite the insistence to define the dates of the digital transition, the European Commission expressed in their Communication of May 2003 that there was no intention to take "any position on the timing of analogue switch-off..."⁶. The institution considers that the decision must be adopted by the national governments and that "there is no single switchover pattern or formula."⁷, as this pattern or formula depends on particular local aspects.

Nevertheless, as some countries did not concrete a date for the analogue switch-off, in May 2005 the European Commission launched a communication on accelerating the transition from analogue to digital broadcasting. This time it was more forceful. This communication proposed the beginning of 2012 as the deadline for the transition⁸ and urged the countries that had not announced a date for the analogue switch-off yet not only to announce it before the end of 2005 but also to include a digital migration plan. The pretension of the Commission with the issue of that document was to force the countries to advance in their national processes in order to achieve a complete European switch-off in 2012.

Some months later, in October 2005, the European Parliament presented a resolution about the conversion to the digital broadcasting system in which it also asked the Member States to "reduce to the minimum the period of parallel broadcasting in order to avoid elevated broadcasting costs and a delay in the conversion"⁹.

¹ Directive 95/47/EC of the European Parliament and of the Council of 24 October 1995 on the use of Standard for the transmission of television signals. [Official Journal L281, 23/11/1995 p.0051-0054]

² Idem

³ Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions e-Europe 2005: an information society for all. Brussels 28.5.2002 COM (2002) 263 final

⁴ García Leiva, M^a Trinidad, *Políticas públicas y televisión digital. El caso de la TDT en España y el Reino Unido*, CSIC, Madrid, 2008, p. 88.

⁵ Resolution of the Parliament claiming an Action Plan to successfully introduce digital television in Europe. Answer to question B5-0254/2002 (9/16/2002) in <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+PRESS+BR-20020902-S+0+DOC+XML+V0//ES> [access 3/20/2010]

⁶ Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on transition from analogue to digital broadcasting (from digital 'switchover' to analogue 'switch-off' COM (2003) 541 final (17.09.2003) P.5

⁷ Ibidem p.8

⁸ Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on accelerating the transition from analogue to digital broadcasting COM (2005) 204 final (24.05.2005)

⁹ Resolution of the European Parliament about the conversion to digital broadcasting (10/6/2005) RE\583399ES.doc p.3

In the beginning of 2009, three years before the final analogue switch-off in Europe, the results of the transition in the Member States are positive according to the Manager of the European Commission of Information Society and Media¹⁰. In February 2009, there are five States that have already interrupted their analogue broadcasting —Germany, Finland, Luxemburg, Sweden and the Netherlands— and there are six countries that will do so during 2010 —Austria, Denmark, Slovenia, Estonia, Malta and Spain—. At the end of 2012 another thirteen countries will switch off —Bulgaria, Czech Republic, Cyprus, Greece, Slovakia, France, Hungary, Italy, Latvia, Lithuania, Portugal, Romania and United Kingdom.

Until 2009 the European policies about transition to digital terrestrial television have given an important role to the citizens as they are not just a link of the process. On one side, if necessary, they must get and pay for the equipment changes required so that the community they live in can receive DTTV signals. On the other side, they must buy a proper device for the reception of such signals. This means that the global process of transition depends mostly on the wishes and the actions of the citizens¹¹.

As stated by the European Commission in its Communication of 2003, the digital conversion is not only a complex process “with social and economic implications going well beyond the pure technical migration”¹², but also a change that implies many different parts, not only related to industries and public authorities but also, and most importantly, to users or consumers.

For the European institution the great challenge for the Member States is “on the reception side: to replace or upgrade the huge installed base of analogue receivers”¹³, as they must “...ensure that most users are equipped with digital receivers...”¹⁴, a challenge that seems to be a previous condition for the termination of analogue broadcasting. To achieve it, the Commission insists on the fact that consumers must be provided with proper information. The knowledge about the transition process will contribute to improve not only their perception of the new technology but also their tendency for the change.

Concerning the date of the analogue switch-off, the European institution considers that users “they should be well-informed of the timing and consequences of switchover so as to take their own decisions...” so that users can “...plan their own migration rather than being forced and thus deprived by this process”¹⁵.

Concerning the technological equipment required the Commission states that “consumer information is crucial to drive digital equipment sales in a market-led approach to switchover”. On the other hand, citizens must have practical information about “...what various devices can offer, what are the prospects of analogue equipment obsolescence and the possibilities for upgrading”¹⁶.

¹⁰ Press relief “EU Members status on course for analogue terrestrial tv switch-off” (16.02.2010)

<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/09/266&format=HTML&aged=0&language=ES&guiLanguage=en> [access 03/10/2010]

¹¹ This action implies costs between 30 or 300 € depending on the household conditions

¹² COM (2003) 541 final. Op cit. p.4

¹³ *Ibidem* p.6

¹⁴ *Ibidem* p.15

¹⁵ *Ibidem* p.16

¹⁶ COM (2003) 541 final. Op cit. p.19

In order to accelerate the transition process, the Commission also invites the Member States to make the users aware of the advantages of digital television "...as Hill popular understanding of the additional benefits that can be obtained following the termination of analogue terrestrial television"¹⁷. In this sense, the Commission also encourages the States to develop "...an effective strategy to inform consumers about program availability on digital platforms and the equipment needed to receive such programs"¹⁸.

The need to inform users as the main agents in digital conversion is a recommendation already highlighted in 2002 by BIPE in its consulting study required by the European Commission¹⁹.

This study already revealed the existence of a great confusion among consumers about the concept of digital television and recommended information campaigns about DTTV led by public institutions.

The study indicates that the success of the digital transition depends on the behavior of the citizen, influenced by the policies of information about digital terrestrial television. It recommends a follow-up on the predisposition of the citizens of a Spanish region to make digital migrations according to the information and knowledge they have about DTTV.

The present work is developed considering the BIPE's recommendations already suggested in 2002 through the study *Digital Switchover in Broadcasting*, required by the Commission. The consulting report urges the public institutions to promote studies about "consumer's behavior and expectations towards DTV"²⁰, and to regularly measure the level of implementation of digital terrestrial television in its region.

2. Objective and methodology of this research

On one hand, the main objective of this research is to test if the Spanish digital transition policies are properly adapted to European directives, and on the other hand, to analyze the evolution of the behavior of the citizens in one Spanish region concerning DTTV. For this research, we have chosen the Region of Murcia because it is a Spanish region that only has one province and some particular features regarding television consumption as there is a great number of cable television consumers.

To achieve the goals of this research we focus on the following partial objectives:

1. To study national policies regarding digital transition and to value if they are adapted to the European legal framework.
2. To know about household broadcasting equipments.
3. To measure the level of DTTV penetration and the access to pay TV in the region of Murcia.

¹⁷ COM (2005) 204 final p. 7

¹⁸ *Ibidem* p.5

¹⁹ BIPE Consulting study for the European Commission, *Digital switchover in broadcasting* (April 12, 2002) p.197

²⁰ *Ibidem*

4. To determinate if the citizens of the region of Murcia are properly informed about DTTV and where this information comes from.
5. To evaluate the knowledge of the people of the region about the contributions of DTTV.
6. To get the feeling or perception of the people regarding DTTV.
7. To identify the characteristics of the households equipped with DTTV (dated: June 2009).

This work implied two different methodologies. To achieve the first goal, we studied the information related to the campaigns of public institutions concerning digital transition and we analyzed legal documents issued by the different departments of the Spanish Ministry of Industry, Tourism and Commerce and the Ministry of Science and Technology.

To achieve the rest of partial objectives, we developed an empirical research. This part of the research is considered a study that works as a barometer to measure year by year (from 2006) the level of knowledge, perception and penetration of the citizens regarding DTTV in the region of Murcia. The methodological tool implies an attitudinal survey that has taken place every month of June of the last four years (from June 2006 to June 2009).

The object of the study implies 1,153,855 people, aged fifteen and older according to the municipal register of citizens (CREM). The sample we have chosen implies 1,111 people and it is multistage, probabilistic and stratified proportionally to the number of citizens registered in the 45 cities of the region of Murcia and according to their age and sex. The selection is simple aleatory. There is only one survey per household and the interviewed person must live in the selected address. The sample error is $E=+-3.0\%$ and the confidence level reaches a 95.5%. The fieldwork of this survey has been done by the company IMAES.

The age variable is defined in three ranges: from 15 to 34 years (38.1%), from 35 to 54 years (34.5%), from 55 and older (27.5%). Concerning the sex variable, the distribution is 50.6% men and 49.4% women. The population variable defines a sample with 6.6% of cities of 10 thousand citizens, 14.7% of cities of 10 to 20 thousand citizens, 22.1% of cities of 20 to 50 thousand citizens and 56.6% of cities of more than 50 thousand citizens.

The questionnaire, designed by the research group DIGITALAC, has 37 questions, divided in different parts according to the topics: identification, DTTV equipment of the household, information about DTTV, knowledge and perception of DTTV, predisposition to DTTV, profile of the households equipped with DTTV, profile of the households with no DTTV access nor pay TV.

3. Digital transition policies in Spain

Concerning the transition process in Spain, the European Directive 95/47/CE issued by Royal Decree in January 1997²¹, allows the development of the proper mechanisms to start the process of introduction of digital terrestrial television as one of the different TV modes mentioned in the Directive.

The first reference to the need of a digital migration from Hertzian television included in the Spanish Legal System can be found on the Law 66/1997 dated 30th December²². It defines the legal aspects of this new television mode. Some months later, the first DTTV National Technical Plan was issued and approved in October 1998 and it establishes the basis for DTTV implementation. On one side, the text informs about the modes of migration from analogical television operators to digital systems and the arrival of new operators to this new market, and on the other side it announces a date as the deadline for the definitive transition: 3th April 2012.

In December 2003, according to the requirements issued by the European Commission and Parliament²³, the Spanish Government presents its Strategic Plan for the transition from analogical to digital television²⁴ which includes a description of the actions to achieve the digital transition in 2012.

Despite the efforts of the Spanish Government, at that moment the DTTV process does not progress properly and the situation is not positive for digital conversion. The launching of DTTV as pay television had been a failure because the company that was granted with the licenses of the 14 digital programs —Quiero TV— did not obtained good results, and in July 2002 they stopped broadcasting, due to subscribers' decrease and successive extensions of the capital²⁵. As a consequence of that interruption, the National Administration recovers the radio space. With the new Government in 2004, and after two years of no DTTV evolution (motivated by the bad planning of the multiplex, by the failure of Quiero TV, and especially for "the lack of coordination of the implied actors involved"²⁶), the strategy of digital technology implementation is modified. By the end of 2004, the new Administration decides to redistribute the digital programs that were released and empty up to that moment and it proposes a new date for the analogue switch-off: 3th April 2010. The socialist government is constituted, therefore, in the "great engineer" of the television²⁷ to present interesting reforms in his first stage of legislature²⁸.

²¹ Royal Decree Law 1/1997, 31st January, which includes in the Spanish Legal System the Directive 95/47/CE, 24th October, issued by the European Parliament and Council, regarding the use of regulations for TV signals broadcasting and the approval of additional measures to free this sector [BOE n°28, 01/02/1997]

²² Forty-fourth provision of the Law 66/1997, 30th December, concerning social, administrative and tax measures [BOE, n°313, 31/12/1997]

²³ In the Communication of the Commission of 2003 and the Parliament Resolution of the same year

²⁴ *Strategy Plan for the transition from analogue to digital television*. Ministry of Science and Technology. State Secretariat of Telecommunications and Information Society (12/18/2003)

²⁵ Ribés, Maité, "El origen de la Televisión Digital Terrestre en España. *Quiero Televisión*". On *Sphera Pública* n° 9, Murcia, 2009, p. 83

²⁶ Fernández Alonso, Isabel et al, "Políticas de implantación de la TDT local en España (2005-2006): los casos de las Comunidades Autónomas de las Islas Baleares, Madrid, Región de Murcia, Comunidad Valenciana, Galicia, Cataluña y Aragón". On *Observatorio (OBS*) Journal* 1, 2007, p. 206. On <http://obs.obercom.pt/index.php/obs/article/view/46> [Online article, access on 05/17/2010]

²⁷ Bustamante, Enrique, *La televisión digital terrestre en España. Por un sistema televisivo de futuro acorde por una democracia de calidad*. Documento de trabajo 129/2008. Madrid, Fundación Alternativas, 2008, p. 59

²⁸ Zallo, Ramón, "La política de comunicación audiovisual del gobierno socialista (2004-2009): un giro neoliberal. En *Revista Latina de Comunicación Social*, 65, pp. 14 a 29. La Laguna, Tenerife, 2010 On http://www.revistalatinacs.org/10/art/880_UPV/02_Zallo.html#_end11 [Online article, access on 06/21/2010]

In May 2005 the Commission Communication about digital transition acceleration states that Spain appears as one of the countries that is committed to finish the transition to digital terrestrial television in 2010. Also in 2005, digital transition agents start to develop the necessary tools for the transition to be completed in 2010. The "Association for the digital terrestrial television implementation" was created by national and local broadcasters and the main network operator. The aim of this entity is "to promote digital terrestrial television and the process of transition to DTTV in Spain, with permanent and direct collaboration with the Government"²⁹.

The new planning for the transition to digital television, approved by the Ministry of Industry, is presented in September 2007³⁰. The Office of Transition was created to make this planning effective and it was responsible for the coordination of the actions undertaken by the Government and the different regional administrations. The migration is defined by the National Plan of Transition as a staggered process, according to the regional areas and scheduled in three periods. The first period must end in June 2009, the second one in December of the same year and the last and ending the process in April 2010.

In Spain, the articulated measures to inform the citizens appear in the first DTTV Technical Plan of Transition in 2003. It expresses the need to develop a Communication Campaign to inform "citizens properly about digital terrestrial television, its advantages, the services it implies and their availability and what is required in order to receive them"³¹. Although at that moment some actions had already been undertaken³², the most relevant processes are promoted in 2005 with the re-launching of the DTTV in Spain. That year Impulsa TDT was created, an association integrated by public and private television operators and network operator Abertis that along with the Ministry of Industry, Tourism and Commerce has promoted many awareness campaigns about digital migration³³. They developed different activities for the citizens such as on-line information, advertising campaigns on TV, advertising on local media, DTTV experience days, information points, information buses, information screens and brochures³⁴.

Actions at national level are complemented with local and regional campaigns. In the Region of Murcia regional institutions have developed their communication plans in collaboration with the city councils. These aspects imply that the awareness campaigns in Spain have been defined in three levels. At a national level

²⁹ On <http://www.impulsatdt.es> [access on 04/25/2010]

³⁰ Agreement by the Council of Ministers which approves the National Plan for the transition to digital terrestrial television available on www.impulsatdt.es/pdf/plan-nacional-transicion-tdt.pdf

³¹ Strategy Plan for the transition from analogue to digital transition. State Secretariat for Telecommunications and Information Society. P.13

³² As the distribution in Spanish households of one million of information brochures about digital TV

³³ Press release of the Ministry of Industry, Tourism and Commerce. "Miguel Sebastián: DTTV is the TV of everybody" (03/30/10). Access on 04/30/2010 through <http://www.televisiondigital.es/Herramientas/Novedades/Paginas/ActodebienvenidaalaTDT.aspx>

³⁴ "Information campaigns about DTTV have been continuous since the beginning of the process. These actions have implied; the promotion and creation of Impulsa DTTV (the group of public and private televisions + Abertis); 7 new national TV campaigns and 19,768 advertisements on local media; information for 8,034 City Councils, with direct live information in more than 3,500 of them; information for more than 2.8 million citizens thanks to information points; distribution of 9.5 million brochures; screen-banners in analogue channels to inform about switch-off dates. During the transition process we have also found information points and buses in more than 3,300 cities. At this information points a group of engineers have personally answered the questions of the citizens". From the press release of the Ministry of Industry, Tourism and Commerce. "Miguel Sebastián: DTTV is the TV of everybody". (03/30/10) access on 30/04/2010 through <http://www.televisiondigital.es/Herramientas/Novedades/Paginas/ActodebienvenidaalaTDT.aspx>

the tendency to the change has been measured by Impulsa TDT, but at a regional level the implementations have been studied by the regional administrations.

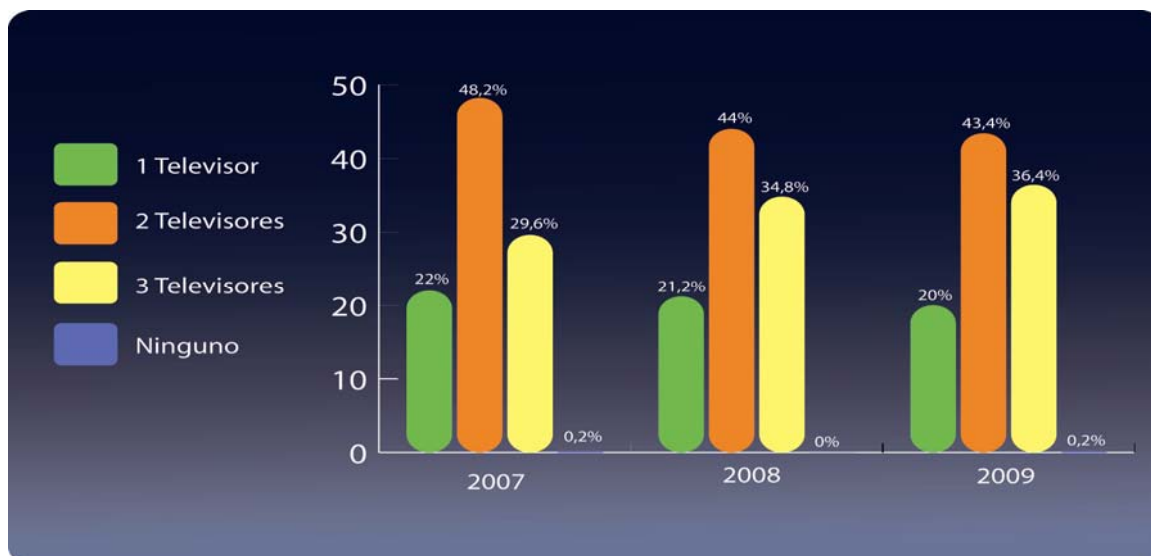
4. The study of the evolution of the citizens' behavior regarding DTTV transition in the Region of Murcia

From April 3th 2010, DTTV is the only way to watch open TV in Spain. Digital terrestrial technology gives the citizens the chance to access a new concept of television that includes more channels, a better image and sound quality and the possibility to use interactive services. Citizens are defined as the final consumers of digital terrestrial television but their contribution in the migration process is very relevant as the success or failure of the technology depends on their behavior. In this sense, as mentioned below, it is important to value the evolution of their role in a particular area —the Region of Murcia— regarding DTTV transition from 2006 until 2009. For this purpose we analyze aspects related to household technical equipment; access to television, particularly to digital terrestrial television; the degree of information they receive about DTTV; their knowledge about DTTV; their perception about DTTV; and the profile of the households with access to DTTV.

4.1. The household broadcasting technology

The technological context in the household is the first aspect taken into account for the present study. During the last four years a progressive increase in television equipment is noticed in the Region of Murcia. 29.6% of the households have 3 TV sets in 2007 but this percentage is increased up to 34.8% in 2008. In 2009 the percentage is 36.4%.

Grafic 1. Television equipments



Source: own study ³⁵

With the arrival of the digital switchover, the families of the Region of Murcia seem to have a tendency to buy new television equipments because more than half of the total population of the region has a plasma or LCD television set. One year before, in 2008, flat screen sets are only present in 38,6% of the households. In many cases, the decision to buy a new TV implies the option to buy a better equipment also including High Definition (HD) and not only flat screen. In 2009 nearly 6 out of every 10 citizens with a flat screen set also have High Definition.

The broadcasting technology equipment of the households in the Region of Murcia is complemented with the also known as "accessory" broadcasting equipment: DVD and Home Cinema. The percentages of implementation of these systems do not change during the four years of this research. DVD is present in 82% of the households and the penetration of Home Cinema is about 22%.

4.2. TV access

The percentage of citizens in the Region of Murcia that only have access to open TV is very elevated: 59.9% in 2009 (6 out of every 10). Nevertheless, there is a relevant increase in the number of citizens that decide to pay to watch TV during the four years of this research. In this sense, 34.4% has access to pay TV in 2006. One year later this percentage increases nearly 2 points and it reaches 36%. An important

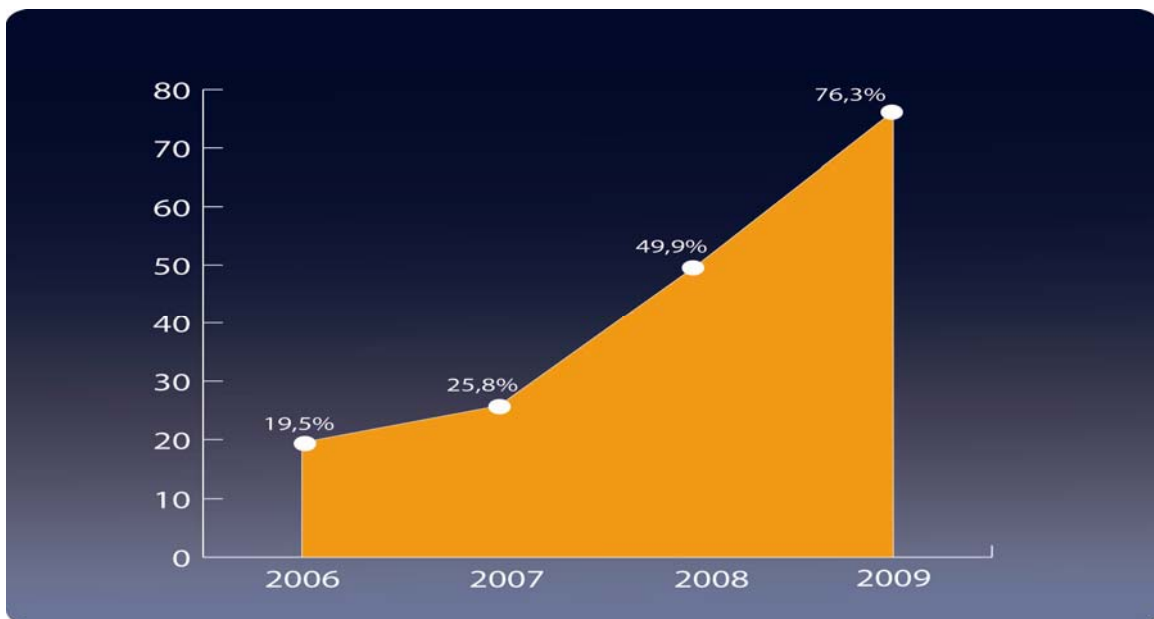
³⁵ Graphics designed by Juan Francisco Hernández Pérez, member of the research group Digitalac

increase arrives in 2008, the percentage being 42.8%, more than 6 percentage points. In 2009 more than 4 out of every 10 citizens in the Region of Murcia (40.1%) have pay TV at home.

In the households of the region with conditional access to television, cable is the option with the highest number of consumers and the number increases year after year. 50.5% are consumers of this TV access mode in 2006. In 2007 the number of citizens of the region that pay for cable television services is 71.1%. In 2008 the percentage of consumers is 73.1%. This is the highest number during the four years of study. Finally, in 2009 the percentage of cable television users is 72.5%.

The access of citizens to digital terrestrial television —an open television, conceived as the technological substitute for analogue television— has grown very quickly during the four years of this research. In this sense, we can state that according to the awareness survey data, the penetration of DTTV in the households of the Region of Murcia changes from 19.5% in 2006 to 25.8% in 2007, 49.9% in 2008 and 76.3% in 2009.

Grafic 2. Evolution of TV access



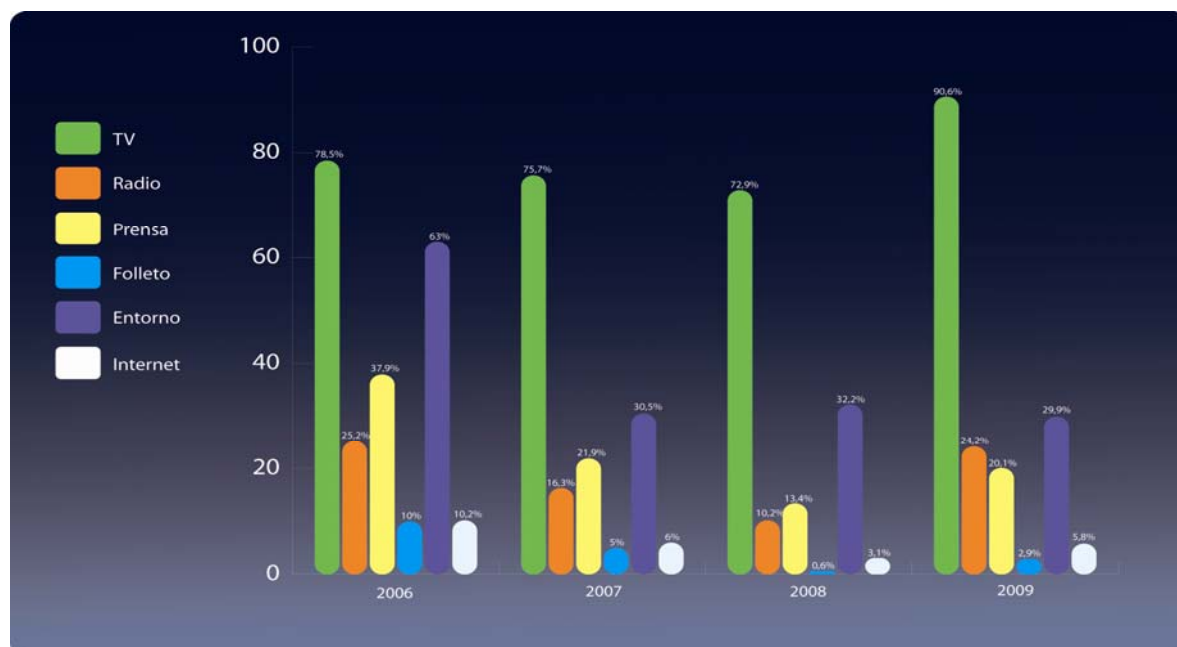
Source: own study

4.3. Reception of information about DTTV

During the four editions of the awareness survey that takes place in the Region of Murcia, we consider that it is relevant to value the access to information about DTTV and the sources of such information. The citizens of the region think that they have been properly informed during the digital transition process, according to the survey results. In 2006 nearly 80% of the interviewed people state that they have been properly informed about digital terrestrial television. The next year (2007) the percentage is 77%. Nevertheless, the imminent digital switchover causes a dramatic increase in 2008 and the percentage is over 90%. In the same way, 97.4% of the citizens of the Region of Murcia consider that they are informed about DTTV according to the survey in 2009.

The citizens of the region may have received information about DTTV through different ways. Television, radio, newspapers, information brochures, internet or their own environment are some of the possibilities to access information about DTTV. Television is the most relevant source of information for the interviewed people of the four editions of this research. From 2006 to 2008 the percentage of people that have been informed through this source ranges between 72% and 79%. But in 2009 there is an important percentage increase. This year there is a great amount of campaigns on TV about DTTV which cause a higher number of citizens who receive information through this source and the percentage is 90.6%. The second source of information about DTTV is their "environment". Relatives and friends have an important role in the process of digital migration. The rest of information sources have different roles on the process.

Grafic 3. Evolution of information about DTTV



Source: own study

4.4. Knowledge about DTTV

Even though the citizens of the Region of Murcia state that they have proper general information about digital terrestrial television, when they are asked about specific DTTV aspects, many of them ignore its special features. This research focuses on some of the most relevant indicators related to the knowledge of the citizens of the region about DTTV.

In the four editions it is observed that citizens are informed about questions concerning: the need to buy a decoder in order to access DTTV; the new technology being a free service; the higher number of channels; the improvement in image and sound quality and the possibility to choose a language to watch a movie. But they ignore the possibilities of DTTV concerning transaction services: managing personal data or documents, shopping, accessing weather or traffic information.

Nevertheless, the knowledge about all the features of DTTV is improving year after year. If we consider the results of the study according to the knowledge they have about a special feature, it is observed that: the higher number of channels is the first feature they know about DTTV during the four years of study: 86.7% in 2006, 88.7% in 2007, 92.3% in 2008 and 92.4% in 2009.

The image and sound improvement is an aspect known by an elevated number of people in the Region of Murcia. It is in second place in their "knowledge level". The evolution is 73.7% in 2006, 81.8% in 2007, 85.1% in 2008 and 88.5% in 2009.

The knowledge about the need to buy a decoder to watch DTTV is in third place. 73.4% of the citizens are aware of this aspect in 2006. 70.1% of the citizens know about this technological priority in 2007, 82.5% in 2008 and 85.9% in 2009.

The knowledge of the citizens about DTTV being a free service has suffered a dramatic evolution. This *item* which is in fourth place had a percentage of 59.4% in 2006, 70.1% in 2007, 81.8% in 2008 and 86% in 2009.

The date of the analogue switch-off can be placed in the fifth level of knowledge. Although there is no data about year 2006, the figures from 2007 to 2009 show an increase: 53.3% in 2007, 64.6% in 2008 and 76.4% in 2009.

The need to install a TV decoder is in sixth place. In this case we only have data of 2008 and 2009. In these two years there is an increase of more than 23 percentage points and in this short period of time it changes from 51.5% to 74.7%.

The possibility to choose a language when watching a film through DTTV is in seventh place. 45.9% of the citizens know about this aspect in 2006. This percentage is increased up to 56.8% in 2007. It is reduced in 2008 and the percentage is 51%. In 2009 there is an important increase: the percentage is about 58.9%.

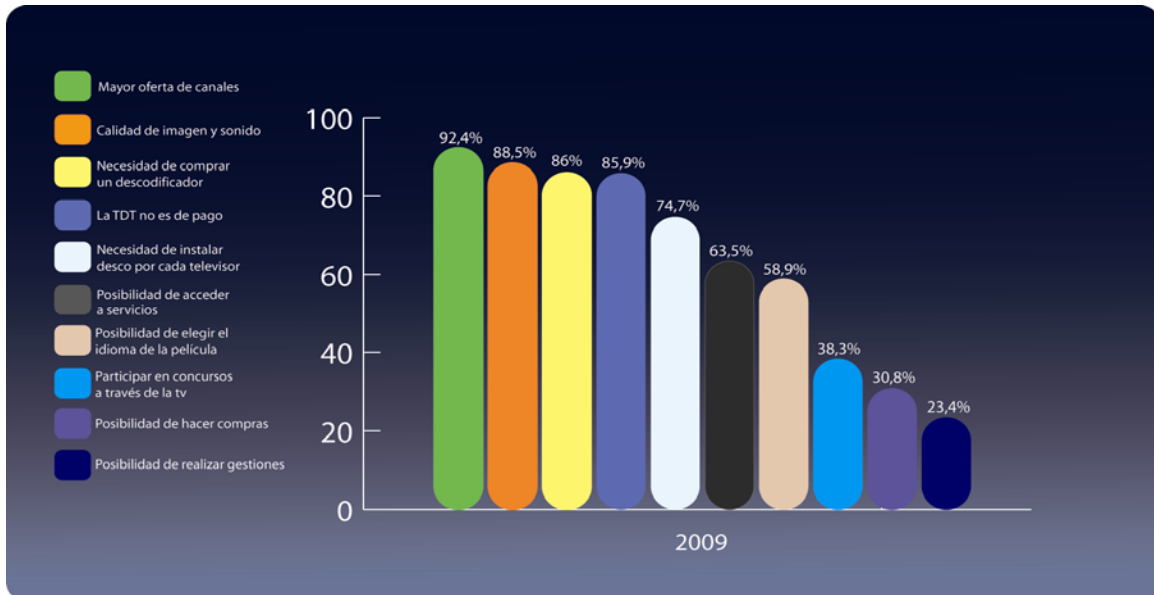
The possibility to have access to weather or traffic information on TV is in eighth position. This *item* has an important increase in the last two years: 53% in 2008 and 63.5% in 2009.

The possibility to participate on a TV quiz show through DTTV is one of the least known aspects of the digital technology. This is the reason why it is in tenth place. In 2006 only 35.6% knows about this possibility, nearly the same percentage that it exists in 2007 (37.1%). This percentage is lower in 2008 as it corresponds to 27.5%. In 2009, the percentage of citizens who have a proper knowledge of this feature is about 38%.

The option of DTTV to manage your own shopping or personal transactions through your TV set is the least known of the features and it has a variable evolution during the four years of research.

In 2006 only 13.7% of the citizens of the region have a proper knowledge about it. In 2007 the percentage of citizens who are aware of this aspect is over 25%. The level of knowledge decreases in 2008 and the percentage is 14.4%. In 2009 it has a new increase and the percentage is close to 23.5%.

Grafic 4. Knowledge about DTTV in 2009



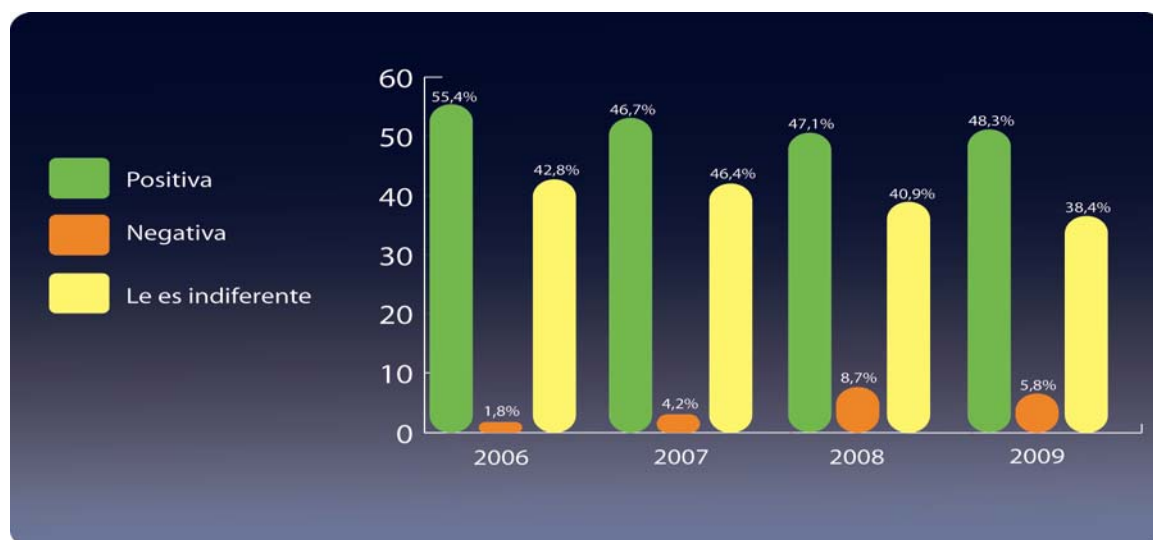
Source: own study

4.5. The perception about DTTV

Besides the knowledge about digital terrestrial television, our research developed from 2006 until 2009 has also considered the prejudices of the interviewed people against this new technology. The data of each of the awareness surveys has demonstrated that more than half of the citizens have a positive feeling towards DTTV. A percentage of 55.4% shows a good tendency regarding this technological change. This feeling has a little change in 2007 as 53.1% of the citizens of the region have a positive perception. The greatest decrease arrives one year later. In 2008 there is a decrease of more than two percentage points and the result is 50.5%. In 2009 there is a light increase and 51.1% of the interviewed citizens show a positive perception about DTTV.

Nevertheless, the lack of interest is a persistent feeling among the citizens of the region. This feeling slightly starts to disappear during the four years of this research. In 2006 the percentage of citizens who have no interest in DTTV reaches a 42.8%. One year later, in 2007, the interviewed people with no opinion about DTTV are about 42.1%. This lack of interest in DTTV is reduced in 2008 with a percentage of 39%. This decrease is higher in 2009 as the percentage of people who are unaware of the digital migration is 36.6%.

Grafic 5. Evolution of perception about DTTV



Source: own study

The data about DTTV perception in the Region of Murcia is also analyzed according to the sex of the population. In general men's perception about the technological change is more positive than women's. Although this positive perception of the men has variations during the four years of the research, the percentage has always been over 53%, and it was even over 60% in 2006. But the lack of interest in this group is also significant and the percentages have a range between 34% and 38%.

For women the positive feeling about DTTV has no relevant variations. Their percentages are not as high as men's percentages. The percentage of women who show a positive feeling towards DTTV is 49.5% in 2006. This percentage has a decrease of nearly three points in 2007 and it changes to 46.7%. It is slightly increased in 2008 and it gets a 47.1%. In 2009 the percentage of women with a good predisposition towards DTTV is 48.3%.

The women of the region who participated in this research seem more distrustful about DTTV than men. In fact, the data of the surveys demonstrates that in this group the positive feeling and the lack of interest are very close. In 2006 the percentage of women who find no benefits in DTTV reaches a 48.5%. In 2007, the women who have no interest in the process are 46.4%. The lack of interest towards digital technology is reduced in 2006 and the percentage is 40.9%. This decrease continues in 2009 and in this year the women who are not interested in DTTV are 38.4%.

The research about the perception is also made according to the age ranges of the interviewed citizens. The group of citizens who are aged between 15 and 34 years is the one that shows more interest in the technological change. In 2006 and 2008 the percentage of positive interest is nearly 60%.

People between 35 and 54 years are a little far from the young group. Although the percentage of people of this group with a positive opinion reaches a 59.7% in 2006, the percentage is reduced to 55.2% in 2007 and it has a decrease of more than six percentage points in 2008 (49%). In 2009 it is slightly increased and the positive feeling about DTTV among the people of this age corresponds to 51.2%.

Individuals over age 55 show a stronger resistance to technological change than younger groups and it is defined by their perception of the digital migration process. During the four editions of this survey, their positive feeling towards DTTV is never over 43.3%. The feeling of indifference among the citizens of the Region of Murcia is very high in all the age ranges but it is especially high among the interviewed people over age 55.

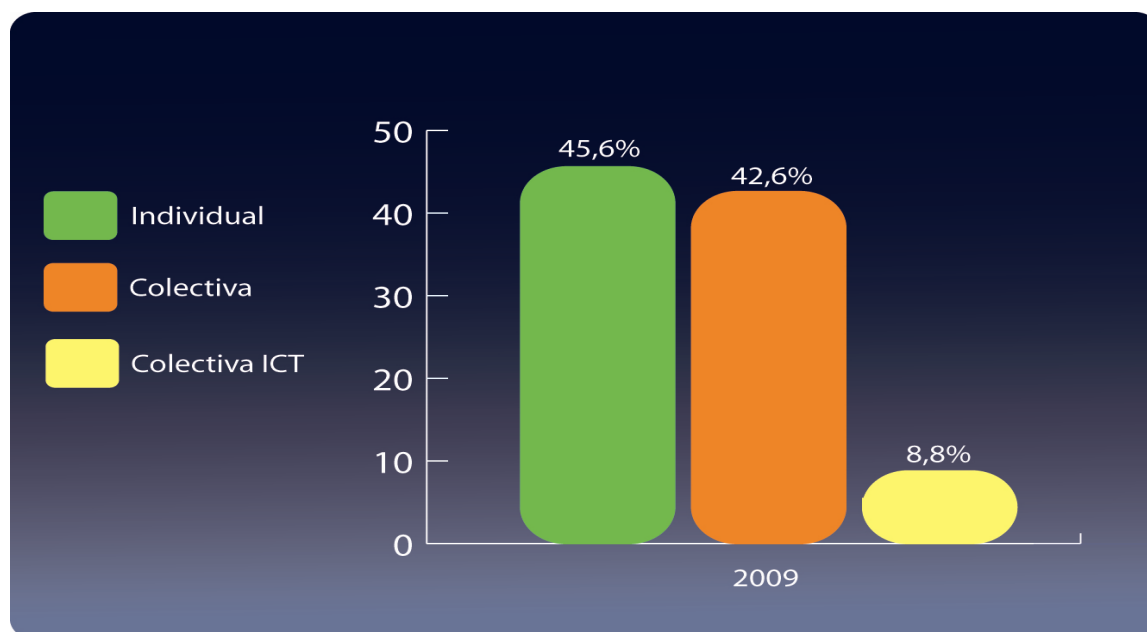
4.6. The profile of the households equipped with DTTV in June 2009

76.3% of the households in the Region of Murcia have a DTTV receiver in June 2009. These figures indicate that DTTV is installed in more than seven out of every ten households in the area.

It is relevant to know about different aspects of every household equipped with DTTV: the type of antenna, access to pay TV, the citizen's perception about DTTV, the type of decoder, the level of satisfaction to the new technology and the possible use of interactive services.

45.6% of the citizens with DTTV in the Region of Murcia have an individual TV antenna, and so their installation requires no modification. 8.8% of the households do not require an adaptation either because they have collective antennas that comply with the regulations concerning telecommunication installation (ICT). 42.6% of the citizens do need a technical modification to access DTTV (in case of buildings built before 1998).

Grafic 6. The type of antenna



Source: own study

Despite of the fact of having multichannel service thanks to digital terrestrial television, 34% of the citizens in the region also have pay TV.

Nearly 6 out of every 10 citizens with access to DTTV (57.7%) are equipped with basic external decoders, but integrated decoders (37.5%) and combo equipments (37.5%) are also an option in several households. In general the citizens of the Region of Murcia are satisfied with digital terrestrial television. Nearly half of the interviewed citizens who watch DTTV (56.4%) are happy with the channels which are available. Image and sound quality is an added value which is highly praised by nearly 80% of the citizens.

Regarding interactive services, the citizens of the Region of Murcia with access to DTTV use them very seldom. Only 8.2% of the interviewed citizens use them.

5. Conclusions

Concerning transition to digital television in Europe, the European Commission proposed a process in which the Member States were free to develop their own strategies. But finally the Commission had to get

involved in order to set a deadline and force the countries to plan their digital migration with the aim of finishing the process in 2012.

The priority of the European Commission to be successful in the DTTV transition of the Member States is providing the citizens with the information and knowledge required so that they can understand and face the digital technological change and the periods of time for such change.

The communication of the analogue switch-off dates and the planning of the transition required by the European Commission have been successfully accomplished in Spain. According to the directives of the European institutions, the Spanish Government has developed informative actions to make citizens aware of the digital system change at three levels: national, regional and local.

The Region of Murcia is a community in which the execution of the informative policies at the three levels, more intense in the last two years, has contributed to promote the technological change.

Although DTTV penetration in households of the Region of Murcia has been increased during the four years of research, it is from 2008 to 2009 when an incredible development is observed as it is extended to 8 out of every 10 households. The new technological broadcasting systems in the households, motivated by the arrival of the analogue switch-off, has contributed to the implementation of the digital transition in the region.

Citizens are informed about DTTV and are able to highlight the main characteristics of the new television (more channels, quality, etc.) but they still ignore the possibilities of DTTV concerning interactive services. The information about DTTV that citizens receive comes firstly from TV, then secondly from family and friends, in second place. But the perception doesn't improve in spite of the information and knowledge. People consider the change as an imposition.

Despite of the indifference of many men and women, the masculine group seems to be more receptive to digital migration than the feminine sector. If we consider age groups, young people are more interested in the technological change.

Pay TV market—especially cable TV— is consolidating and has important levels of penetration in the region. It seems that the implementation of an open multichannel TV as DTTV is not affecting pay TV.

Finally, Spain has overcome the challenge and today is one of six European countries that have finished the switch off.

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